Chapter 5
Biological Resources

5.1 Introduction

This chapter describes the biological resources within the project area (environmental setting) and the federal, state, and local laws and regulations protecting these resources (regulatory setting). It also identifies and evaluates the impacts that may result from project implementation and mitigation measures to reduce these impacts where necessary. The following sources were reviewed to prepare this chapter:

- A California Natural Diversity Database (CNDDB) records search for Sacramento County (California Natural Diversity Database 2010)
- A U.S. Fish and Wildlife Service (USFWS) list of endangered species, threatened species, and species proposed for listing for Sacramento County (U.S. Fish and Wildlife Service 2010)
- The California Native Plant Society's (CNPS's) 2010 online *Inventory of Rare and Endangered Plants of California* (California Native Plant Society 2010)
- The draft SSHCP (Sacramento County 2010a)
- Draft SSHCP GIS data (Sacramento County 2009)
- Aerial imagery of the project area (National Agriculture Imagery Program 2009)
- Published and unpublished literature and ICF file information

5.2 Environmental Setting

For direct impacts, the biological study area encompasses the project corridor and a surrounding 400-foot–wide buffer. For indirect impacts, it includes an additional 200-foot-wide buffer around the direct impact study area. Therefore, the total biological study area for most of the project area is an 800-foot-wide corridor centered on the project alignment. A narrower study area was assumed for the Off-Corridor Multi-Use Path Alternative (50 feet wide following the trail centerline). The biological study area was developed in coordination with the project's engineering and design team to ensure that the footprint for all project-related disturbances would be included.

5.2.1 Existing Conditions

This section provides a general overview of the environmental and natural resources occurring within the project area, which includes the location and climate of the project area, the land cover and biological communities, special-status species, jurisdictional waters of the United States, and other biologically sensitive.

5.2.1.1 Overview of Project Area

The western portion of the project area lies on the relatively flat alluvial plains of the Sacramento Valley; the easternmost portion occurs in the rolling topography of the lower Sierra Nevada foothills. Elevation area ranges from 12 to 725 feet above mean sea level.

The project area climate is generally described as Mediterranean, with hot, dry summers and cool, moist winters. The total average rainfall in Sacramento is 20 inches (National Weather Service 2010).

The project area is located within three major watersheds: the American, Cosumnes, and Sacramento Rivers. Chapter 10 provides an in-depth discussion of the surface waters in the project area.

5.2.1.2 Land Cover and Biological Communities

Land cover and associated biological communities in the project area were evaluated in GIS by overlaying the 400- and 800-foot-wide corridors over existing land cover data developed for the draft SSHCP. The existing land cover data were developed in various phases by Sacramento County staff and its consultants through photo interpretation, field verification, and GIS digitizing. Appendix E of the draft SSCHP further details the methods used to develop the land cover data.

The land cover data were reviewed and updated by ICF staff using the 2009 National Agricultural Imagery Program (NAIP) aerial imagery for Sacramento and El Dorado Counties. In some cases, biological community classifications were modified to a coarser scale to fit the scale of mapping conducted by ICF staff for the portions of the project area that occur in El Dorado County. For example, areas mapped as valley oak riparian woodland were reclassified as riparian woodland to fit the scale of mapping done for the previously unmapped portions of the project area. Appendix I provides detailed maps of the land cover and biological communities in the 400- and 800-foot corridors, as well as the 50-foot corridor along the off-corridor multi-use path.

Descriptions of the land cover and biological community acreages in the biological study area are presented below. Table 5-1 identifies acreages in the 400-foot-wide direct impact corridor for the proposed project and the optional components. Table 5-2 identifies the additional acreages in the indirect impact corridor (i.e., between the 400-foot corridor and the 800-foot corridor). A 50-foot corridor was established for evaluating areas along the off-corridor multi-use path. It should be noted that the numbers presented in the table have been rounded for purposes of presentation and that the subtotals and totals reflect the acreage totals obtained from the GIS analysis, not the sum of the individual numbers as presented.

Under the High Access Roadway Option, Grant Line Road would be widened from four to six lanes on the segment through Sheldon from Bond Road to Calvine Road, which is consistent with the Elk Grove General Plan (City of Elk Grove 2009).

Table 5-1. Summary of Land Cover and Biological Communities in the 400-Foot Corridor (Areas of Potential Direct Impacts)

			Optional Project Component Resource Acreage				
Land Cover and Biological Communities	Project Corridor Resource Acreage	Off-Corridor Multi-Use Path (50 feet wide)	Kammerer Road Bypass	Deer Creek Causeway Option 1	Deer Creek Causeway Option 2	Sheldon Reduced Access Roadway	Sheldon High Access Roadway
Uplands							
Annual grassland	1,717.3	119.8	95.4	68.2	75.1	45.8	39.5
Blue oak woodland	1.4	15.8	0	3.3	0	0	0
Riparian woodland	18.4	22.3	0	61.7	32.5	0	0
Uplands Subtotal	**1,737.1**	**157.8**	**95.4**	**133.1**	**107.6**	**45.8**	**39.5**
Wetlands and Waters							
Seasonal wetland	0.6	0.2	0.8	1.1	1.1	0	0
Swale	12.4	0.3	0.5	0.4	0.4	0.2	0.2
Vernal pool	26.8	0.3	0.2	0.8	0.8	1.0	1.0
Freshwater marsh	10.2	1.4	7.2	1.1	1.7	0	0
Stream	9.4	5.2	1.6	2.8	1.5	0.3	0.3
Seasonal pond	11.5	0.1	0	0.1	0.2	1.4	1.5
Open water	4.0	0.5	0.03	1.9	1.9	0.3	0.3
Wetlands and Waters Subtotal	**75.0**	**8.0**	**10.4**	**8.2**	**7.6**	**3.1**	**3.2**
Agricultural							
Irrigated pasture	186.0	0	140.6	101.8	9.4	2.8	3.2
Cropland	389.9	6.2	164.5	250.2	321.8	10.8	10.4
Vineyard	74.0	0	0	337.3	298.2	32.6	29.7
Orchard	22.7	0	0	0	0	0	0
Agricultural Subtotal	**672.6**	**6.2**	**305.2**	**689.3**	**629.4**	**46.2**	**43.3**
Developed							
Major roads	149.8	8.3	6.0	4.1	5.3	14.1	14.3
Landscaped	0	5.6	0	0	0	0	0
Low-density development	412.1	1.3	36.6	37.4	29.3	204.5	211.6
High-density development	162.6	17.4	0	1.4	1.7	0	0
Dredge tailings	2.8	0	0	0	0	0	0
Disturbed	22.6	6.0	0	0	0	0	0
Aqueduct	1.8	34.2	0	0	0	0	0
Developed Subtotal	**751.7**	**72.7**	**42.6**	**42.9**	**36.3**	**218.7**	**226.0**
Total Acreage	**3,236.3**	**244.7**	**453.5**	**873.4**	**780.8**	**313.8**	**312.0**

Table 5-2. Summary of Land Cover and Biological Communities between the 400- and 800-Foot Corridors (Areas of Potential Indirect Impacts)

Land Cover and Biological Communities	Project Corridor Resource Acreage	Optional Project Component Resource Acreage				
		Kammerer Road Bypass	Deer Creek Causeway Option 1	Deer Creek Causeway Option 2	Sheldon Reduced Access Roadway	Sheldon High Access Roadway
Uplands						
Annual grassland	1,714.3	95.3	83.0	103.0	42.7	42.2
Blue oak woodland	13.2	0	4.3	0	0	0
Riparian woodland	23.3	0	77.5	47.7	1.7	1.2
Uplands Subtotal	**1,750.8**	**95.3**	**164.8**	**150.6**	**44.4**	**43.4**
Wetlands and Waters						
Seasonal wetland	0.6	1.7	0.1	0.1	0	0
Swale	16.9	0.1	1.1	1.1	0.9	0.8
Vernal pool	31.2	0.3	0.2	0.6	0.2	0.3
Freshwater marsh	6.7	9.6	0.2	0.2	0	0
Stream	13.9	5.0	4.3	3.2	0.6	0.7
Seasonal pond	9.4	0	3.9	2.7	2.0	2.4
Open water	4.8	0.5	0.1	0.1	0.6	0.8
Wetlands and Waters Subtotal	**83.4**	**17.3**	**9.9**	**8.1**	**4.3**	**5.0**
Agricultural						
Irrigated pasture	152.6	108.9	67.9	10.0	0.6	0.6
Cropland	356.4	124.2	253.6	262.9	9.5	9.2
Vineyard	52.98	0	267.1	245.0	25.6	22.2
Orchard	21.2	0	0	0	0	0
Agricultural Subtotal	**583.2**	**233.1**	**588.5**	**517.8**	**35.6**	**32.0**
Developed						
Major roads	17.4	2.5	0.5	0.2	0.8	1.0
Landscaped	0	0	0	0	0	0
Low-density development	295.4	15.1	37.1	21.5	184.7	183.8
High-density development	200.0	0	9.4	3.8	0	0
Dredge tailings	24.1	0	0	0	0	0
Disturbed	46.3	0	0	0	0	0
Aqueduct	2.2	0	0	0	0	0
Developed Subtotal	**585.4**	**17.6**	**47.0**	**25.5**	**185.5**	**185.0**
Total Acreage	**3,002.8**	**363.3**	**810.1**	**702.1**	**269.8**	**265.2**

Land cover and biological community types are described below, including a brief discussion of each area's suitability as habitat for special-status species (Table 5-3).

Uplands

Annual Grassland

Annual grassland is one of the most common vegetation communities in the project area, which is reflected in the amount of acreage in the project corridor, as shown in Appendix I. This community is

Table 5.3 Special-Status Species with Potential to Occur in the Study Area

Common Name/ *Scientific Name*	Status[a] Fed/State/Rare Plant Rank	Distribution	Habitat Association	Potential for Occurrence in the Study Area
Plants				
San Joaquin spearscale *Atriplex joaquiniana*	–/–/1B.2	Eastern San Francisco Bay Area, west edge of Central Valley from Glenn County to Fresno County	Alkali meadow, alkali grassland, saltbush scrub	None—outside of known range of the species and there is no suitable habitat in the study area
Bristly sedge *Carex comosa*	–/–/2.1	Scattered occurrences throughout California	Lake margins	None—outside of known range of the species and there is no suitable habitat in the study area
Succulent owl's clover *Castilleja campestris* ssp. *succulenta*	T/E/1B.2	Eastern edge of San Joaquin Valley and adjacent foothills, from Stanislaus County to Fresno County	Vernal pools	None—outside of known range of the species
Bolander's water-hemlock *Cicuta maculata* var. *bolanderi*	–/–/2.1	Suisun Bay, Point Reyes	Freshwater or brackish marshes	None—outside of known range of the species and there is no suitable habitat in the study area
Brandegee's clarkia *Clarkia biloba* ssp. *brandegeeae*	–/–/1B.2	Northern Sierra Nevada foothills from Butte County to El Dorado County	Chaparral, oak woodland, from 970 to 2,900 feet	Moderate—known from study area but typically occurs at higher elevations than study area
Soft bird's-beak *Cordylanthus mollis* ssp. *mollis*	E/R/1B.2	San Francisco Bay	Tidal salt marsh	None—outside of known range of the species and there is no suitable habitat in the study area
Dwarf downingia *Downingia pusilla*	–/–/2.2	Central Valley from Tehama to Fresno Counties, northern San Francisco Bay Area, southern South Coast Ranges	Vernal pools	High—species known to occur near, and suitable habitat exists in, the study area
Ione buckwheat *Eriogonum apricum* var. *apricum*	E/E/1B.1	Endemic to western Amador County	Gravelly openings in Ione chaparral, at 260 to 490 feet	None—outside known range of the species and there is no suitable habitat in the study area
Tuolumne button-celery *Eryngium pinnatisectum*	–/–/1B.2	Sierra Nevada Foothills from Sacramento County to Tuolumne County	Vernal pools, seeps, and streambanks in oak woodland, lower montane coniferous forest, at 820 to 1,475 feet	Moderate—outside of known range of the species but there is suitable habitat in the study area
Stinkbells *Fritillaria agrestis*	–/–/4.2	Outer North Coast Ranges, Sierra Nevada Foothills, Central Valley, central western California	Grasslands, foothill woodlands, and open grassy areas in chaparral, between 30 and 5,100 feet	High—species known to occur near the study area and suitable habitat exists in the study area
Boggs Lake hedge-hyssop *Gratiola heterosepala*	–/E/1B.2	From Oregon south to northern Sacramento County	Vernal pools and swales	High—species known to occur near the study area and suitable habitat exists in the study area

Common Name/ *Scientific Name*	Status[a] Fed/State/Rare Plant Rank	Distribution	Habitat Association	Potential for Occurrence in the Study Area
Wooly rose-mallow *Hibiscus lasiocarpos* var. *occidentalis*	–/–/2.2	Scattered small locations in central California, from Butte to San Joaquin County	Freshwater marsh along rivers and sloughs	None—outside of known range of the species and there is no suitable habitat in the study area
Carquinez goldenbush *Isocoma arguta*	–/–/1B.1	Solano and Contra Costa Counties	Annual grassland on alkaline soils	None—outside of known range of the species and there is no suitable habitat in the study area
Northern California black walnut *Juglans hindsii*	–/–/1B.2	Last two native stands in Napa and Contra Costa Counties	Riparian forest, riparian woodland	None—may be individual trees, but no native stands in study area
Ahart's dwarf rush *Juncus leiospermus* var. *ahartii*	–/–/1B.1	East edge of Sacramento Valley from Butte County to Sacramento County	Vernal pools, from 100 to 330 feet	High—species known to occur near, and suitable habitat exists in, the study area
Delta tule pea *Lathyrus jepsonii* var. *jepsonii*	–/–/1B.2	Central Valley from Sacramento County to Fresno County	Marshes and swamps (freshwater and brackish)	None—outside known range of species and there is no suitable habitat in the study area
Legenere *Legenere limosa*	–/–/1B.1	Central Valley	Vernal pools, below 2,880 feet	High—species known to occur near, and suitable habitat exists in, the study area
Mason's lilaeopsis *Lilaeopsis masonii*	–/R/1B.1	Sacramento/San Joaquin River Delta	Freshwater or brackish marsh, in tidal zone	None—outside known range of species and there is no suitable habitat in the study area
Delta mudwort *Limosella subulata*	–/–/2.1	Contra Costa, Sacramento, San Joaquin, and Solano Counties	Marshes and swamps	None—outside known range of the species and there is no suitable habitat in the study area
Pincushion navarretia *Navarretia myersii* ssp. *myersii*	–/–/1B.1	Central Valley, from Placer County to Merced County	Vernal pools, at 65 to 1,080 feet	High—species known to occur near, and suitable habitat exists in, the study area
Antioch Dunes evening primrose *Oenothera deltoides* ssp. *howellii*	E/E/1B.1	Contra Costa County	Inland dunes	None—outside known range of the species and there is no suitable habitat in the study area
Slender Orcutt grass *Orcuttia tenuis*	T/E/1B.1	Sierra Nevada and Cascade Range foothills, from Siskiyou County to Sacramento County	Vernal pools, from 100 to 5,700 feet	High—species known to occur near, and suitable habitat exists in, the study area

Common Name/ *Scientific Name*	Status[a] Fed/State/Rare Plant Rank	Distribution	Habitat Association	Potential for Occurrence in the Study Area
Sacramento Orcutt grass *Orcuttia viscida*	E/E/1B.1	Sacramento County	Vernal pools, 100 to 330 feet	High—species known to occur near, and suitable habitat exists in, the study area
Sanford's arrowhead *Sagittaria sanfordii*	–/–/1B.2	Scattered locations in Central Valley and Coast Ranges	Freshwater marsh, sloughs, canals, and other slow-moving water habitats	High—species known to occur near, and suitable habitat exists in, the study area
Side-flowering skullcap *Scutellaria lateriflora*	–/–/2.2	Inyo and San Joaquin Counties	Meadows (mesic), marshes and swamps	None—outside known range of species and there is no suitable habitat in the study area
Suisun March aster *Symphyotrichum lentum*	–/–/1B.2	Sacramento-San Joaquin Delta, Suisun Marsh, Suisun Bay	Brackish and freshwater marsh	None—outside known range of species and there is no suitable habitat in the study area
Invertebrates				
Conservancy fairy shrimp *Branchinecta conservatio*	E/–	Limited to eight populations in Butte, Tehama, Glenn, Yolo, Solano, Merced, Stanislaus, and Ventura Counties	Large, cool-water pools with moderately turbid water	Low—suitable habitat exists in the study area; however, study area is outside known species range
Vernal pool fairy shrimp *Branchinecta lynchi*	T/–	Central Valley, central and southern Coast Ranges from Tehama to Santa Barbara Counties; isolated populations in Riverside County	Common in vernal pools; also found in sandstone rock outcrop pools	High—species known to occur in the study area
Valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	T/–	Streamside habitats below 3,000 feet throughout the Central Valley	Riparian and oak savanna habitats with elderberry shrubs (host plant)	High—species known to occur near the study area and suitable habitat exists in the study area
Delta green ground beetle *Elaphrus viridis*	T/–	Known to occur in the greater Jepson Prairie area in south-central Solano County	Typically in grassland-playa vernal pool complexes	None—outside species known range
Vernal pool tadpole shrimp *Lepidurus packardi*	E/–	Central Valley of California from Shasta to Tulare Counties	Vernal pools and ephemeral stock ponds	High—species known to occur in the study area

Common Name/ *Scientific Name*	Status[a] Fed/State/Rare Plant Rank	Distribution	Habitat Association	Potential for Occurrence in the Study Area
Fish				
Green sturgeon *Acipenser medirostris*	T/SSC	Known to spawn in the Sacramento River and Klamath River Basin	An anadromous fish that spawns in deep pools or "holes" in large, turbulent, freshwater river mainstems; early life stages may remain in freshwater for up to 2 years	None—no suitable habitat in the study area
Sacramento Perch *Archoplites interruptus*	–/SSC	Historically occurred throughout the Central Valley, in Clear Lake, and the Pajaro and Salinas Rivers; now occur in a few locations in their native range and have been introduced into several reservoirs and associated streams	Formerly inhabited sloughs, slow-moving rivers, and lakes but now found mostly in reservoirs and farm ponds	None—no suitable habitat in the study area
Delta smelt *Hypomesus transpacificus*	T/T	Found only from Suisun Bay upstream through the Delta in Contra Costa, San Joaquin, Sacramento, Solano, and Yolo Counties	Found in euryhaline waters of the Delta; spawn in tidally influenced backwater sloughs and channel edgewaters	None—outside known range of the species and no suitable habitat in the study area
Central Valley steelhead *Oncorhynchus mykiss*	T/–	Sacramento and San Joaquin River and their tributaries	Anadromous fish that spawns and spends a portion of its life in inland streams, typically maturing in the open ocean	None—there are downstream barriers to these fish that keep them from dispersing into the study area; furthermore, the streams in the study area do not represent suitable spawning habitat
Central Valley spring-run Chinook salmon *Oncorhynchus tshawytscha*	T/T	Sacramento and San Joaquin River and their tributaries.	Anadromous fish that spawns and spends a portion of its life in inland streams, typically maturing in the open ocean	None—there are downstream barriers to these fish that keep them from dispersing into the study area; furthermore, the streams in the study area do not represent suitable spawning habitat
Winter-run Chinook salmon *Oncorhynchus tshawytscha*	E/E	Sacramento and San Joaquin River and their tributaries.	Anadromous fish that spawns and spends a portion of its life in inland streams, typically maturing in the open ocean	None—there are downstream barriers to these fish that keep them from dispersing into the study area; furthermore, the streams in the study area do not represent suitable spawning habitat
Sacramento splittail *Pogonichthys macrolepidus*	–/SSC	Endemic to California, mainly to sloughs, lakes, and rivers of the Central Valley.	Adapted for living in estuarine waters with fluctuating conditions; prefer slow-moving sections of rivers and sloughs; move upstream during winter and spring months to forage and spawn	None—no suitable habitat exists in the study area

Common Name/ *Scientific Name*	Status[a] Fed/State/Rare Plant Rank	Distribution	Habitat Association	Potential for Occurrence in the Study Area
Amphibians				
California tiger salamander *Ambystoma californiense*	T/SSC	Central Valley, including Sierra Nevada foothills, up to approximately 1,000 feet; coastal region from Sonoma to Santa Barbara Counties up to approximately 3,000 feet	Small ponds, lakes, or vernal pools in grasslands and oak woodlands for larvae; rodent burrows, rock crevices, or fallen logs for cover for adults	Low—suitable habitat exists in the study area; however, the species has never been documented in Sacramento County north of the Cosumnes River
California red-legged frog *Rana draytonii*	T/SSC	Historic range extended along the coast from the vicinity of Point Reyes National Seashore in Marin County, and inland from Shasta County south to Baja California; current known distribution is along the coast from Marin County south to Los Angeles County (with inland populations in San Bernardino and Riverside Counties), the inner Coast Ranges from Tehama to eastern San Luis Obispo Counties, and isolated populations in the Sierra Nevada from Butte to Tuolumne Counties	Permanent and semipermanent aquatic habitats, such as creeks and coldwater ponds, with emergent and submergent vegetation; may aestivate in rodent burrows or cracks during dry periods	Low—study area is outside of the known range of the species
Western spadefoot *Spea hammondii*	–/SSC	Central Valley and adjacent foothills up to 4,500 feet, in the Coast Ranges from Point Conception in Santa Barbara County south to the Mexican border	Grasslands and valley-foothill hardwood woodlands with nearby shallow, temporary winter pools for breeding	High—species is known to occur in the study area
Reptiles				
Western pond turtle *Actinemys marmorata*	–/SSC	From the Oregon border of Del Norte and Siskiyou Counties, south along the coast to San Francisco Bay, inland through the Sacramento Valley, and on the western slope of the Sierra Nevada	Ponds, marshes, rivers, streams, and irrigation canals with muddy or rocky bottoms and with watercress, cattails, water lilies, or other aquatic vegetation in woodlands, grasslands, and open forests	Moderate—species is known to occur in the region; however, suitable habitat is limited to artificial ponds far from similar perennial waters
Giant garter snake *Thamnophis gigas*	T/T	Central Valley from Fresno north to the Gridley/Sutter Buttes area; has been extirpated from areas south of Fresno	Sloughs, canals, and other small waterways where there is a prey base of small fish and amphibians; requires grassy banks and emergent vegetation for basking and areas of high ground protected from flooding during winter	High—species is known to occur near the westernmost portion of the study area; also, suitable habitat exists in the western most portion

Common Name/ *Scientific Name*	Status[a] Fed/State/Rare Plant Rank	Distribution	Habitat Association	Potential for Occurrence in the Study Area
Birds				
Tricolored blackbird *Agelaius tricolor* (nesting colony)	–/SSC	Throughout the Central Valley and in coastal areas from Sonoma County south	Nests near fresh water, preferably in emergent wetlands with tall, dense cattails or tules, but also thickets of willow, blackberry, wild rose, and tall herbs; feeds in grassland and cropland habitats	High—species is known to occur in the study area and suitable habitat exists in the study area
Grasshopper sparrow *Ammodramus savannarum* (nesting)	–/SSC	Summer resident and breeder in foothills and lowlands west of the Cascade-Sierra Nevada crest	Occurs in dry, dense grasslands, especially those with a variety of grasses and tall forbs and scattered shrubs for singing perches; nests in slight depressions in dense grasslands	Moderate—species is known to nest in the region and suitable habitat exists in the study area
Golden eagle *Aquila chrysaetos* (nesting and wintering)	–/FP	Resident in foothills and mountains throughout California; uncommon nonbreeding visitor to lowlands such as the Central Valley	Nests on cliffs and escarpments or in tall trees overlooking open country; forages in annual grasslands, chaparral, and oak woodlands with plentiful medium- and large-sized mammals	Low—no suitable nesting habitat exists in or near the study area; species may forage in the study area during winter
Burrowing owl *Athene cunicularia* (burrow sites)	–/SSC	Lowlands throughout California, including the Central Valley, northeastern plateau, southeastern deserts, and coastal areas; rare along south coast	Level, open, dry, heavily grazed or low-stature grassland or desert vegetation with available burrows	High—species is known to occur in the study area and suitable habitat exists in the study area
Swainson's hawk *Buteo swainsoni* (nesting)	–/T	Lower Sacramento and San Joaquin Valleys, Klamath Basin, and Butte Valley; the state's highest nesting densities occur near Davis and Woodland, Yolo County	Nests in oaks or cottonwoods in or near riparian habitats and eucalyptus trees near foraging habitat; forages in grasslands, irrigated pastures, and grain fields	High—species is known to occur in the study area and suitable habitat exists in the study area.
Northern harrier *Circus cyaneus*	–/SSC	Occurs throughout most of California	Nest and forage in open, treeless habitats, including marshes, wet meadows, and annual and perennial grasslands	High—species is known to occur in the study area
Western yellow-billed cuckoo *Coccyzus americanus occidentalis* (nesting)	C/E	Nests along the upper Sacramento, lower Feather, south fork of the Kern, Amargosa, Santa Ana, and Colorado Rivers	Wide, dense riparian forests with a thick understory of willows for nesting; sites with a dominant cottonwood overstory are preferred for foraging; may avoid valley-oak riparian habitats where scrub jays are abundant	None—outside the species known range and no suitable habitat exists in the study area
White-tailed kite *Elanus leucurus*	–/FP	Lowland areas west of Sierra Nevada from the head of the Sacramento Valley south, including coastal valleys and foothills to western San Diego County at the Mexico border	Low foothills or valley areas with valley or live oaks, riparian areas, and marshes near open grasslands for foraging	High—known to occur in the study area and suitable foraging and nesting habitat exists in the study area
Saltmarsh common yellowthroat *Geothylpis trichas sinuosa*	–/SSC	Resident and summer visitor in San Francisco Bay	Inhabits brackish and freshwater marshes	None—study area is outside the known range for this species

Common Name/ *Scientific Name*	Status[a] Fed/State/Rare Plant Rank	Distribution	Habitat Association	Potential for Occurrence in the Study Area
California black rail *Latterallus jamaicensis coturniculus*	–/T	Primarily found along the San Francisco Bay and Delta and coastal estuaries, but also known to nest inland on the western slope of the Sierra Nevada foothills from northern Butte County to western Placer County	Nests in tidal and freshwater emergent marshes	None—study area is outside the known range for this species
Suisun song sparrow *Melospiza melodia maxillaries*	–/SSC	Found along the Carquinez Strait and Suisun Bay in the Bay-Delta.	Tidal marshes with dense vegetation	None—study area is outside the known range for this species
Purple martin *Progne subis*	–/SSC	Coastal mountains south to San Luis Obispo County, west slope of the Sierra Nevada, and northern Sierra and Cascade ranges; absent from the Central Valley except in Sacramento; isolated, local populations in southern California.	Nests in abandoned woodpecker holes in oaks, cottonwoods, and other deciduous trees in a variety of wooded and riparian habitats; also nests in vertical drainage holes under elevated freeways and highway bridges	None—study area is outside the known range for this species and no suitable habitat exists
Bank swallow *Riparia riparia*	–/T	Occurs along the Sacramento River from Tehama County to Sacramento County, along the Feather and lower American Rivers, in the Owens Valley, and in the plains east of the Cascade Range in Modoc, Lassen, and northern Siskiyou Counties; small populations near the coast from San Francisco County to Monterey County	Nests in bluffs or banks, usually adjacent to water, where the soil consists of sand or sandy loam	None—study area is outside the known range of this species and no suitable habitat exists
Yellow-headed blackbird *Xanthocephalus xanthocephalus*	–/SSC	Breeds east of the Cascade Range and Sierra Nevada in the Central Valley, Imperial Valley, and Colorado River valleys	Nesting colonies located in large, dense emergent wetlands, often consisting of tules, cattails, or other tall plants along the borders of lakes or ponds; nests and roosts are over deep water; winters in southwest United States and Mexico	Low—species is known to occur in the region and may forage in agricultural areas in the study area; species typically nests in large emergent wetlands over deep water, which are not present in the study area

Common Name/ *Scientific Name*	Status[a] Fed/State/Rare Plant Rank	Distribution	Habitat Association	Potential for Occurrence in the Study Area
Mammals				
Pallid bat *Antrozous pallidus*	–/SSC	Throughout California, primarily at lower and mid-elevations	Variety of habitats from desert to coniferous forest; most closely associated with oak, yellow pine, redwood, and giant sequoia habitats in northern California; prefers rocky outcrops, cliffs, and crevices with access to open habitats for foraging; uses caves, crevices, mines, and hollow trees for roosting	Moderate—species known to occur in the region, but there is limited roosting habitat
Western red bat *Lasiurus blossevillii*	–/SSC	Occurs mostly west of the Sierra Nevada/Cascade crest and deserts	Roosts in forests and woodlands from sea level up through mixed conifer forests; roosts solitarily in trees, though nursery colonies are occasionally found; forages over grasslands, shrublands, open woodlands and forests, and croplands	Moderate—woodland habitats may be occupied by this species; there are no known occurrences in or near the study area
American badger *Taxidae taxus*	–/SSC	Statewide except for the northwestern corner in Del Norte County and parts of Humboldt and Siskiyou Counties	Typically in drier open stages of most shrub, forest, and herbaceous habitats with dry, friable soils	High—species is known to occur in the region and suitable habitat exists in the study area

[a] Status Explanations:

Federal

E = listed as endangered under ESA.
T = listed as threatened under ESA.
C = candidate for listing under ESA.
– = no listing.

State

E = listed as endangered under CESA.
T = listed as threatened under CESA.
R = stated-listed rare species.
SSC = species of special concern in California.
FP = fully protected.
– = no listing.

Rare Plant Rank

1B = List 1B species: rare, threatened, or endangered in California and elsewhere.
2 = List 2 species: rare, threatened, or endangered in California, but more common elsewhere.
4 = List 4 species: Plants of limited distribution.
0.1 = Seriously endangered in California.
0.2 = Fairly endangered in California.

dominated by nonnative annual grasses and herbaceous species, with concentrations of native vegetation typically occurring around vernal pools. Dominant grassland species include soft chess (*Bromus hordeaceous*), ripgut brome (*Bromus diandrus*), foxtail barley (*Hordeum murinum*), wild oat (*Avena fatua*), clover (*Trifolium* spp.), popcorn flower (*Plagiobothrys* spp.), and filaree (*Erodium* spp.). Annual grasslands also contain seasonal wetlands, including vernal pools (see "Wetlands and Waters" below).

Most of the annual grasslands in the project area are used for cattle grazing. They provide important habitat for several common and special-status wildlife species, including western spadefoot toad (*Spea hammondii*), giant garter snake (*Thamnophis gigas*) (wintering upland habitat), grasshopper sparrow (*Ammodramus savannarum*), burrowing owl (*Athene cunicularia*), Swainson's hawk (*Buteo swainsoni*) (foraging habitat), red-tailed hawk (*Buteo jamaicensis*), white-tailed kite (*Elanus leucurus*), northern harrier (*Circus cyaneus*), and American badger (*Taxidae taxus*).

Blue Oak Woodland

Blue oak woodlands occur in the northeastern portion of the project area, as shown in Appendix I. These areas are dominated by blue oaks (*Q. douglasii*) with open canopies and an understory dominated by annual grasses. Blue oak woodlands provide nesting habitat for common bird species.

Riparian Woodland

Riparian woodlands occur in association with intermittent streams, perennial streams, and artificial ponds, and within dredge tailings in the northern portion of the project area, as shown in Appendix I. Riparian woodlands in the project area include mixed riparian woodlands dominated by valley oaks (*Quercus lobata*), willows (*Salix* spp.), and cottonwoods (*Populus fremontii*). The dredge tailing riparian areas are dominated primarily by cottonwoods that are able to tap into willow groundwater and small ponded areas among the tailings. Riparian woodlands provide habitat for common and special-status wildlife species, including valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), bats, and nesting birds such as Swainson's hawk and white-tailed kite.

Wetlands and Waters

As noted above, annual grasslands in the project area support wetland habitats, including seasonal wetlands, vernal pools, freshwater marsh, streams, open water, and seasonal ponds, which are described below

Seasonal Wetland

Seasonal wetlands mapped in the project area are shown in Appendix I and are differentiated from vernal pools in that they are typically inundated for shorter periods and are more often saturated than inundated during the wet season. Vegetation is typically dominated by common wetland generalist species such as Italian ryegrass (*Lolium multiflorum*), Mediterranean barley (*H. marinum* ssp. *gussoneanum*), and toad rush (*Juncus bufonius*).

Seasonal wetlands typically do not provide unique habitats for special-status species, but they play an important role in annual grasslands by contributing to the diversity of vegetation and providing habitat for various insect species and foraging diversity for mammal species such as Botta's pocket gopher (*Thomomys bottae*) and California ground squirrel (*Spermophilus beecheyi*).

Vernal Pool

Vernal pools are seasonal wetlands characterized by unique assemblages of specialized endemic plants and wildlife. They typically become inundated during late fall rains and remain so through the wet winter into early spring. Vernal pools in the project area are typically dominated by coyote thistle (*Eryngium castrense*), Carter's buttercup (*Ranunculus bonariensis*), goldfields (*Lasthenia* spp.), downingias (*Downingia* spp.), and popcorn flowers.

The locations of vernal pools in the project area are shown in Appendix I, and they provide habitat for various special-status species, including dwarf downingia (*Downingia pusilla*), Boggs Lake hedge-hyssop (*Gratiola heterosepala*), Ahart's dwarf rush (*Juncus leiospermus* var. *ahartii*), legenere (*Legenere limosa*), pincushion navarretia (*Navarretia myersii* ssp. *myersii*), slender Orcutt grass (*Orcuttia tenuis*), and Sacramento Orcutt grass (*O. viscida*). These wetlands also provide habitat for special-status wildlife species, including vernal pool fairy shrimp (*Branchinecta lynchi*), vernal pool tadpole shrimp (*Lepidurus packardi*), and western spadefoot toad.

Freshwater Marsh

Freshwater marsh in the project area typically occurs in association with artificial ponds, irrigation canals, roadside ditches, and areas receiving urban and agricultural runoff (Appendix I). Freshwater marsh is typically dominated by emergent perennial vegetation such as tule (*Schoenoplectus acutus*), cattails (*Typha* spp.), spikerush (*Eleocharis macrostachya*), nutsedge (*Cyperus* spp.), rushes (*Juncus* spp.), and sedges (*Carex* spp.).

Freshwater marshes in the project area provide habitat for common amphibians, reptiles, and birds, including Pacific tree frogs (*Pseudacris regilla*), western toads (*Bufo boreas*), garter snakes, ducks, geese, and various nesting birds. These areas also provide habitat for special-status species, including Sanford's arrowhead (*Sagittaria sanfordii*), giant garter snake, and tricolored blackbird (*Agelaius tricolor*).

Stream

Several streams pass through the project area (Appendix I). In the eastern half, streams are typically ephemeral to intermittent and flow during winter and early spring. In the western portion, streams are perennial and flow from winter to at least late summer. Many of the streams have extended periods of flow from agricultural and urban runoff, and many of the wetter streams (intermittent and perennial) support riparian vegetation that is vital to wildlife in the region.

Streams in the project area provide habitat for many common wildlife species, including Pacific tree frogs, garter snakes (giant garter snakes may occupy slower moving perennial streams), western pond turtle, and nonnative and native fish species. The Sacramento, Cosumnes, and American Rivers provide habitat for Central Valley steelhead (*Oncorhynchus mykiss*) and Chinook salmon (*O. tshawytscha*); however, project area streams do not provide such habitat because of downstream barriers, warm waters, and limited flow to support these species, even though they are tributary to the aforementioned rivers.

Open Water and Seasonal Pond

Areas of open water occur throughout the project area, and include stock ponds in rural areas (both perennial and seasonal) and detention basins in developed areas (Appendix I). Nearly all of these features are artificial impoundments that have been constructed to retain water for livestock

watering, serve as ornamental features on rural residences, or are integrated into developed areas for stormwater detention. These features typically become inundated in early winter as they capture runoff from both natural and developed landscapes and remain so into late spring/early summer (seasonal ponds) or late summer/fall (open water).

Areas of open water provide habitat for common wildlife species, including Pacific tree frogs, western toads, garter snakes (giant garter snakes may occupy the more perennial features within the western portion of the project area), western pond turtle, ducks and geese, and common fish species. The seasonal impoundments would provide habitat for Pacific tree frogs, western toads, and western spadefoot toads, as well as vernal pool fairy shrimp and vernal pool tadpole shrimp in some of the ponds that dry in late spring.

Agricultural

Agricultural lands are common in the western portion of the project area (Appendix I). In addition to the grazed annual grasslands, the project area includes areas of irrigated pasture, cropland (row and field crops), vineyards, and orchards. Some of these areas are important for wildlife species that actively forage in these fields, occupy the perimeters of these areas, and utilize the irrigation canals as habitat.

Irrigated Pasture

Irrigated pasture occurs throughout the western portion of the project area. Irrigated pasture is dominated by perennial grasses and herbs selected for cattle grazing, and is typically flood-irrigated during late spring, summer, and early fall.

Irrigated pasture provides important foraging habitat for various birds and raptors, including burrowing owl, Swainson's hawk, white-tailed kite, and northern harrier. These areas may also be used during winter as upland refugia for giant garter snakes where suitable aquatic habitat occurs nearby. In some instances, irrigated pastures in the project area may be subject to regulation under the federal Clean Water Act (CWA) if they meet the definition of jurisdictional wetlands.

Cropland

Croplands occur in the western portion of the study area and consist of row and field crops. Dominant row crops include corn, sunflower, tomatoes, melons, and peppers. Dominant field crops include alfalfa, grass hay, and various grain crops.

Croplands do not provide much in terms of occupied habitat, except on the edges of fields that are subject to less disturbance associated with cultivating, disking, and harvesting. However, croplands, especially field crops, provide suitable foraging habitat for common and special-status wildlife species, including Swainson's hawk, burrowing owl, tricolored blackbird, and American badger.

Vineyard

Vineyards occur in the southwestern portion of the project area. Vineyards are relatively permanent crops that provide limited habitat value for wildlife. Birds may forage on grapes in summer; however, most vineyards have hazing programs to scare off wildlife (e.g., metallic streamers, air cannons).

Orchard

There are a few areas of orchard in the project area. These typically consist of fruit trees. Orchards provide cover and some foraging opportunities for birds and mammals, but no nesting habitat for birds because there is frequent disturbance.

Developed

As described below, development occurs throughout the project area (Appendix I). Historically, this has meant farm residences and associated farm outbuildings, which were later replaced by rural residences (i.e., low-density development) consisting mostly of 2- to 10-acre parcels with small pastures for horse and cattle grazing. More recently, portions of the project area have been further developed into suburban subdivisions and commercial and industrial properties (i.e., high density development).

Major Roads

Major roads consist of the larger, main thoroughfares in the project area and include areas of pavement and associated shoulders. They do not provide habitat for plants and wildlife, although they may be used by wildlife for dispersal.

Landscaped Areas

There a few large areas within the project area that are planted exclusively in landscape vegetation, which includes community parks, sports fields, and ornamental landscaping associated with commercial properties. These areas provide little to no habitat for wildlife, although these areas could be occupied by common bird species adapted to human disturbance.

Low-Density Development

Low-density development mapped in the project area consists mostly of 2- to 10-acre parcels with residences and outbuildings that have associated small irrigated pastures or dry annual grassland pastures for livestock grazing (also known as rural residences). For example, the area along Grant Line Road between Sheldon and Calvine Roads would be considered low-density development.

Low-density development in the project area has elements of natural habitat, such as annual grasslands, vernal pools, seasonal wetlands, or oak trees that may still provide habitat for rare plants and may still be used by wildlife. Therefore, although they are subject to greater human disturbance, these areas still have some degree of habitat value for species such as vernal pool fairy shrimp, vernal pool tadpole shrimp, burrowing owl, grasshopper sparrow, white-tailed kite, and Swainson's hawk.

High-Density Development

High-density development occurs throughout the project area and consists of urban or suburban residential, commercial, and industrial properties. These areas have been entirely converted to homes, roads, and landscaping, with natural habitat elements limited to narrow riparian areas along streams. For example, the area along Grant Line Road between SR 99 and Waterman Road would be considered high-density development. These areas provide little to no habitat for wildlife, although landscaped areas could be occupied by common bird species adapted to human disturbance.

Dredge Tailings

Dredge tailings are found in the northeastern portion of the project area. These tailings are the result of gold-dredging operations and consist of windrows of gravel, cobbles, boulders, sand, and silt. As noted above, many of these areas have elements of riparian vegetation that are dominated by cottonwoods.

The dredge tailing areas provide some habitat value for wildlife. Many common and special-status species may occupy and forage in these areas, including burrowing owl, Swainson's hawk, white-tailed kite, northern harrier, and American badger.

Disturbed

Disturbed areas are found throughout the project area. These are areas that have been subject to recent or ongoing disturbance, resulting in minimal vegetative cover that is most often dominated by weedy species and a predominance of bare soil. Disturbed areas may provide habitat for common wildlife, and in some cases special-status wildlife may use them for foraging or dispersal.

Aqueducts

The Folsom South Canal crosses several portions of the project area. This aqueduct delivers water from the American River to areas south of the project area. This aqueduct is concrete lined and has steep sided, concrete banks, which provide little to no habitat for aquatic and terrestrial

5.2.1.3 Special-Status Species

Special-status species are plants and animals that are legally protected under the federal Endangered Species Act (ESA), California Endangered Species Act (CESA), or other such regulations, as well as species considered sufficiently rare by the scientific community to quality for such listing. For the purposes of this document, special-status species are those that meet any of the criteria listed below.

- species listed or proposed for listing as threatened or endangered under ESA (50 Code of Federal Regulations [CFR] 17.12 [listed plants], 50 CFR 17.11 [listed animals], and various notices in the FR [proposed species]);
- candidate species for federal listing;
- species listed or proposed for listing by the State of California as threatened or endangered under CESA (14 CCR 670.5);
- animals fully protected in California (California Fish and Game Code [FGC] 3511 [birds], 4700 [mammals], and 5050 [amphibians and reptiles]);
- Plants listed as rare under the California Native Plant Protection Act (FGC 1900 et seq.);
- animal species of special concern to the California Department of Fish and Game (DFG); and
- plants that meet the definitions of rare or endangered under CEQA (State CEQA Guidelines Section 15380[b–d]), which may include:
    - plants ranked as rare, threatened, or endangered in California (California Rare Plant Rank 1B and 2);

- plants that may warrant consideration on the basis of local significance or recent biological information (State CEQA Guidelines Section 15380[d]), that may include some California Rare Plant Rank 3 and 4 (plants about which more information is needed to determine their status and plants of limited distribution); and
- some species included on the CNDDB's *Special Plants, Bryophytes, and Lichens List* (current list available: http://www.dfg.ca.gov/biogeodata).

The list of special-status animal species considered for this program EIR was developed on the basis of queries of the CNDDB for special-status species occurrences in Sacramento County and the USFWS species list for Sacramento County. Table 5-3 provides the common and scientific names, regulatory status, distribution, habitat descriptions, and potential for occurrence in the study area for each species. The criteria listed below were used to determine each species' potential for occurrence.

- **High:** Species is known to occur on or near the site (based on CNDDB records or professional expertise specific to the site or species), and there is suitable habitat on site.
- **Moderate:** Species is known to occur on or near the site (based on CNDDB records), but there is marginal habitat on site; or species is not known to occur in the vicinity, but suitable habitat is present.
- **Low:** Species is not known to occur in the vicinity of the site (based on CNDDB records), or the habitat on site is not suitable for the species.
- **None:** Species was surveyed for during the appropriate season with negative results, or the study area is outside the known range of the species.

5.2.1.4 Waters of the United States

Wetlands and other waters in the project area were mapped from aerial photographs in 2001 for the SSHCP. An ICF biologist reviewed this data in GIS, comparing the wetlands and other waters to the 2009 NAIP aerial imagery. Edits were only made where development or other land use changes have obviously removed the previously mapped wetland and water features. For the portion of the project area in El Dorado County, wetlands and waters were identified on the 2009 NAIP aerial imagery and digitized using GIS.

Wetlands

Wetlands identified in the SSHCP occur throughout out the project area. Wetlands were identified from aerial photographs and mapped using GIS. Wetlands identified in the SSHCP data include vernal pools, seasonal wetlands, and freshwater marsh. These wetland types are described above in Section 5.2.2.1.

Other Waters

Other waters identified in the SSHCP occur throughout the project area, and include several ephemeral, intermittent, and perennial streams as well as open waters (ponds and detention basins). Other waters were identified from aerial photographs and mapped using GIS. These other waters are described in Section 5.2.2.1.

5.2.1.5 Other Biologically Sensitive Areas

Critical Habitat

Critical habitat for federally listed species (see Section 5.3.1.1 for a definition of critical habitat) occurs throughout project area (Figure 5-1). No critical habitat occurs within the study areas of the proposed project or its options.

Conservation Areas

Several conservation areas occur in the project area (Figure 5-1) and include mitigation banks, private lands with conservation easements, and publicly owned lands managed for natural resources. Figure 5-1 depicts several conservation areas occurring within the study corridors of the proposed project and its options. Table 5-4 provides a summary of the acreages of conservation areas in the study areas.

Table 5-4. Summary of Conservation Area Acreages in the Assessment Corridors

	Acres of Conservation Area within 400-foot Corridor[a]	Acres of Conservation Area between 400 and 800-foot Corridors[a]
Project Alternatives:		
Proposed Project	123.2	112.5
Multi-Use Path Alternative (area within 50-foot buffer)	174.2	NA
Project Options:		
Kammerer Road Bypass	0	0
Deer Creek Causeway Option 1	37.7	39.6
Deer Creek Causeway Option 2	39.0	41.5
Sheldon Reduced Access Roadway	4.3	5.7
Sheldon High Access Roadway	4.1	5.5

[a] Except for the multi-use path, where a 50-foot buffer was used.

5.2.2 Regulatory Setting

The biological resources in the project area are subject to regulation under several federal, state, and local regulations. A discussion of these regulations is provided below.

5.2.2.1 Federal

Federal Endangered Species Act

USFWS has jurisdiction over plants, wildlife, and non-anadromous fish species listed as threatened or endangered under the ESA. Section 9 of the ESA protects listed species from *take*, which is broadly defined as actions to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct." For actions involving a federal agency in which a listed species could be affected, the federal agency must consult with USFWS in accordance with Section 7 of the ESA. The federal agency prepares a biological assessment (BA) disclosing the effects of the action on federally listed species or their habitat. On the basis of the information presented in the

BA, USFWS issues a biological opinion (BO) and, if the project does not jeopardize the continued existence of the listed species, issues an incidental take permit (ITP).

For actions involving a non-federal entity, such as states, counties, local governments, and private landowners, in which a listed species could be affected, the non-federal agency must seek an ITP from the USFWS pursuant to Section 10 of the ESA. The application for an ITP includes the preparation of a habitat conservation plan (HCP), which identifies impacts on listed species and their habitat and identifies measures to avoid, minimize, and mitigate these impacts. HCPs are also used by local governments as a planning tool that provides a regional approach to balancing development against conservation and protection of habitat, open space, and agricultural lands. These types of HCPs typically establish reserve systems that conserve habitat that will be managed and monitored to achieve the biological goals and objectives for those species covered under the plan while the USFWS issues ITPs for activities covered by the plan. The proposed project occurs within the boundaries of the proposed SSHCP and is included as a covered project in that document and the JPA is an SSHCP participant through an implementation agreement.

Critical Habitat

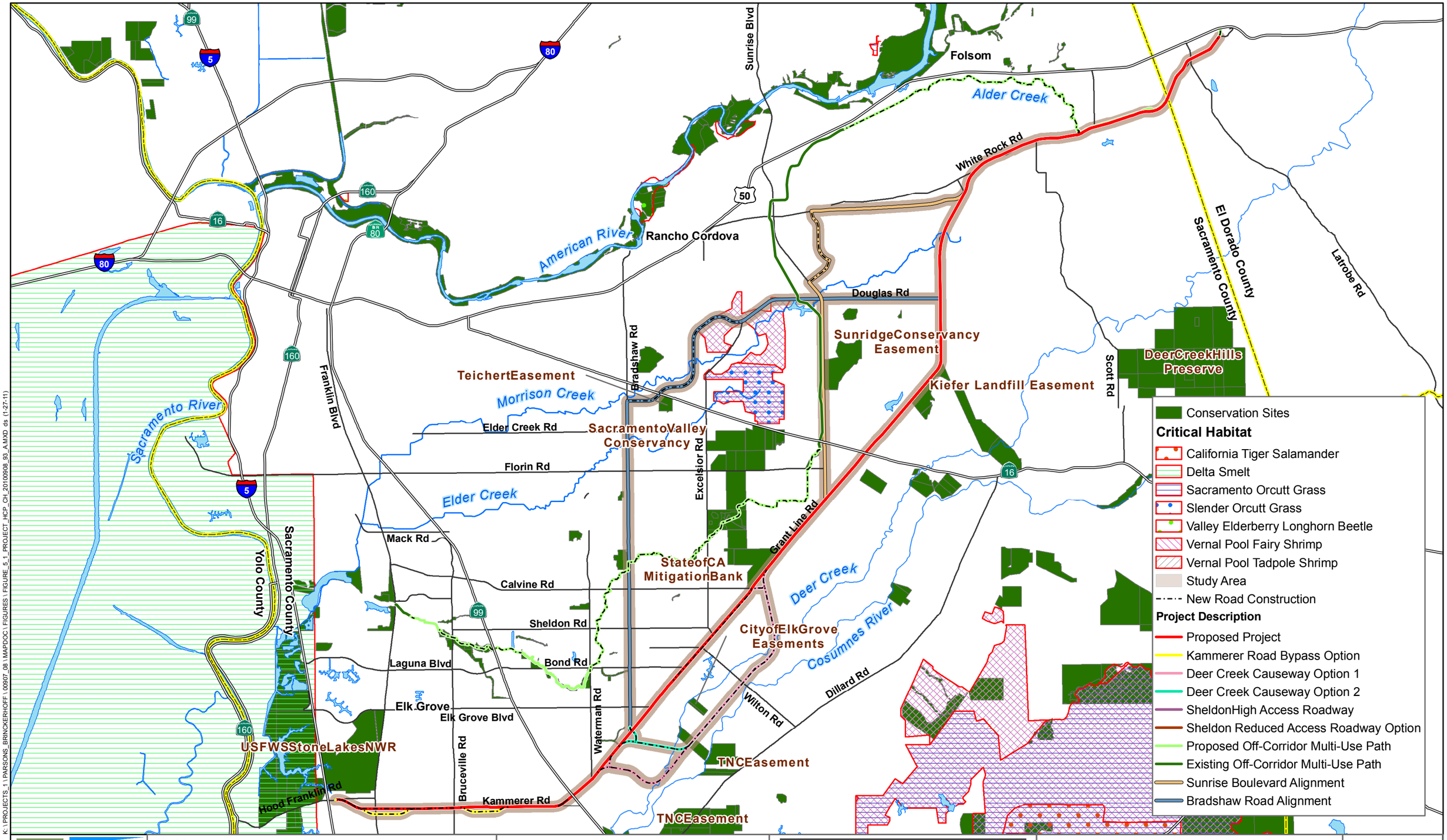
The ESA requires the federal government to designate critical habitat for any species it lists under the ESA. Critical habitat is defined as:

- specific areas with the geographical area occupied by the species at the time of list, if they contain physical or biological features essential to conservation, and those features may require special management consideration or protection; and
- specific areas outside the geographical area occupied by the species if the agency determines that the area itself is essential for conservation.

Critical habitat may include an area that is not currently occupied by the species but that will be needed for its recovery. Critical habitat is not a refuge or sanctuary for the species. Federal agencies are required to ensure that their activities do not destroy or adversely modify critical habitat to the point that it will no longer aid in the species' recovery. If critical habitat is not currently occupied by the species but is needed for the species recovery it is still protected against destruction or adverse modification.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) (16 United States Code [USC] 703) enacts the provisions of treaties between the United States, Great Britain, Mexico, Japan, and the Soviet Union and authorizes the U.S. Secretary of the Interior to protect and regulate the taking of migratory birds. It establishes seasons and bag limits for hunted species and protects migratory birds, their occupied nests, and their eggs (16 USC 703, 50 CFR 21, 50 CFR 10). Most actions that result in taking or in permanent or temporary possession of a protected species constitute violations of the MBTA. Examples of permitted actions that do not violate the MBTA are the possession of a hunting license to pursue specific game birds, legitimate research activities, display in zoological gardens, bird-banding, and similar activities. USFWS is responsible for overseeing compliance with the MBTA, and the U.S. Department of Agriculture's Animal Damage Control Officer makes recommendations on related animal protection issues.



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Data Layers Provided by Sacramento County GIS Department, Sacramento County Planning Department, SACOG, El Dorado County, El Dorado County Planning Department, The US Fish and Wildlife Service, and USGS

CAPITAL | SOUTHEAST CONNECTOR
Connecting Communities

Conservation Areas and Critical Habitat

Figure 5-1

Plot Date
January 27, 2011

Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (16 USC 668–668[d]) prohibits the take or possession of bald or golden eagles, either alive or dead, or any part, nest, or egg thereof. Take and possession may be allowed by approval of the Secretary of the Interior if it is compatible with the preservation of either species for scientific or exhibition purposes of public museums, scientific societies, and zoological parks, or for religious purposes of Indian tribes. Similarly, if take is necessary for the protection of wildlife or of agricultural or other interests in any particular locality, the Secretary may authorize the taking of such eagles pursuant to regulations. Take includes to pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest, or disturb. *Disturb* means to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, (1) injury; (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior; or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior.

Clean Water Act

The federal Clean Water Act (CWA) was enacted as an amendment to the federal Water Pollution Control Act of 1972, which outlined the basic structure for regulating discharges of pollutants to waters of the United States. The CWA serves as the primary federal law protecting the quality of the nation's surface waters, including lakes, rivers, and coastal wetlands.

The CWA empowers the EPA to set national water quality standards and effluent limitations and includes programs addressing both *point-source* and *nonpoint-source* pollution. Point-source pollution is pollution that originates or enters surface waters at a single, discrete location, such as an outfall structure or an excavation or construction site. Nonpoint-source pollution originates over a broader area and includes urban contaminants in stormwater runoff and sediment loading from upstream areas. The CWA operates on the principle that all discharges into the nation's waters are unlawful unless specifically authorized by a permit; permit review is the CWA's primary regulatory tool. EPA has delegated to the U.S. Army Corps of Engineers (USACE) the authority to administer provisions of the CWA. The following sections address specific sections of the CWA.

Section 404—Permits for Fill Placement in Waters and Wetlands

CWA Section 404 regulates the discharge of dredged and fill materials into waters of the United States. Waters of the United States refers to oceans, bays, rivers, streams, lakes, ponds, and wetlands, including any or all of the following.

- areas within the ordinary high water mark of a stream, including nonperennial streams with a defined bed and bank and any stream channel that conveys natural runoff, even if it has been realigned; and
- seasonal and perennial wetlands, including coastal wetlands

On January 9, 2001, the U.S. Supreme Court made a decision in *Solid Waste Agency of Northern Cook County v. United States Army Corps of Engineers* (SWANCC) [121 S.CT. 675, 2001] that affected USACE jurisdiction in isolated waters. Based on SWANCC, USACE no longer has jurisdiction or regulates isolated wetlands (i.e., wetlands that have no hydrologic connection with a water of the United States).

Applicants must obtain a permit from USACE for all discharges of dredged or fill material into waters of the United States, including adjacent wetlands, before proceeding with a proposed activity. USACE may issue either an individual permit evaluated on a case-by-case basis or a general permit evaluated at a program level for a series of related activities. General permits are preauthorized and are issued to cover multiple instances of similar activities expected to cause only minimal adverse environmental effects. Nationwide permits (NWPs) are a type of general permit issued to cover particular fill activities. Each NWP specifies particular conditions that must be met for the NWP to apply to a particular project.

Compliance with CWA Section 404 requires compliance with several other environmental laws and regulations. USACE cannot issue an individual permit or verify the use of a general permit until the requirements of NEPA, ESA, and the National Historic Preservation Act have been met. Moreover, USACE cannot issue or verify any permit until a water quality certification or a waiver of certification has been issued pursuant to CWA Section 401.

Section 401—Water Quality Certification

Under CWA Section 401, applicants for a federal license or permit to conduct activities that may result in the discharge of a pollutant into waters of the United States must obtain certification from the state in which the discharge would originate or, if appropriate, from the interstate water pollution control agency with jurisdiction over affected waters at the point where the discharge would originate. Therefore, all projects that have a federal component and may affect state water quality (including projects that require federal agency approval, such as issuance of a Section 404 permit) must also comply with CWA Section 401. The proposed project falls within the jurisdiction of the Central Valley Regional Water Quality Control Board (RWQCB), which is responsible for reviewing and approving Section 401 permits.

5.2.2.2 State

California Endangered Species Act

California implemented CESA in 1984. The act prohibits the take of endangered and threatened species; however, habitat destruction is not included in the state's definition of take. Under CESA, take is defined as an activity that would directly or indirectly kill an individual of a species, but the definition does not include harm or harassment. DFG administers the act and authorizes take through either Section 2080.1 (for species listed under ESA and CESA) or Section 2081 agreements (except for species designated as fully protected). Regarding rare plant species, CESA defers to the California Native Plant Protection Act, which prohibits importing rare and endangered plants into California, taking rare and endangered plants, and selling rare and endangered plants.

California Fish and Game Code

Fully Protected Species

The FGC provides protection from take for a variety of species, referred to as *fully protected species*. Section 5050 lists fully protected amphibians and reptiles, Section 3515 lists fully protected fish, Section 3511 lists fully protected birds, and Section 4700 lists fully protected mammals. The FGC defines take as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." Except for scientific research, all take of fully protected species is prohibited, and DFG cannot issue take permits for fully protected species.

Sections 1600–1616 (Lake and Streambed Alteration)

DFG regulates activities that would interfere with the natural flow of, or substantially alter the channel, bed, or bank of any lake, river, or stream. Such activities are regulated under FGC 1600–1616 and require a streambed alteration agreement. Requirements to protect the integrity of biological resources and water quality are often conditions of streambed alteration agreements. Conditions that DFG may impose include avoidance or minimization of vegetation removal, use of standard erosion control measures, limitations on the use of heavy equipment, limitations on work periods to avoid impacts on fisheries and wildlife resources, and requirements to restore degraded sites or compensate for permanent habitat losses.

Sections 3503 and 3503.5 (Protection of Birds and Raptors)

FGC 3503 prohibits the killing of birds or the destruction of bird nests. Section 3503.5 prohibits the killing of raptor species or the destruction of raptor nests. Typical violations include destruction of active bird and raptor nests as a result of tree removal and failure of nesting attempts (loss of eggs or young) as a result of disturbance of nesting pairs caused by nearby human activity. Consultation with DFG would be required if nesting birds would be affected by construction activities.

Porter-Cologne Water Quality Act

California Water Code 13260 requires "any person discharging waste, or proposing to discharge waste, within any region that could affect the waters of the state to file a report of discharge (an application for waste discharge requirements)." The Porter-Cologne Water Quality Act (Porter-Cologne) defines *waters of the state* as "any surface water or groundwater, including saline waters, within the boundaries of the state." The SWANCC ruling described above has no bearing on the Porter-Cologne definition. While all waters of the United States that are within the borders of California are also waters of the state, the converse is not true; in other words, waters of the United States is a subset of waters of the state. Thus, California retains authority to regulate discharges of waste into any waters of the state, regardless of whether USACE has concurrent jurisdiction under Section 404 of the CWA. Specifically, the RWQCB would take jurisdiction over any wetlands or waters that were deemed to not be the jurisdiction of the USACE within the proposed project. In these cases, the applicant would seek the aforementioned waste discharge permit for fill of waters of the state from the RWQCB as opposed to Section 404 and 401 permits.

Invasive Species

An *invasive species* is defined as one that is (1) nonnative (or alien) to the ecosystem under consideration and (2) whose introduction causes or is likely to cause economic or environmental harm to human health.

The California Department of Food and Agriculture (CDFA) maintains a list of noxious weeds and advises the County Agricultural Commissioners as to the action to take regarding each noxious weed species. A-rated weeds are subject to eradication, containment, rejection, or other holding action at the state/county level. B-rated weeds are subject to eradication, containment, control, or other holding action at the discretion of the County Agricultural Commissioner. C-rated weeds are subject to action to retard their spread outside of nurseries at the discretion of the County Agricultural Commissioner.

5.2.2.3 Local

Sacramento County

Sacramento County General Plan

The 1993 Sacramento County General Plan includes several polices that have been developed to protect sensitive biological resources. These policies were developed to meet the County's goals and objectives in protecting sensitive biological resources within the County.

The Sacramento County General Plan addresses the need to provide a framework for conservation of open spaces while identifying areas that will likely be developed as the Sacramento urban area expands. The open space definition used by the County is taken from California Government Code 65560, which describes open spaces for the preservation of natural resources. These include "areas required for the preservation of plant and animal life, including habitat for fish and wildlife species; areas required for ecological and other scientific study purposes; banks of rivers and streams, and watershed lands."

Under the Vegetation and Wildlife section of the Conservation Element of the General Plan (1993), the goal to "preserve and enhance high-quality, self-sustaining vernal habitats" is to be accomplished through the achievement of several objectives. The main objective is to preserve vernal pools on the four major landforms they commonly occur on. These include old (high) terrace, young (new) terrace, mudflow pools, and drainage ways. Design criteria for preserves are outlined in County Policies CO-78 through CO-82. Other objectives to preserve vernal pools in Sacramento County include: directing development around concentrated vernal pool areas, creating a vernal pool management program, coordinating with wetland regulators, and fostering community awareness.

Under the Section V, Part D of the Conservation Element of the General Plan (1993), establishes polices for the protection of tree sources in Sacramento County. Polices CO-129 through CO-136 provide conservation and protection measures for native and landmark trees in the County. These policies strive to increase oak and other native tree regeneration and provide specific guidance for the protection and restoration of trees affected by development.

El Dorado County

The Conservation and Open Space Element of the El Dorado County General Plan (2004) sets forth objectives, goals, and policies to conserve and improve El Dorado County's existing natural resources and open space, including agricultural and forest soils, mineral deposits, water and native plants, fish, wildlife species, and habitat; and preserve resources of significant, biological, ecological, historical, or cultural importance. Goal 7.4 (Wildlife and Vegetation Resources) identifies species objectives for the protection of biological resources within the county.

City of Elk Grove

The Elk Grove General Plan, adopted in 2003, recognizes that lands in and around Elk Grove provide habitat to many native plant and animal species as well as open space and agricultural uses. The City's Conservation and Air Quality Element provides policies and programs intended to reduce impacts on plants and animals that will result from the loss of habitat because of development. Although development of many areas currently used as habitat by native plants and animals is

viewed as an unavoidable result of urbanization, numerous policies have been incorporated to ensure that impacts on native species are reduced or mitigated. General Plan Policy CAQ-9 recognizes the value of vernal pools and wetlands and establishes a no net loss policy for these recourses. Policy CAQ-11 aims at the preservation of habitat for special-status plant and animal species, and policy CAQ-10 specifically addresses the adoption of a habitat conservation plan for rare, threatened, or endangered species. General Plan policies CAQ17 through CAQ-24 are aimed at protecting natural drainage and stream corridors and their associated vegetation and wildlife through preservation, buffers, and design standards. Other policies aimed at protecting habitat and open space include PTO 18, which deals with retention of natural drainage courses, and SA-15, which prohibits development in the 100-year floodplain.

City of Rancho Cordova

The Rancho Cordova General Plan, adopted June 26, 2006, establishes the City's policy framework for the preservation of natural resources. While policies and programs within various elements will guide the community form and generally conserve natural resources, the General Plan provisions most relevant to the project area are presented within the Natural Resources Element, the stated purpose of which is to "foster the preservation of Rancho Cordova's many valuable natural resources, including wildlife, habitat, water resources, soils and mineral resources."

The Natural Resources Element recognizes and complies with the complex and interrelated regulatory framework established to preserve resources, including federal (NEPA, ESA, Vernal Pool Recovery Act, CWA) and state (CEQA, CESA, FGC) regulations.

City of Folsom

The City or Folsom General Plan, adopted in 1993, establishes the City's policy framework for the preservation of open space and natural resources. The policies in the General Plan relative to natural resources in the project area are found in the Open Space and Conservation Element. The open space segment of the Element "identifies the community's open space resources and establishes policy for their preservation, maintenance, and/or use." The conservation segment of the Element "identifies the community's resources and establishes policy for their conservation, development, and/or utilization."

This element recognizes and complies with the regulatory framework established to protect open space and natural resources, including federal (NEPA, ESA, CWA) and state (CEQA and CESA).

South Sacramento Habitat Conservation Plan

The SSHCP is currently in preparation. The SSHCP area encompasses 345,000 acres in southern Sacramento County.

Although the SSHCP has not been approved and an implementation date has not been identified, its intent is to provide a regional approach to balancing development against conservation and protection of habitat, open space, and agricultural lands in the plan area.

The SSHCP would be implemented through an agreement between state/federal resource agencies [anticipated to be the USFWS, DFG, USACE, and the State Water Resources Control Board (SWRCB)] and the plan participants (currently identified as Sacramento County, City of Elk Grove, City of Rancho Cordova, and the JPA). The SSHCP would protect 30 species of plants and wildlife including

10 that are listed as threatened or endangered under ESA or CESA. The SSHCP also protects vernal pool, wetland, and stream habitats that are subject to the federal CWA and Porter-Cologne. The SSHCP seeks a programmatic Streambed Alteration Agreement under FGC 1600 et seq.

The primary mechanism for conservation established under the SSHCP is the reserve system, which would conserve habitat that would be managed and monitored to achieve the biological goals and objectives for the covered species. In exchange for this habitat conservation, USFWS and DFG would issue ITPs authorizing covered activities. The entities that receive coverage under the ITP can take specified species incidental to otherwise legal activities.

The SSHCP conservation strategy would be fulfilled through take avoidance, minimization, and compensation measures, including land and easement dedications and per-acre fees imposed on covered activities based on their impacts on habitat and resulting take. Fees would be used to purchase land for the reserve system, thereby providing large-scale habitat preservation and habitat restoration. Supplementary monies would be sought from grants or other funding sources to acquire preserve lands that will contribute to the recovery of covered species, but which are not required as mitigation for covered activities.

5.3 Impact and Mitigation Discussion

5.3.1 Thresholds of Significance

An impact is considered significant under CEQA if it would result in any of the following environmental effects, which are based on State CEQA Guidelines Appendix G (14 CCR 15000 et seq.):

- have a substantial adverse effect, either directly or through habitat modification, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations or by DFG or USFWS;
- have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by DFG or USFWS;
- have a substantial adverse effect on federally protected wetlands, as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, and coastal wetlands etc.) through direct removal, filling, hydrological interruption, or other means;
- 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;
- conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or
- conflict with the provisions of an adopted HCP, natural communities conservation plan, or other approved local, regional, or state HCP.

5.3.2 Approach and Methodology

The potential for biological resources within the project area to be affected was evaluated by comparing the resources mapped within the direct and indirect corridors (Tables 5-1 and 5-2) to the habitat requirements for special-status species, and the presence or absence of sensitive biological communities within the corridors (e.g., wetlands and riparian woodland). It is important to note that generally, the maximum right-of-way width for the Connector segments would be no more than 200 feet. However, for program-level planning purposes, this analysis includes a wider direct impact corridor for biological resources (400 feet) and an additional 200 feet on either side of the 400-foot-wide corridor for indirect impacts. This conservative estimate will allow the JPA to select the corridor at the program EIR stage, and then narrow the alignment (i.e., the "project-level footprint") at later stages. Using a 400-foot direct impact area will also allow the JPA or the member agencies to adjust the project-level segments to avoid direct or indirect impacts of sensitive species or habitat as the alignments are refined.

The proposed project has the potential to directly and indirectly affect biological resources within the project area. The mitigation measures described for potential impacts on sensitive biological resources have not been developed through formal consultation or coordination with resource agencies (e.g., DFG, USFWS, NMFS, USACE). As part of subsequent, project-level environmental analysis, agencies must be contacted as part of the environmental compliance process to determine specific compensatory mitigation for impacts on wetlands, state- and federally listed species, and riparian habitats. Additional mitigation measures may also be necessary as part of a 1600 Streambed Alteration Agreement. If the SSHCP has been implemented at the time of project-level design and environmental review, the JPA or agencies would comply with the requirements of the plan.

Biological resources could be directly or indirectly affected by the following project activities:

- Stream dewatering or installation of temporary water-diversion structures during construction of bridges or other transportation facilities over riverine systems
- Direct loss of habitat associated with roadway widening, new transportation facilities, interchange improvements, or off-corridor multi-use path construction
- Temporary stockpiling of soil or construction materials and sidecasting of soil and other construction wastes
- Removal of riparian vegetation along waterways during improvement or construction of bridges
- Removal of vegetation during construction of temporary staging areas and access roads
- Soil compaction
- Alteration of topography and hydrology adjacent to wetland areas
- Generation of dust by construction equipment
- Water runoff from the construction area
- Herbicide application and removal of vegetation as part of road maintenance
- Degradation of water quality in wetlands and waterways, resulting from road runoff containing petroleum products

5.3.3 Impacts of the Proposed Project

Impact BIO-1: Potential Loss of Special-Status Plant Species

Construction and staging activities could directly or indirectly affect populations of special-status plants (see Table 5-3 for a list of special-status plants potentially occurring within the project area). Improvements and modifications within existing rights-of way would have less potential to affect special-status plants relative to project activities in undisturbed areas. Impacts on special-status plants could result in a reduction in local population size, lowered reproductive success, or habitat fragmentation. The impact would be considered significant.

If the SSHCP has been implemented and the Capital SouthEast Connector Project is a covered project, the JPA or agencies would comply with the requirements of the plan to address this impact. If the SSHCP has not been adopted, Mitigation Measures BIO-1, BIO-2a, and BIO-2b would be required to reduce the impact to less than significant.

Mitigation Measure BIO-1: Conduct an Environmental Awareness Training Program for Construction Crews

Before any work occurs in the project area, a qualified biologist will conduct a mandatory environmental awareness training program for all construction personnel working on the project. The training program will notify construction personnel of the sensitive biological resources occurring within the project area, their legal status, and penalties for not complying with the conditions of any permits issued for the project.

The education program will emphasize the need to protect water quality, wetlands, and habitat for special-status species. A biological monitor approved by the resource agencies will ensure that construction personnel adhere to the guidelines and restrictions of all approved environmental documents, permits, and other agreements.

Mitigation Measure BIO-2a: Avoid or Minimize Impacts on Special-Status Plant Populations

As part of the environmental review process for individual projects, the JPA or implementing agency will retain a qualified botanist to document the presence or absence of special-status plants before project implementation. The following steps will be implemented on a project-by-project basis to document special-status plants:

- **Review Existing Information**. The botanist will review existing information to develop a list of special-status plants that could grow in the specific project area. Sources of information consulted will include DFG's CNDDB, previously prepared environmental documents, city and county general plans, HCPs and natural communities conservation plans (NCCPs), and the CNPS electronic inventory.
- **Coordinate with Agencies**. The botanist will coordinate with the appropriate agencies (DFG, USFWS) to discuss botanical resource issues and determine the appropriate level of surveys necessary to document special-status plants.
- **Conduct Field Studies**. The botanist will evaluate existing habitat conditions for each project and determine what level of botanical surveys may be required. The type of botanical survey will depend on species richness, habitat type and quality, and the

probability of special-status species occurring in a particular habitat type. Depending on these factors and the proposed construction activity, one or more of the following levels of survey may be required:

- **Habitat Assessment.** A habitat assessment will be conducted to determine whether suitable habitat is present. This type of assessment can be conducted at any time of year and is used to assess and characterize habitat conditions and determine whether return surveys are necessary. If no suitable habitat is present, no additional surveys will be required.
- **Floristic Protocol-Level Surveys**. Floristic surveys that follow the *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (California Department of Fish and Game 2009) will be conducted in areas that possess natural vegetation, have known occurrences of special-status plants, or that have habitat potentially supporting special-status plants. These survey protocols require that all species be identified to the level necessary to determine whether they qualify as special-status plants or are plant species with unusual or significant range extensions. The protocols also require that field surveys be conducted when special-status plants that could occur in the area are evident and identifiable. To account for different special-status plant identification periods, one or more series of field surveys may be required in spring and summer months.

- **Implement Avoidance and Minimization Measures.** Special-status plant populations identified during the field surveys will be mapped and documented, and the following measures implemented to avoid and minimize impacts on special-status plants:
  - Redesign or modify the project to avoid or minimize direct and indirect impacts on special-status plants.
  - Avoid or minimize construction impacts on special-status plants near the project site by installing environmentally sensitive area fencing (orange construction barrier fencing) around special-status plant populations at least 20 feet from the edge of the population. Wider buffer zone widths set by site-specific conditions and permit requirements, such as those for seasonal wetlands and vernal pools that are considered special-status shrimp habitat, will take precedence over this requirement. The location of the fencing will be marked in the field with stakes and flagging and shown on construction drawings. Construction specifications will contain clear language that prohibits construction-related activities, vehicle operation, material and equipment storage, and other surface-disturbing activities within the fenced environmentally sensitive area.

Mitigation Measure BIO-2b: Compensate for Impacts on Special-Status Plant Species

If impacts on pincushion navarretia, dwarf downingia, Boggs Lake hedge hyssop, legenere, and Sanford's arrowhead cannot be avoided (Ahart's dwarf rush, Sacramento Orcutt grass, and slender Orcutt grass must be avoided), the JPA or implementing agency will compensate for the loss of plants and their habitat by contributing to the conservation and recovery of the affected species. For each special-status plant occurrence impacted, one occurrence of the same species of a similar or greater size will be preserved (to compensate for temporal habitat loss). For each project with impacts on special-status plants, a mitigation and monitoring plan will be prepared that describes how the loss of special-status plant species will be compensated for. The

mitigation and monitoring plan will be reviewed and approved by DFG and USFWS. The plan shall contain, but is not limited to, the following performance standards:

- Habitat restoration or establishment, where appropriate and feasible, will be used in conjunction with translocating the affected population.
- Habitat will be restored or newly established (on or off site) at a minimum ratio of 1:1 (1 acre restored for each acre impacted).
- The mitigation site will be monitored the first year after the mitigation is implemented and every 5 years thereafter, until the mitigation is considered to be successful. Mitigation will be considered successful if the translocated population is determined to be stable and contains at least 60% of the number of plants present in the original occurrence. If the population falls below 60% of the original number of plants, then remediation measures will be initiated.

Because this mitigation measure would be experimental and the outcome unpredictable, the impact cannot be reduced to a less-than-significant level.

Because special-status species in the project area are state or federally listed or occur in wetlands, each project would have to comply with state and federal laws and regulations governing these resources, and obtain the applicable take or fill permits. These permits may include specific requirements, including compensation measures and ratios, which will take precedence over the measures and ratios specified in the previous paragraph.

Impact BIO-2: Potential Introduction or Spread of Invasive Plant Species

Construction of the project could introduce or spread invasive plant species into currently uninfested areas, possibly resulting in the displacement of special-status plant species and degradation of habitat for special-status wildlife. Plants or seeds may be dispersed on construction equipment if the appropriate measures are not implemented. The introduction or spread of invasive plant species could result in a substantial reduction or elimination of species diversity or abundance. If the SSHCP has been implemented and the Capital SouthEast Connector Project is a covered project, the JPA or agencies would comply with the requirements of the plan to address this impact. If the SSHCP has not been adopted, Mitigation Measure BIO-3 would be required to reduce the impact to less than significant.

Mitigation Measure BIO-3: Avoid and Minimize the Introduction and Spread of Invasive Plant Species

As part of project-level environmental review, the implementing agency will retain a qualified botanist to address invasive plant species impacts. The botanist will determine whether invasive plant introduction or spread are for a potential impact of the project and whether they could displace native plants and natural habitats or affect the quality of forage on rangelands or cropland productivity. If the botanist determines that invasive plants are a potential impact, the project proponent will review the County Agricultural Commission's noxious weed list, California Department of Food and Agriculture's A, B, and C lists of noxious weeds, and California Invasive Plant Council's list of pest plants of ecological concern. These lists will be used to identify invasive plants that will be targeted during field surveys by the botanist. One or more field surveys will be undertaken by qualified botanists to examine the project area.

Surveys will focus on target weed species that are considered locally important for documentation and control purposes.

If invasive plant infestations are located during the field surveys, they will be mapped and documented in the CEQA and NEPA documentation, as applicable, and the implementing agency will implement the following measures into their project plans and specifications:

- Use certified, weed-free, imported erosion-control materials (or rice straw in upland areas).
- Coordinate with the applicable County Agricultural Commissioner and land management agencies to ensure that the appropriate best management practices (BMPs) are implemented.
- Educate construction supervisors and managers on weed identification and the importance of controlling and preventing the spread of noxious weeds.
- Clean equipment at designated wash stations after leaving noxious weed infestation areas.

Impact BIO-3: Potential Loss and Disturbance of Riparian Woodlands

Construction of the project could result in the indirect disturbance of up to23.3 acres. There are 18.4 acres of riparian woodlands within the area of potential direct effects. Actual project impacts are not know, but will likely only affect a portion of these woodlands. Any impacts to riparian woodlands could result in long-term degradation of a sensitive plant community, fragmentation or isolation of an important wildlife habitat, and disruption of natural wildlife movement corridors. If the SSHCP has been implemented and the Capital SouthEast Connector Project is a covered project, the JPA or agencies would comply with the requirements of the plan to address this impact. If the SSHCP has not been adopted, Mitigation MeasuresBIO-1 (described above), BIO-4a, and BIO-4b (described below) would be required to reduce the impact to less than significant.

Mitigation Measure BIO-4a: Avoid and Minimize Potential Impacts on Riparian Woodlands

The implementing agency will retain a qualified biologist to document the location and type of riparian communities that occur in the site-specific project area and could be affected by their project. This information will be mapped and documented as part of CEQA and NEPA documentation, as applicable. The implementing agency will avoid or minimize impacts on riparian communities by implementing the following measures:

- Redesign or modify the project to avoid direct and indirect impacts on riparian communities, if feasible.
- Protect riparian communities near the project site by installing environmentally sensitive area fencing at least 20 feet from the edge of the riparian vegetation. Depending on site-specific conditions, this buffer may be narrower or wider than 20 feet (e.g., where adjacent structures or resources prohibit staking out 20 feet or where certain resources warrant wider buffers, as determined by a biologist). The location of the fencing will be marked in the field with stakes and flagging and shown on construction drawings. Construction specifications will contain clear language that prohibits construction-related activities, vehicle operation, material and equipment storage, and other surface-disturbing activities within the fenced environmentally sensitive area.

- Minimize the potential for long-term loss of riparian vegetation by trimming vegetation rather than removing the entire shrub. Shrub vegetation will be cut at least 1 foot above ground level to leave the root systems intact and allow for more rapid regeneration of the species. Cutting will be limited to a minimum area necessary within the construction zone. This type of removal will be allowed only for shrub species (all trees will be avoided) in areas that do not provide habitat for sensitive species. To protect migratory birds, no woody riparian vegetation will be removed between January 1 and August 31.

Mitigation Measure BIO-4b: Compensate for the Loss of Riparian Community

If riparian vegetation is removed as part of a specific project, the responsible implementing agency will compensate for the loss of riparian vegetation. Compensation will be provided at a minimum 1:1 ratio for restoration and 2:1 preservation, and may be a combination of onsite restoration/creation, offsite restoration, or mitigation credits. If mitigation is completed on or off site by the JPA or implementing agency, they will develop a restoration and monitoring plan that describes how riparian habitat will be enhanced or recreated and monitored. At a minimum, the restoration and monitoring plan will include clear goals and objectives, success criteria, specifics on restoration/creation (plant palette, soils, irrigation, etc.), specific monitoring periods and reporting guidelines, and a maintenance plan. In general, any riparian restoration or creation will be monitored for a minimum of 5 years and will be considered successful when at least 75% of all plantings have become successfully established.

Impact BIO-4: Potential Loss or Alteration of Waters of the United States and Waters of the State

Construction of the project could result in impacts on waters of the United States and waters of the state (streams and isolated wetlands). Although specific wetland delineations and mapping of waters the state have not yet been conducted for the project, typical habitats that would generally be considered under the jurisdiction of the USACE or the RWQCB would include up to 75 acres of streams, swales, seasonal wetlands, vernal pools, freshwater marshes, seasonal ponds, open waters, and irrigated pastures (186 acres) and aqueducts (1.8 acres). Tables 5-1 and 5-2 list the total acres of these habitats that occur within the potential direct project corridor route and within the area of potential indirect impact, respectively. These features could be affected directly or indirectly through fill, hydrological alteration (including dewatering), alteration of streambed and stream banks, and other construction-related activities, resulting in long-term degradation of a sensitive plant community, fragmentation or isolation of an important wildlife habitat, and disruption of natural wildlife movement corridors. If the SSHCP has been implemented and the Connector Project remains a covered project, the JPA or agencies would comply with the requirements of the plan to address this impact. If the SSHCP has not been adopted, Mitigation Measures BIO-1 (described above), BIO-5a, and BIO-5b (described below) would be required to reduce the level of impact. Because of the current limitations on available wetland mitigation credits (considering the SSHCP has not yet been adopted) in the watersheds within the project area, permanent impacts to wetlands would be considered a significant and unavoidable impact.

Mitigation Measure BIO-5a: Avoid and Minimize Disturbance of Waters of the United States and Waters of the State

The implementing agency for a specific project in the project area will retain a qualified wetlands biologist to identify areas that could qualify as waters of the United States and waters

of the state, including jurisdictional and isolated wetlands. USACE jurisdictional wetlands will be delineated using the methods outlined in the USACE 1987 Wetlands Delineation Manual and the Arid West Manual. This information will be mapped and documented as part of the CEQA documentation, as applicable, and in wetland delineation reports.

Implementing agencies will avoid and minimize impacts on wetlands and other waters by implementing the following measures:

- Redesign or modify the project to avoid direct and indirect impacts on wetland habitats, if feasible.
- Protect wetland habitats that occur near the project site by installing environmentally sensitive area fencing at least 20 feet from the edge of the wetland. Depending on site-specific conditions and permit requirements, this buffer may be wider than 20 feet (e.g., 250 feet for seasonal wetlands and vernal pools that are considered special-status shrimp habitat). The location of the fencing will be marked in the field with stakes and flagging and shown on construction drawings. Construction specifications will contain clear language that prohibits construction-related activities, vehicle operation, material and equipment storage, and other surface-disturbing activities within the fenced environmentally sensitive area.
- Avoid installation activities in saturated or ponded wetlands during the wet season (spring and winter) to the maximum extent possible. Where such activities are unavoidable, protective practices, such as use of padding or vehicles with balloon tires, will be used.
- Where determined necessary by resource specialists, use geotextile cushions and other materials (e.g., timber pads, prefabricated equipment pads, or geotextile fabric) in saturated conditions to minimize damage to the substrate and vegetation.
- Stabilize exposed slopes and streambanks immediately on completion of installation activities. Other waters of the United States and waters of the state will be restored in a manner that encourages vegetation to reestablish to its pre-project condition and reduces the effects of erosion on the drainage system.
- In highly erodible stream systems, stabilize banks using a nonvegetative material that will bind the soil initially and break down within a few years. If the project engineers determine that more aggressive erosion control treatments are needed, use geotextile mats, excelsior blankets, or other soil stabilization products.
- During construction, remove trees, shrubs, debris, or soils that are inadvertently deposited below the ordinary high-water mark of drainages in a manner that minimizes disturbance of the drainage bed and bank.

These measures will be incorporated into contract specifications and implemented by the construction contractor. In addition, the implementing agency will ensure that the contractor incorporates all state and federal permit conditions into construction specifications.

Mitigation Measure BIO-5b: Compensate for the Loss of Wetlands and Waters

If wetlands and waters are filled or disturbed as part a specific project, the implementing agency will compensate for the loss of wetland and waters to ensure there is no net loss of habitat functions and values. The compensation will be at a minimum 1:1 restoration ratio and a 1:1

preservation ratio with the mitigation being met by purchasing credits at a USACE-approved mitigation bank.

Impact BIO-5: Potential Loss or Disturbance of Special-Status Wildlife Species and Their Habitat

Construction of the project could result in the direct loss or indirect disturbance of special-status wildlife or their habitats, which are known to occur or could occur in the study area (see Table 5-3 for a list of potentially occurring species). Table 5-1 lists the acreage of habitat that could be lost along the proposed corridor route and Figure 5-1 lists the potential acreage affected from indirect impacts. Appendix I shows the habitats affected along the proposed project route. Impacts on special-status wildlife or their habitat could result in a substantial reduction in local population size, lowered reproductive success, or habitat fragmentation. Significant impacts on special-status wildlife may include, but are not limited to:

- direct mortality from the collapse of underground burrows, resulting from soil compaction;
- direct mortality resulting from the movement of equipment and vehicles through the project area;
- increased mortality caused by higher numbers of automobiles on new or widened roads in wildlife migration corridors;
- loss of breeding and foraging habitat resulting from the filling of up 75 acres of seasonal or perennial wetlands;
- loss of breeding, foraging, and refuge habitat resulting from the permanent removal of riparian vegetation ;
- abandoned eggs or young and subsequent nest failure for special-status nesting birds, including raptors, as a result of construction-related noise;
- indirect impacts on conservation areas that occur adjacent to future road expansions (up to 123.2 acres of conservation lands occur within the proposed project's 400-foot wide corridor and an additional 112.5 acres occur in the area between 400 and 800 feet (Table 5-4 and Figure 5-1);
- loss of suitable foraging habitat for special-status raptor species; and
- loss of migration corridors resulting from the construction of permanent structures or features.

If the SSHCP has been implemented and the Connector Project remains a covered project, the JPA or agencies would comply with the requirements of the plan to address this impact. If the SSHCP has not been adopted, Mitigation Measures BIO-1 (described above), BIO-6a, and BIO-6b (described below) would be required to reduce the impact to less than significant for all wildlife species addressed, except vernal pool fairy shrimp and vernal pool tadpole shrimp. Because of the current limitations on available vernal pool fairy shrimp and vernal pool tadpole shrimp mitigation credits (considering the SSHCP has not yet been adopted) in the project region, permanent impacts to vernal pool fairy shrimp and vernal pool tadpole shrimp habitat would be considered a significant and unavoidable impact.

Mitigation Measure BIO-6a: Avoid and Minimize Impacts on Special-Status Wildlife Species

As part of project-level environmental review, implementing agencies will retain a qualified wildlife biologist to document the presence or absence of suitable habitat for special-status wildlife in the specific project area and vicinity. The following steps will be implemented to document special-status wildlife and their habitats for each project:

- **Review Existing Information.** The wildlife biologist will review existing information to develop a list of special-status wildlife species that could occur in the project area. The following information will be reviewed as part of this process: the USFWS special-status species list for the project region, a review of records in the CNDDB, previously prepared environmental documents, city and county general plans, HCPs and NCCPs (if there are any), and USFWS issued biological opinions for previous projects.
- **Coordinate with State and Federal Agencies.** The wildlife biologist will coordinate with the appropriate agencies (DFG and USFWS) to discuss wildlife resource issues in the project area and determine the appropriate level of surveys necessary to document special-status wildlife and their habitats.
- **Conduct Field Studies.** The wildlife biologist will evaluate existing habitat conditions and determine what level of biological surveys may be required. The type of survey required will depend on habitat type and quality and the probability of special-status species occurring in a particular habitat type. Depending on the existing conditions in the project area and the proposed construction activity, one or more of the following levels of survey may be required:
    - **Habitat Assessment.** A habitat assessment determines whether suitable habitat is present. This type of assessment can be conducted at any time of year and is used to assess and characterize habitat conditions and to determine whether return surveys are necessary. If no suitable habitat is present, no additional surveys will be required.
    - **Species-Focused Surveys.** Species-focused surveys (or target species surveys) will be conducted if suitable habitat is present for special-status wildlife and if they are necessary to determine the presence or absence of a species in the project area. The surveys will focus on special-status wildlife species that have the potential to occur in the region. The surveys will be conducted during a period when the target species are present or active.
    - **Protocol-Level Wildlife Surveys.** The project proponent will comply with protocols and guidelines issued by responsible agencies for certain special-status species. USFWS and DFG have issued survey protocols and guidelines for several special-status wildlife species that could occur in the project region, including (but not limited to) the valley elderberry longhorn beetle, vernal pool branchiopods, giant garter snake, western burrowing owl, Swainson's hawk, and nesting birds. The protocols and guidelines may require that surveys be conducted during a particular time of year or time of day when the species is present and active. Many survey protocols require that only a USFWS- or DFG-approved biologist perform the surveys. The project proponent will coordinate with the appropriate state or federal agency biologist before the initiation of protocol-level surveys to ensure that the survey results will be valid. Because some species can be difficult to detect or observe, multiple field techniques may be used during a survey

period and additional surveys may be required in subsequent seasons or years as outlined in the protocol or guidelines for each species.

Special-status wildlife or suitable habitat identified during the field surveys will be mapped and documented as part of the CEQA and NEPA documentation, as applicable. The implementing agencies will implement a combination of the following mitigation measures to avoid and minimize significant impacts on special-status wildlife and their habitats:

- Redesign or modify the project to avoid direct and indirect impacts on special-status wildlife or their habitats, if feasible.
- Protect special-status wildlife and their habitat near the project site by installing environmentally sensitive area fencing around habitat features, such as vernal pools, seasonal wetlands, burrows, and nest trees. The environmentally sensitive area fencing or staking will be installed at a minimum distance from the edge of the resource as determined through coordination with state and federal agency biologists (USFWS and DFG). The location of the fencing will be marked in the field with stakes and flagging and shown on construction drawings. Construction specifications will contain clear language that prohibits construction-related activities, vehicle operation, material and equipment storage, and other surface-disturbing activities within the fenced environmentally sensitive area.
- When feasible restrict construction-related activities near sensitive resources to the nonbreeding season or other periods of activity for special-status wildlife species that could occur in the project area. Typical timing restrictions include, but are not limited to:
    - Valley elderberry long horn beetle – February 15 to November 1 (time period where shrub transplanting can't occur).
    - Giant garter snake inactive period – October 1 to May 1
    - Western spadefoot toad reproductive period – generally January 1 to May 1
    - Swainson's hawk nesting season – generally February 1 to August 31
    - Burrowing owl nesting – generally February 1 to August 31
    - Other nesting migratory birds and raptors – generally January 1 to August 31
- Conduct biological construction monitoring of project areas where work occurs in proximity to sensitive wildlife or their habitat. The JPA or implementing agency will hire a qualified wildlife biologist approved by USFWS and DFG to monitor construction activities to ensure that no wildlife is harmed during construction and no wildlife habitat outside of the project area is unintentionally affected by project construction.

Mitigation Measure BIO-6b: Compensate for Impacts on Special-Status Wildlife Species

If all or portions of Mitigation Measure BIO-6a are not feasible and site-specific construction activities would result in significant impacts on special-status wildlife species, compensation for the loss of habitat will be implemented to reduce the impact to a less-than-significant level. Impacted habitat will be mitigated off site at an agency approved mitigation bank. The minimum replacement ratios and typical mitigation for wildlife habitat that could be impacted by the proposed project are presented in Table 5-5.

Table 5-5. Minimum Replacement Ratios and Typical Mitigation for Wildlife Habitat

Species	Preservation	Creation/Restoration
Vernal pool fairy shrimp and vernal pool tadpole (would mitigate for other vernal pool species)	2:1 (1:1 for indirect impacts)	1:1
Valley elderberry longhorn beetle	Transplant directly affected shrubs	Plant seedlings and associated riparian at stem placement ratios from 1:1 to 8:1, depending on stem size and shrub location
Giant garter snake	Preserve replacement habitat	From 1:1 to 3:1 depending on nature of impact
Burrowing owl	6.5 acres of foraging habitat for each pair relocated on site; 9.75 to 19.5 acres per pair for offsite relocation	Create artificial burrows if necessary
Swainson's hawk	Preserve foraging habitat from 0.5:1 to 1.5:1	NA

Impact BIO-6: Conflict with Local Policies or Ordinances Protecting Biological Resources

Construction of the project could result in conflicts with local policies or ordinances that protect locally significant biological resources. The proposed project is currently in line with the proposed draft SSHCP, and is a covered project in that plan. Implementation of Mitigation Measure BIO-7 would reduce this impact to a less-than-significant level.

Mitigation Measure BIO-7: Review Local City and County Policies, Ordinances, and Conservation Plans and Comply with Requirements

As part of project-level environmental review, implementing agencies will ensure that projects comply with the most recent general plans, policies, ordinances, and conservation plans (including any HCPs, NCCPs, and other local, regional, and state plans). Review of these documents and compliance with their requirements will be demonstrated in project-level environmental documentation. Implementing agencies will ensure that projects comply with all policies, ordinances, and plans that exist at the time of project-level review, regardless of whether they existed during the program-level analysis.

Impact BIO-7: Removal or Disturbance of Protected Trees

Construction activities for the project could result in removal of protected trees. Potential impacts could result from direct removal of trees and indirect activities associated with trenching, parking construction equipment under the trees, or stockpiling construction materials in the tree root zone (defined by the tree canopy). Some woodland communities and species, especially oaks, have declined from their historic extent and the disturbance or potential removal of woodlands and individual trees would be considered a significant impact. Implementation of Mitigation Measures BIO-1 (described above), BIO-8a, and BIO-8b (described below) would reduce this impact to a less-than-significant level.

Mitigation Measure BIO-8a: Avoid and Minimize Impacts on Protected Trees

As part of project-level environmental review, proponents of specific projects that may result in removal of protected woodland communities and individual trees will review local plans, policies, and ordinances related to their protection and comply with local agency requirements.

If avoidance is required by the local planning jurisdiction and determined to be feasible, implementing agencies will install orange construction barrier fencing to identify environmentally sensitive areas around protected trees (the minimum size of tree to be protected will be determined by the local ordinance). If avoidance is not feasible then Mitigation Measure BIO-8b will be implemented (see discussion below).

Before construction, a qualified biologist will work with the project engineer to identify the locations for the barrier fencing, and will place stakes around the sensitive resource sites to indicate these locations. The fencing will be installed before construction activities are initiated and will be maintained throughout the construction period. The following paragraph will be included in the construction specifications:

> The Contractor's attention is directed to the areas designated as "environmentally sensitive areas." These areas are protected, and no entry by the Contractor for any purpose will be allowed unless specifically authorized in writing by the <jurisdiction name here>. The Contractor will take measures to ensure that Contractor's forces do not enter or disturb these areas, including giving written notice to employees and subcontractors.

Temporary fences around the environmentally sensitive areas will be installed as the first order of work. Temporary fences will be furnished, constructed, maintained, and removed as shown on the plans, as specified in the special provisions, and as directed by the project engineer. The fencing will be commercial-quality woven polypropylene, orange in color, and at least 4 feet high (Tensor Polygrid or equivalent). The fencing will be tightly strung on posts with a maximum 10-foot spacing.

Mitigation Measure BIO-8b Compensate for Impacts on Protected Trees

If impacts on protected trees cannot be avoided, then the implementing agency will compensate for impacts on protected trees. At a minimum, for every tree impacted one existing tree will be preserved and one new tree will be planted. Compensation for impacted trees will be done at a minimum of the following:

- planting replacement trees within project right-of-ways at 1:1, or
- preserving (1:1) and planting replacement trees (1:1) at agency-approved offsite locations within southern Sacramento County.

All replacement tree plantings will consist of seedlings or saplings, depending on tree species and site conditions, and will be monitored for viability for a minimum of 5 years. Trees will be planted with protective structures to avoid and minimize damage from pests and weeds. During the monitoring period the implementing agency or a designated entity will provide supplemental watering of replacement trees, as needed, for at least the first two growing seasons, hand weed the planted area as needed, assess the health of replacement trees, replace dead or diseased trees as needed, and, at the end of the monitoring period, ensure that protective structures and irrigation systems are removed from the replacement area.

5.3.4 Impacts of the Off-Corridor Multi-Use Path Alternative

Impact BIO-1: Potential Loss of Special-Status Plant Species

Construction and staging activities could directly or indirectly impact populations of special-status plants. Impacts on special-status plants could result in a reduction in local population size, lowered reproductive success, or habitat fragmentation. This would be considered a significant impact. Implementation of Mitigation Measures BIO-1, BIO-2a, and BIO-2b would reduce this impact to a less-than-significant level.

Impact BIO-2: Potential Introduction or Spread of Invasive Plant Species

Construction of this alternative could introduce or spread invasive plant species into currently uninfested areas. This would be considered a significant impact. Implementation of Mitigation Measure BIO-3 would reduce this impact to a less-than-significant level.

Impact BIO-3: Potential Disturbance or Conversion of Riparian Woodlands

Construction of this alternative could result in the direct conversion of up to 22.3 acres of riparian woodland. This would be considered a significant impact. Implementation of Mitigation Measures BIO-1, BIO-4a, and BIO-4b would reduce this impact to a less-than-significant level.

Impact BIO-4: Potential Loss or Alteration of Waters of the United States and Waters of the State

Construction of this alternative could result in impacts on waters of the United States and waters of the state (streams and isolated wetlands). Although specific wetland delineations and mapping of other waters of the US and the state have not yet been conducted for the project, typical habitats that would generally be considered under the jurisdiction of the USACE or the RWQCB would include up to 8.0 acres of streams, swales, seasonal wetlands, vernal pools, freshwater marshes, seasonal ponds, open waters and aqueducts (34.2 acres). Appendix I shows where the off-corridor trail crosses these habitats and Table 5-1 lists the total acres of these habitats that occur within the potential direct project corridor route and within the area of potential indirect impact, respectively. This would be considered a significant impact. Implementation of Mitigation Measures BIO-1, BIO-5a, and BIO-5b would reduce the level of impact. Because of the current limitations on available wetland mitigation credits (considering the SSHCP has not yet been adopted) in the watersheds within the project area, permanent impacts to wetlands would be considered a significant and unavoidable impact.

Impact BIO-5: Potential Loss or Disturbance of Special-Status Wildlife Species and Their Habitat

Construction of this alternative could result in the direct loss or indirect disturbance of special-status wildlife or their habitats. Implementation of Mitigation Measures BIO-1, BIO-6a, and BIO-6b would reduce these impacts to a less-than-significant level for all wildlife species addressed, except vernal pool fairy shrimp and vernal pool tadpole shrimp. Because of the current limitations on available vernal pool fairy shrimp and vernal pool tadpole shrimp mitigation credits (considering the SSHCP has not yet been adopted) in the project region, permanent impacts to vernal pool fairy shrimp and vernal pool tadpole shrimp habitat would be considered a significant and unavoidable impact.

Impact BIO-6: Conflict with Local Policies or Ordinances Protecting Biological Resources

Construction of this alternative could result in conflicts with local policies or ordinances that protect locally significant biological resources. This would be considered a significant impact. Implementation of Mitigation Measure BIO-7 would reduce this impact to a less-than-significant level.

Impact BIO-7: Removal or Disturbance of Protected Trees

Construction activities for this alternative could result in removal of protected trees. This would be considered a significant impact. Implementation of Mitigation Measures BIO-1, BIO-8a, and BIO-8b would reduce this impact to a less-than-significant level.

5.3.5 Impacts of the Project Options

5.3.5.1 Kammerer Road Bypass Option

Overall, implementation of the Kammerer Road Bypass Option would not reduce or avoid any of the impacts of the proposed project and would introduce new impacts on biological resources where it runs outside of existing roads (developed lands). This option would add additional impacts on wetlands and potential habitat for special-status species by introducing a segment of new road to the south of the existing Kammerer Road.

Impact BIO-1: Potential Loss of Special-Status Plant Species

Implementation of this option would not reduce or avoid potential impacts on special-status plants and would potentially introduce new impacts. Construction of this option would affect more potential habitat for special-status plants than the proposed project in the equivalent segment of corridor. The impact would be slightly worsened and would remain significant. If the SSHCP has been implemented and the Capital SouthEast Connector Project is a covered project, the JPA or agencies will comply with the requirements of the plan to address this impact. If the SSHCP has not been adopted, Mitigation Measures BIO-1, BIO-2a, and BIO-2b would be required to reduce the impact to less than significant.

Impact BIO-2: Potential Introduction or Spread of Invasive Plant Species

Implementation of this option would not reduce or avoid the potential impact of invasive plant introduction and would potentially introduce new impacts. Construction of this option would have a greater potential to introduce invasive species to adjacent uninfested areas because it would disturb more existing annual grassland in this area relative to the equivalent portion of the proposed project. Implementation of Mitigation Measure BIO-3 would reduce this impact to a less-than-significant level.

Impact BIO-3: Potential Disturbance or Conversion of Riparian Woodlands

As shown in Appendix I, Map Sheets 1-3 and Table 5-1 and 5-2, the Kammerer Road Bypass Option would not cross through or near riparian woodland habitat, and therefore would not result in direct or indirect impacts on riparian woodlands, nor would the equivalent portion of the proposed project; therefore, implementation of this option would not reduce or avoid any impacts of the proposed project on riparian woodlands.

Impact BIO-4: Potential Loss or Alteration of Waters of the United States and Waters of the State

Construction of this option would not reduce or avoid impacts of the proposed project on waters of the United States and waters of the state (streams and isolated wetlands) and would likely introduce new impacts on wetlands. As shown in Appendix I, Map Sheets 1-3, the proposed bypass option traverses more habitats with potential to be classified as waters of the US or state than the equivalent section of the proposed project. Implementation of Mitigation Measures BIO-1, BIO-5a, and BIO-5b would reduce the level of impact. Because of the current limitations on available wetland mitigation credits (considering the SSHCP has not yet been adopted) in the watersheds within the project area, permanent impacts to wetlands would be considered a significant and unavoidable impact.

Impact BIO-5: Potential Loss or Disturbance of Special-Status Wildlife Species and Their Habitat

Construction of this option would not reduce or avoid direct loss or indirect disturbance of special-status wildlife or their habitats and would likely introduce new impacts on wildlife (Appendix I, Map Sheet 1). This option would introduce a potential for direct impacts to 0.2 acre of vernal pools. Implementation of Mitigation Measures BIO-1, BIO-6a, and BIO-6b would reduce the impact to a less-than-significant level for all wildlife species addressed, except vernal pool fairy shrimp and vernal pool tadpole shrimp. Because of the current limitations on available vernal pool fairy shrimp and vernal pool tadpole shrimp mitigation credits (considering the SSHCP has not yet been adopted) in the project region, permanent impacts to vernal pool fairy shrimp and vernal pool tadpole shrimp habitat would be considered a significant and unavoidable impact.

Impact BIO-6: Conflict with Local Policies or Ordinances Protecting Biological Resources

Implementation of this option would have a similar impact to that described above for the project. Mitigation Measure BIO-7 would reduce this impact to a less-than-significant level.

Impact BIO-7: Removal or Disturbance of Protected Trees

Construction of this option would not reduce or avoid direct loss or indirect impacts on protected trees and would likely introduce new impacts on protected trees. Implementation of Mitigation Measures BIO-1, BIO-8a, and BIO-8b would reduce this impact to a less-than-significant level.

5.3.5.2 Deer Creek Causeway Option 1

Overall, implementation of Deer Creek Causeway Option 1 would not reduce or avoid biological impacts of the proposed project and would introduce new impacts on biological resources. This option would add additional impacts on wetlands, riparian habitat, and potential habitat for special-status species by introducing a segment of new road to the southeast of the Sheldon area that currently has natural vegetation and agricultural lands.

Impact BIO-1: Potential Loss of Special-Status Plant Species

Construction of this option would not reduce or avoid impacts of the proposed project on special-status plants and would likely introduce new impacts because, as shown in Table 5-1, this option would result in the direct conversion of an additional 133.1 acres of uplands habitat, 8.2 acres of wetland and other waters habitat, and 689.3 acres of agricultural habitat, all of which have the

potential to support special-status plants. This would be considered a significant impact. Implementation of Mitigation Measures BIO-1, BIO-2a, and BIO-2b would reduce this impact to a less-than-significant level.

Impact BIO-2: Potential Introduction or Spread of Invasive Plant Species

Construction of this option would not reduce or avoid impacts of the proposed project in terms of the potential for introduction or spread of invasive plant species and would likely introduce new impacts. This would be considered a significant impact. Implementation of Mitigation Measure BIO-3 would reduce this impact to a less-than-significant level.

Impact BIO-3: Potential Loss and Disturbance of Riparian Woodlands

Construction of this option would not reduce or avoid impacts of the proposed project on riparian woodland. There are 61.7 acres of riparian woodland within the area of potential direct effects. Actual project impacts are not know, but will likely only affect a portion of these woodlands. Impacts to riparian woodland would be considered a significant impact. Implementation of Mitigation Measures BIO-1, BIO-4a, and BIO-4b would reduce this impact to a less-than-significant level.

Impact BIO-4: Potential Loss or Alteration of Waters of the United States and Waters of the State

Construction of this option would not reduce or avoid impacts of the proposed project on waters of the United States and waters of the state (streams and isolated wetlands) and would likely introduce new impacts on wetlands. There are 8.2 acres of wetlands and waters within the area of potential direct effects that could be under the jurisdiction of the USACE or RWQCB. Impacts to wetlands and waters would be considered a significant impact. Implementation of Mitigation Measures BIO-1, BIO-5a, and BIO-5b would reduce the level of impact. Because of the current limitations on available wetland mitigation credits (considering the SSHCP has not yet been adopted) in the watersheds within the project area, permanent impacts to wetlands would be considered a significant and unavoidable impact.

Impact BIO-5: Potential Loss or Disturbance of Special-Status Wildlife Species and Their Habitat

Construction of this option would not reduce or avoid direct loss or indirect disturbance of special-status wildlife or their habitats and would likely introduce new impacts on wildlife. This would be considered a significant impact. Implementation of Mitigation Measures BIO-1, BIO-6a, and BIO-6b would reduce these impacts to a less-than-significant level for all wildlife species addressed, except vernal pool fairy shrimp and vernal pool tadpole shrimp. Because of the current limitations on available vernal pool fairy shrimp and vernal pool tadpole shrimp mitigation credits (considering the SSHCP has not yet been adopted) in the project region, permanent impacts to vernal pool fairy shrimp and vernal pool tadpole shrimp habitat would be considered a significant and unavoidable impact.

Impact BIO-6: Conflict with Local Policies or Ordinances Protecting Biological Resources

Construction of this option could result in conflicts with local policies or ordinances that protect locally significant biological resources. This would be considered a significant impact.

Implementation of Mitigation Measure BIO-7 would reduce this impact to a less-than-significant level.

Impact BIO-7: Removal or Disturbance of Protected Trees

Construction of this option would not reduce or avoid direct loss or indirect impacts on protected trees and would likely introduce new impacts on protected trees. This would be considered a significant impact. Implementation of Mitigation Measures BIO-1, BIO-8a, and BIO-8b would reduce these impacts to a less-than-significant level.

5.3.5.3 Deer Creek Causeway Option 2

Overall, implementation of Deer Creek Causeway Option 2 would not reduce or avoid any impacts of the proposed project and would introduce new impacts on biological resources. This option would add additional impacts on wetlands, riparian habitat, and potential habitat for special-status species by introducing a segment of new road to the southeast of Grant Line Road in an area that currently has natural vegetation and agricultural lands.

Impact BIO-1: Potential Loss of Special-Status Plant Species

Construction of this option would not reduce or avoid impacts of the proposed project on special-status plants and would likely introduce new impacts because, as shown in Table 5-1, this option would result in the direct conversion of an additional 107.6 acres of uplands habitat, 7.6 acres of wetland and other waters habitat, and 629.4 acres of agricultural habitat, all of which have the potential to support special-status plants. This would be considered a significant impact. Implementation of Mitigation Measures BIO-1, BIO-2a, and BIO-2b would reduce this impact to a less-than-significant level.

Impact BIO-2: Potential Introduction or Spread of Invasive Plant Species

Construction of this option would not reduce or avoid impacts of the proposed project on the potential for introduction or spread of invasive plant species and would likely introduce new impacts. Implementation of Mitigation Measure BIO-3 would reduce this impact to a less-than-significant level.

Impact BIO-3: Potential Loss and Disturbance of Riparian Woodlands

Construction of this option would not reduce or avoid impacts of the proposed project on riparian woodland. There are 32.5 acres of riparian woodland within the area of potential direct effects (Table 5-1). Actual project impacts are not know, but will likely only affect a portion of these woodlands. Impacts to riparian woodland would be considered a significant impact. Implementation of Mitigation Measures BIO-1, BIO-4a, and BIO-4b would reduce this impact to a less-than-significant level.

Impact BIO-4: Potential Loss or Alteration of Waters of the United States and Waters of the State

Construction of this option would not reduce or avoid impacts of the proposed project on waters of the United States and waters of the state (streams and isolated wetlands) and would likely introduce new impacts on wetlands. There are 7.6 acres wetlands and waters within the area of potential

direct effects that could be under the jurisdiction of the USACE or RWQCB. This would be considered a significant impact. Implementation of Mitigation Measures BIO-1, BIO-5a, and BIO-5b would reduce this impact to a less-than-significant level.

Impact BIO-5: Potential Loss or Disturbance of Special-Status Wildlife Species and Their Habitat

Construction of this option would not reduce or avoid direct loss or indirect disturbance of special-status wildlife or their habitats and would likely introduce new impacts on wildlife. This would be considered a significant impact. Implementation of Mitigation Measures BIO-1, BIO-6a, and BIO-6b would reduce these impacts to a less-than-significant level for all wildlife species addressed, except vernal pool fairy shrimp and vernal pool tadpole shrimp. Because of the current limitations on available vernal pool fairy shrimp and vernal pool tadpole shrimp mitigation credits (considering the SSHCP has not yet been adopted) in the project region, permanent impacts to vernal pool fairy shrimp and vernal pool tadpole shrimp habitat would be considered a significant and unavoidable impact.

Impact BIO-6: Conflict with Local Policies or Ordinances Protecting Biological Resources

Construction of this option could result in conflicts with local policies or ordinances that protect locally significant biological resources. This would be considered a significant impact. Implementation of Mitigation Measure BIO-7 would reduce this impact to a less-than-significant level.

Impact BIO-7: Removal or Disturbance of Protected Trees

Construction of this option would not reduce or avoid direct loss or indirect impacts on protected trees and would likely introduce new impacts on protected trees. This would be considered a significant impact. Implementation of Mitigation Measures BIO-1, BIO-8a, and BIO-8b would reduce these impacts to a less-than-significant level.

5.3.5.4 Sheldon Reduced Access Roadway Option

Overall, implementation of the Sheldon Reduced Access Roadway Option would not reduce or avoid any impacts of the proposed project and would introduce new impacts on biological resources. This option would add additional impacts on wetlands and potential habitat for special-status species by introducing a segment of new road to the southeast of Grant Line Road.

Impact BIO-1: Potential Loss of Special-Status Plant Species

Construction of this option would not reduce or avoid impacts of the proposed project on special-status plants and would likely introduce new impacts. This would be considered a significant impact. Implementation of Mitigation Measures BIO-1, BIO-2a, and BIO-2b would reduce this impact to a less-than-significant level.

Impact BIO-2: Potential Introduction or Spread of Invasive Plant Species

Construction of this option would not reduce or avoid impacts of the proposed project on the potential for introduction or spread of invasive plant species and would likely introduce new

impacts. This would be considered a significant impact. Implementation of Mitigation Measure BIO-3 would reduce this impact to a less-than-significant level.

Impact BIO-3: Potential Disturbance of Riparian Woodlands

As shown in Table 5-1 and Appendix I, construction of this option would not result in direct impacts on riparian woodlands. However, depending on the ultimate option selected, the alignment could result in indirect disturbance of up to 1.7 acres of riparian woodland habitat. This would be considered a significant impact. Implementation of Mitigation Measures BIO-1, BIO-4a, and BIO-4b would reduce this impact to a less-than-significant level.

Impact BIO-4: Potential Loss or Alteration of Waters of the United States and Waters of the State

Construction of this option would not reduce or avoid impacts of the proposed project on waters of the United States and waters of the state (streams and isolated wetlands) and would likely introduce new impacts on wetlands. There are 3.1 acres wetlands and open waters within the area of potential direct effects that could be under the jurisdiction of the USACE or RWQCB.. Impacts to wetland and waters would be considered a significant impact. Implementation of Mitigation Measures BIO-1, BIO-5a, and BIO-5b would reduce the level of impact. Because of the current limitations on available wetland mitigation credits (considering the SSHCP has not yet been adopted) in the watersheds within the project area, permanent impacts to wetlands would be considered a significant and unavoidable impact.

Impact BIO-5: Potential Loss or Disturbance of Special-Status Wildlife Species and Their Habitat

Construction of this option would not reduce or avoid direct loss or indirect disturbance of special-status wildlife or their habitats and would likely introduce new impacts on wildlife (Appendix I). This would be considered a significant impact. Implementation of Mitigation Measures BIO-1, BIO-6a, and BIO-6b would reduce this impact to a less-than-significant level for all wildlife species addressed, except vernal pool fairy shrimp and vernal pool tadpole shrimp. Because of the current limitations on available vernal pool fairy shrimp and vernal pool tadpole shrimp mitigation credits (considering the SSHCP has not yet been adopted) in the project region, permanent impacts to vernal pool fairy shrimp and vernal pool tadpole shrimp habitat would be considered a significant and unavoidable impact.

Impact BIO-6: Conflict with Local Policies or Ordinances Protecting Biological Resources

Construction of this option could result in conflicts with local policies or ordinances that protect locally sensitive biological resources. This would be considered a significant impact. Implementation of Mitigation Measure BIO-7 would reduce this impact to a less-than-significant level.

Impact BIO-7: Removal or Disturbance of Protected Trees

Construction of this option would not reduce or avoid direct loss or indirect impacts on protected trees and would likely introduce new impacts on protected trees. This would be considered a significant impact. Implementation of Mitigation Measures BIO-1, BIO-8a, and BIO-8b would reduce this impact to a less-than-significant level.

5.3.5.5 High Access Roadway Option

Overall, implementation of the High Access Roadway Option would not reduce or avoid any impacts of the proposed project corridors along Grant Line Road between Bond and Calvine Roads and would introduce new impacts on biological resources. This option would add additional impacts on wetlands and potential habitat for special-status species by widening the roadway pursuant to City of Elk Grove adopted plans to 4-6 lanes.

Impact BIO-1: Potential Loss of Special-Status Plant Species

Construction of this option would not reduce or avoid impacts of the proposed project on special-status plants and would likely introduce new impacts related to widening the roadway under the City's adopted plans. This would be considered a significant impact. Implementation of Mitigation Measures BIO-1, BIO-2a, and BIO-2b would reduce this impact to a less-than-significant level.

Impact BIO-2: Potential Introduction or Spread of Invasive Plant Species

Construction of this option would not reduce or avoid impacts of the proposed project on the potential for introduction or spread of invasive plant species and would likely introduce new impacts. This would be considered a significant impact. Implementation of Mitigation Measure BIO-3 would reduce this impact to a less-than-significant level.

Impact BIO-3: Potential Loss and Disturbance of Riparian Woodlands

As shown in Table 5-1 and Appendix I, construction of this option would not result in direct impacts on riparian woodlands. However, depending on the ultimate option selected, the alignment could result in indirect disturbance of up to 1.2 acres of riparian woodland habitat. This would be considered a significant impact. Implementation of Mitigation Measures BIO-1, BIO-4a, and BIO-4b would reduce this impact to a less-than-significant level.

Impact BIO-4: Potential Loss or Alteration of Waters of the United States and Waters of the State

Construction of this option would not reduce or avoid impacts of the proposed project on waters of the United States and waters of the state (streams and isolated wetlands) and would likely introduce new impacts on wetlands. There are 3.2 acres of wetlands and waters within the area of potential direct effects that could be under the jurisdiction of the USACE or RWQCB. Impacts to wetlands and waters would be considered a significant impact. Implementation of Mitigation Measures BIO-1, BIO-5a, and BIO-5b would reduce the level of impact. Because of the current limitations on available wetland mitigation credits (considering the SSHCP has not yet been adopted) in the watersheds within the project area, permanent impacts to wetlands would be considered a significant and unavoidable impact.

Impact BIO-5: Potential Loss or Disturbance of Special-Status Wildlife Species and Their Habitat

Construction of this option would not reduce or avoid direct loss or indirect disturbance of special-status wildlife or their habitats and would likely introduce new impacts on wildlife (Appendix I). This would be considered a significant impact. Implementation of Mitigation Measures BIO-1, BIO-6a, and BIO-6b would reduce this impact to a less-than-significant level for all wildlife species

addressed, except vernal pool fairy shrimp and vernal pool tadpole shrimp. Because of the current limitations on available vernal pool fairy shrimp and vernal pool tadpole shrimp mitigation credits (considering the SSHCP has not yet been adopted) in the project region, permanent impacts to vernal pool fairy shrimp and vernal pool tadpole shrimp habitat would be considered a significant and unavoidable impact.

Impact BIO-6: Conflict with Local Policies or Ordinances Protecting Biological Resources

Construction of this option could result in conflicts with local policies or ordinances that protect locally sensitive biological resources. Implementation of Mitigation Measure BIO-7 would reduce this impact to a less-than-significant level.

Impact BIO-7: Removal or Disturbance of Protected Trees

Construction of this option would not reduce or avoid direct loss or indirect impacts on protected trees and would likely introduce new impacts on protected trees. Implementation of Mitigation Measures BIO-1, BIO-8a, and BIO-8b would reduce this impact to a less-than-significant level.