Chapter 5
Biological Resources

Introduction

This chapter describes the impacts on biological resources that would result from the proposed project. The key sources of data and information used in the preparation of this chapter are listed and briefly described below.

- a California Natural Diversity Database (CNDDB) records search of the Chico, Nord, Richardson Springs, Hamlin Canyon, Shippee, Paradise West, Ord Ferry, Llano Seco, and Nelson U.S. Geological Survey (USGS) 7.5-minute quadrangles (California Natural Diversity Database 2008);
- a records search of the California Native Plant Society's (CNPS's) 2008 online *Inventory of Rare and Endangered Plants of California* (California Native Plant Society 2008);
- the USFWS list of endangered, threatened, and proposed species for the Chico USGS 7.5-minute quadrangle, obtained from the USFWS web site (U.S. Fish and Wildlife Service 2008);
- *Natural Environment Study for the State Route 32 Widening Project, Chico, Butte County, CA* (Gallaway Consulting Inc. 2006a);
- *Biological Assessment for the State Route 32 Widening Project, Chico, Butte County, CA* (Gallaway Consulting 2006b);
- *State Route 32 Widening Project Individual Permit revised Pre-Construction Notification and Application* (Gallaway Consulting 2009);
- *Chico General Plan* (Blaney Dyett 1994; revised 1999);

Environmental Setting

This section discusses federal, state, and local regulations related to biological resources that would apply to the proposed project. It then describes existing conditions related to biological resources in the project area.

Regulatory Setting

The following section describes regulations affecting biological resources relative to the proposed project.

Federal

Federal Endangered Species Act

The ESA is administered by USFWS and National Marine Fisheries Service (NOAA Fisheries). In general, NOAA Fisheries is responsible for protection of ESA-listed marine species and anadromous fishes, whereas other listed species are under USFWS jurisdiction. *Endangered* refers to species, subspecies, or distinct population segments that are in danger of extinction through all or a significant portion of their range; *threatened* refers to species, subspecies, or distinct population segments that are likely to become endangered in the near future.

USFWS will use this EIR to review the environmental consequences of the proposed project on threatened and endangered wildlife species; no marine or anadromous fish species are affected by this project. Provisions of Sections 7 and 9 of ESA are relevant to the proposed project and are summarized below.

Endangered Species Act Prohibitions (Section 9)

Section 9 of ESA prohibits the take of any fish or wildlife species listed under ESA as endangered. Take of threatened species is also prohibited under Section 9, unless otherwise authorized by federal regulations. *Take*, as defined by ESA, means "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." *Harm* is defined as "any act that kills or injures the species, including significant habitat modification." In addition, Section 9 prohibits removing, digging up, cutting, and maliciously damaging or destroying federally listed plants on sites under federal jurisdiction. Section 9 does not prohibit take of federally listed plants on sites not under federal jurisdiction.

Endangered Species Act Authorization Process (Section 7)

Take of listed species is authorized through the Section 7 consultation process for actions by federal agencies. Federal agency actions include activities that are:

- on federal land,
- conducted by a federal agency,
- funded by a federal agency, or
- authorized by a federal agency (including issuance of federal permits and licenses).

Under Section 7, the federal agency conducting, funding, or permitting an action (the federal lead agency) must consult USFWS, as appropriate, to ensure that the

proposed action will not jeopardize endangered or threatened species or destroy or adversely modify designated critical habitat. If a proposed project "may affect" a listed species or designated critical habitat, the lead agency is required to prepare a biological assessment (BA) evaluating the nature and severity of the expected effect. The BA is prepared for the proposed action and alternatives, and is submitted to USFWS to initiate consultation. In response, USFWS issues a biological opinion with a determination that the proposed action either:

- may jeopardize the continued existence of one or more listed species (jeopardy finding) or result in the destruction or adverse modification of critical habitat (adverse modification finding) or
- will not jeopardize the continued existence of any listed species (no jeopardy finding) or result in adverse modification of critical habitat (no adverse modification finding).

The biological opinion issued by USFWS and/or NOAA Fisheries may stipulate discretionary "reasonable and prudent" conservation measures. If the proposed action would not jeopardize a listed species, USFWS and/or NOAA Fisheries will issue an incidental take statement to authorize the proposed activity.

A BA was prepared to address potential impacts from the proposed project on Butte County meadowfoam, vernal pool fairy shrimp, vernal pool tadpole shrimp, and giant garter snake (Gallaway Consulting 2006b). USFWS issued a biological opinion on February 3, 2009.

Migratory Bird Treaty Act

The federal MBTA (16 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 MBTA. Examples of permitted actions that do not violate MBTA are the possession of a hunting license to pursue specific gamebirds, legitimate research activities, display in zoological gardens, banding, and other similar activities. USFWS is responsible for overseeing compliance with MBTA, and the U.S. Department of Agriculture's Animal Damage Control Officer makes recommendations on related animal protection issues.

Executive Order 13186 (January 10, 2001) directs each federal agency taking actions having or likely to have a negative impact on migratory bird populations to work with USFWS to develop an MOU to promote the conservation of migratory bird populations. Protocols developed under the MOU must include the following agency responsibilities:

- avoid and minimize, to the extent practicable, adverse impacts on migratory bird resources when conducting agency actions;
- restore and enhance habitat of migratory birds, as practicable; and

- prevent or abate the pollution or detrimental alteration of the environment for the benefit of migratory birds, as practicable.

The executive order is designed to assist federal agencies in their efforts to comply with MBTA, and does not constitute any legal authorization to take migratory birds.

Clean Water Act

The federal 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. The following sections provide additional details on specific sections of the CWA.

Permits for Fill Placement in Waters and Wetlands (Section 404)

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 Corps jurisdiction in isolated waters. Based on SWANCC, the U.S. Army Corps of Engineers (Corps) no longer has jurisdiction or regulates isolated wetlands (i.e., wetlands that have no hydrologic connection with a water of the United States).

More recently, a federal ruling on two consolidated cases (June 19, 2006; *Rapanos v. United States* and *Carabell v. U.S. Army Corps of Engineers*), referred to as the Rapanos decision, affects whether some waters or wetlands are considered jurisdictional under the CWA. In these cases, the U.S. Supreme Court reviewed the USACE definition of *waters of the United States* and whether or not it extended out to tributaries of navigable waters or wetlands adjacent to those tributaries. The decision provided two standards for determining jurisdiction of water bodies that are not TNWs: 1) if the non-TNW is a RPW or is

a wetland directly connected to a RPW, or 2) if the water body has "significant nexus" to a TNW. The significant nexus definition is based on the purpose of the CWA ("restore and maintain the chemical, physical, and biological integrity of the Nation's waters").

Guidance issued by EPA and Corps on the Rapanos decision requires application of the two standards and use of substantially more documentation to support a JD for a water body.

Applicants must obtain a permit from the Corps for all discharges of dredged or fill material into waters of the United States, including adjacent wetlands, before proceeding with a proposed activity. The Corps 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. The 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. The Corps cannot issue an individual permit or verify the use of a general permit until the requirements of NEPA, the ESA, and the NHPA have been met. In addition, the Corps cannot issue or verify any permit until a water quality certification or a waiver of certification has been issued pursuant to CWA Section 401.

Permits for Stormwater Discharge (Section 402)

CWA Section 402 regulates construction-related stormwater discharges to surface waters through the NPDES program, administered by EPA. In California, the State Water Resources Control Board is authorized by EPA to oversee the NPDES program through the RWQCBs (see the related discussion under "Porter-Cologne Water Quality Control Act" below). The project area is under the jurisdiction of the Central Valley RWQCB.

NPDES permits are required for projects that disturb more than 1 acre of land. The NPDES permitting process requires the applicant to file a public NOI to discharge stormwater and to prepare and implement a SWPPP. The SWPPP includes a site map and a description of proposed construction activities. In addition, it describes the best management practices (BMPs) that would be implemented to prevent soil erosion and discharge of other construction-related pollutants (e.g., petroleum products, solvents, paints, cement) that could contaminate nearby water resources. Permittees are required to conduct annual monitoring and reporting to ensure that BMPs are correctly implemented and effective in controlling the discharge of stormwater-related pollutants.

Water Quality Certification (Section 401)

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. A Section 401 Water Quality Certification from the Central Valley RWQCB would be required for wetlands and waters of the U.S. identified in the study area.

For each of the above sections of the Clean Water Act, the City would obtain and comply with the applicable federal and state permits, and all conditions that are attached to those permits would be implemented as part of the proposed project. The permit conditions would be clearly identified in the construction plans and specifications and monitored during and after construction to ensure compliance.

State

California Environmental Quality Act

A project normally has a significant environmental impact on biological resources if it substantially affects a rare or endangered species or the habitat of that species; substantially interferes with the movement of resident or migratory fish or wildlife; or substantially diminishes habitat for fish, wildlife, or plants. (Specific significance criteria for the proposed project are described in a separate section below.) The State CEQA Guidelines define rare, threatened, or endangered species as those listed under CESA and ESA, as well as other species that meet the criteria of the resource agencies or local agencies—for example, DFG–designated species of special concern. The State CEQA Guidelines state that the lead agency preparing an EIR must consult with and receive written findings from DFG concerning project impacts on species listed as endangered or threatened. The effects of a project on these resources are important in determining whether project activities would have significant environmental impacts under CEQA.

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*. Section 2090 of CESA requires state agencies to comply with endangered species protection and recovery and to promote conservation of these species. DFG administers the act and authorizes take through Section 2081 agreements (except for species designated as fully protected). DFG can adopt a federal biological opinion as a state biological opinion under California Fish and Game Code, Section 2095. In addition, DFG can write a consistency determination for species that are both federally and state listed if DFG determines that the avoidance, minimization, and compensation measures will ensure no take of species.

California Fish and Game Code

Fully Protected Species

The California Fish and Game Code provides protection from take for a variety of species, referred to as *fully protected species*. Section 5050 lists protected amphibians and reptiles. Section 3515 prohibits take of fully protected fish species. Birds that are fully protected are listed under Section 3511 and mammals that are fully protected are included in Section 4700. The California Fish and Game Code defines *take* as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." Except for take related to scientific research, all take of fully protected species is prohibited. There is one fully protected species, white-tailed kite, which has been observed and could nest in the project area.

Sections 3503, 3513, and 3800

Section 3503 of the California Fish and Game Code prohibits the killing, possession, or destruction of bird eggs or of bird nests. Sections 3503.5 and 3513 prohibit the killing, possession, or destruction of all nesting birds (including raptors and passerines). Section 3513 prohibits the take or possession of any migratory non-game birds designated under the federal MBTA. Section 3800 prohibits take of non-game birds. Some mammals are protected under Section 4700.

Eggs and nests of all birds are protected under Section 3503, nesting birds (including raptors and passerines) under Sections 3503.5 and 3513, birds of prey under Section 3503.5. Migratory non-game birds are protected under Section 3800.

Porter-Cologne Water Quality Control Act

Water Code Section 13260 requires "any person discharging waste, or proposing to discharge waste, in any region that could affect the *waters of the state* to file a report of discharge (an application for waste discharge requirements)." Under the Porter-Cologne Water Quality Control Act (Porter-Cologne) definition, the term *waters of the state* is defined 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. Although all waters of the United States that are within the borders of California are also waters of the state, the converse is not true (i.e., in California, waters of the United States represent 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 the Corps has concurrent jurisdiction under Section 404.

If the Corps determines that a wetland is not subject to regulation under Section 404 of the CWA, Section 401 water quality certification is not required. However, the Central Valley RWQCB may impose WDRs if fill material is placed into waters of the state. The City would obtain and comply with the applicable state permits, and all conditions that are attached to those permits

would be implemented as part of the proposed project. The permit conditions would be clearly identified in the construction plans and specifications and monitored during and after construction to ensure compliance.

California Native Plant Protection Act

The CNPPA of 1977 prohibits importation of rare and endangered plants into California, "take" of rare and endangered plants, and sale of rare and endangered plants. The CESA defers to the CNPPA, which ensures that state-listed plant species are protected when state agencies are involved in projects subject to CEQA. In this case, plants listed as rare under the California Native Plant Protection Act are not protected under CESA but rather under CEQA.

Local

City of Chico Tree Preservation Measures

City of Chico Tree Preservation Ordinance

The City Tree Preservation Ordinance (Chico Municipal Code, Chapter 16.66) defines a "tree" or "trees" as the following.

- Any live woody plant having a single perennial stem of 24 inches or more in diameter, or multistemmed perennial plant greater than 15 feet in height having an aggregate circumference of 40 inches or more, measured at four feet six inches above adjacent ground.
- Tree or trees required to be preserved as part of an approved building permit, grading permit, demolition permit, encroachment permit, use permit, tentative or final subdivision map.
- Tree or trees required to be planted as a replacement for unlawfully removed tree or trees.
- "Tree" or "trees" does not mean Ailanthus, Chinese tallow, or box elder.

City of Chico Standard Mitigation Measure for Sites Containing Oak Trees

All native oak trees over six inches diameter at breast height (dbh) on the project site shall be preserved to the maximum extent practical.

Existing Conditions

This section defines the project area for biological resources and describes the methodology for developing this chapter, existing conditions pertaining to biological resources in the project area and special-status species that may occur within the project area or be impacted by the proposed project.

Project Area

For the purposes of this EIR, the project area consists of the limits of construction disturbance where direct impacts would occur (project site) and an up-to-250-foot-wide buffer area (buffer area) around this site where indirect impacts may occur. The buffer area does not extend to 250 feet west of El Monte Avenue, where the SR 32 right-of-way abuts private residences.

The project area is located in urban and natural settings within the City of Chico and is shown in Figures 2-1 and 2-2. The project site consists of the area within the SR 32 right-of-way, and is further defined as the area proposed for any ground-disturbing activities, such as construction activities, construction staging areas, and construction access.

Methods

Gallaway Consulting conducted biological resource surveys for preparation of the *Natural Environment Study for the State Route 32 Widening Project* (Gallaway Consulting 2006a; 10-14) and the *State Route 32 Widening Project Nationwide Permit Pre-Construction Notification and Application* (Gallaway Consulting 2007; 2-4). Specific methods and personnel for each survey are discussed in those documents. The surveys conducted include the following:

- botanical surveys conducted on April 14 and 19, 2004; March 10, 14, and 24, 2005; and March 21, 2008;
- an additional summer-blooming period botanical survey conducted on July 26, 2004;
- an assessment of habitat for special-status wildlife species was conducted on April 14 and 19 and July 26, 2004, and March 10, 14, and 24, and September 19, 2005;
- a delineation of waters of the United States, performed on April 14 and 19, 2004; September 19, 2005; and for a map revision dated August 10, 2006 based on the 1987 U.S. Army Corps of Engineers Wetlands Delineation Manual (Wetland Training Institute 1995); and
- a tree survey within a portion of the right-of-way, conducted by a certified arborist on October 31, November 8, 18, 21, and 23, 2005.

An ICF Jones & Stokes wildlife biologist and botanist/wetland ecologist reviewed information from state and federal agencies and existing information related to the proposed project (see list under “Introduction”). These resources and information were used to evaluate whether special-status species or other sensitive biological resources (e.g., wetlands) could occur in the project area. Setting information was derived from the *Natural Environment Study for the State Route 32 Widening Project* (Gallaway Consulting 2006a; 14, 19-32, 34-38, 48), the *State Route 32 Widening Project Nationwide Permit Pre-Construction Notification and Application* (Gallaway Consulting 2007; 2-4), and from a reconnaissance-level field survey conducted by the ICF Jones & Stokes wildlife

biologist and botanist/wetland ecologist on September 4, 2008. The purpose of this survey was to become familiar with the project area and verify biological communities present in the project area. The survey consisted of driving along the length of the project site and walking along the majority of the project area that contain wetlands and riparian areas. The botanist/wetland ecologist mapped the biological communities present, and the wildlife biologist estimated the stems diameters and looked for valley elderberry longhorn beetle exit holes in elderberry shrubs in the project area.

Tree resources were inventoried by Gallaway Consulting, and the results on the inventory were provided in the Natural Environmental Study (Gallaway Consulting 2006a; 12, 48, Appendix F). Mark Thomas & Company, Inc., subsequently prepared a tree removal plan as part of the construction document set (June 2008). ICF Jones & Stokes certified arborist assessed previously surveyed trees and surveyed additional tree resources not previously surveyed using standard professional practices on September 3, 2008. All trees in the right-of-way and in adjacent properties for tree canopies that extended over the right-of-way were assessed for impacts from three basic mechanisms resulting from construction activities: removal, canopy impacts, and root zone impacts. ICF Jones & Stokes arborists prepared an arborist report for the project (Appendix F).

Existing Conditions

Chico is situated on the eastern margin of the northern Sacramento Valley. The area has a Mediterranean climate with hot, dry summers and cool, wet winters. The elevation of the project area begins at about elevation 225 at the west end of the project, rising gently to elevation 250 near Bruce Road, and then rising somewhat more steeply to about elevation 375 near the end of the project east of Yosemite Drive. This increase in elevation extending from west to east has a significant effect on the plant communities along the project route. The section of road between SR 99 and El Monte Avenue remains relatively flat; and the section of SR 32 between El Monte Avenue to just beyond Yosemite Drive begins to gradually ascend into the Sierra Nevada foothills. The land adjacent to SR 32 between SR 99 and El Monte Avenue has already been heavily developed. Between El Monte Avenue and Yosemite Drive is more natural, especially on the south side of SR 32. As the elevation increases eastward, the plant community changes to a drier habitat represented by non-native annual grassland along the eastern portion of the project corridor.

The project area occurs in an alluvial fan terrace comprised largely of annual grasslands that are at the base of the foothills to the east. This close proximity to the foothills plays a significant role in the soil type and various wetland communities found within and adjacent to the project area. Soils in the western part of the project area are loams that form from alluvial parent material with rare flooding for brief periods. In the central part of the project area, soils are loams and gravelly loams with frequent ponding and a duripan layer between 7 and 14 inches of the surface. In the eastern part of the project area, soils include

gravelly and very cobbly loams with frequent flooding and ponding, and a duripan layer within 4 inches of the surface.

In the project area east of El Monte Avenue, vernal pool complexes occur on both sides of the road. This unique landscape is also the site of special-status flora and fauna that inhabit and are dependent upon vernal pools. Dead Horse Slough crosses the project corridor east of Forest Avenue, and South Dead Horse Slough crosses east of Bruce Road. Four unnamed drainages also cross under SR 32 in the project area.

Floristically, Chico is in the Sacramento Valley subdivision of the Great Central Valley region of the California Floristic Province (Hickman 1993). Historically, the project area vicinity is likely to have supported valley oak woodland, grasslands, and riparian forest. Much of the project area is paved roadway, and vegetation present on the edges of SR 32 west of El Monte Avenue consists primarily of ruderal species and landscaping trees and shrubs. Although little natural vegetation remains in the vicinity of the project area, the western part of the present project area has a well-developed tree canopy and shrubby understory and the eastern part supports a vernal pool landscape and open grassland.

The vegetated biological communities in the project area include urban habitat, non-native annual grassland, riparian, vernal pool/swale and seasonal wetland/swale, and fresh emergent wetland. Unvegetated habitat occurs in seasonal drainages. Figure 5-1 located at the end of this chapter present the biological communities in the project area. Appendix F contains detailed tables of the project area trees based on the survey and tree impact analysis conducted for this project. Lists of plant species observed in the project area are included in Appendix A of the project NES.

Biological Communities

Non-Native Annual Grassland

Non-native annual grassland occurs throughout much of the project area east of El Monte Avenue. Typical plant species in this area include spiked bentgrass (*Agrostis exarata*), silver hairgrass (*Aira caryophyllea*), paper onion (*Allium amplectens*), common fiddleneck (*Amsinckia menziesii* ssp. *intermedia*), wild oat (*Avenua fatua*), soft chess (*Bromus hordeaceus*), yellow mariposa lily (*Calochortus luteus*), yellow star thistle (*Centaurea solstitialis*), stork's bill (*Erodium moschatum*), Italian ryegrass (*Lolium multiflorum*), grass pink (*Petrorhagia dubia*), medusahead (*Taeniatherum caput-medusae*), rose clover (*Trifolium hirtum*), and vetch (*Vicia* sp.). Vernal pools, discussed below, occur in the annual grassland east of El Monte Avenue. Scattered valley oaks occur in the annual grassland east of Yosemite Drive and south of SR 32 outside of the project area.

Urban Habitat

Urban habitat occurs in areas where the native vegetation has been replaced with grass lawn and ornamental plantings, including street trees, shade trees, and

shrubs. Between SR 99 and El Monte Avenue, urban habitat is present along the SR 32 unpaved shoulders and in the private parcels adjacent to the right-of-way.

The unpaved shoulders are vegetated by low-growing ruderal species at the road edge and a woody overstory of trees and shrubs with little herbaceous understory in the remainder of the right-of-way. The trees include both native and ornamental trees planted for landscaping and that have become established from seeds dispersed into the project area by birds. The most common trees in the right-of-way include valley oak (*Quercus lobata*), coast redwood (*Sequoia sempervirens*), and Chinese pistache (*Pistacia chinensis*). Trees protected under the City of Chico tree ordinance are discussed in additional detail below in the "Protected Trees" section, and a complete inventory of the trees is included in Appendix F. The understory is dominated by saplings, shrubs, and vines, with little herbaceous understory except in light gaps.

Vegetation in the private parcels adjacent to the right-of-way consists of shade and street trees, hedges and shrubs, lawns and gardens, and an orchard between Forest Avenue and El Monte Avenue. The composition of the woody vegetation is similar to that in the right-of-way, although the canopy cover is much more open. The growth of vegetation in these parcels is typically managed by trimming or mowing.

Riparian

A narrow band of riparian vegetation is present along the banks of Dead Horse Slough and of South Fork Dead Horse Slough where they cross SR 32. The riparian community at Dead Horse Slough on the north side of SR 32 includes valley oak, interior live oak (*Quercus wislizenii*), tree-of-heaven (*Ailanthus altissima*), and Chinese pistache with a grassy understory of red bud (*Cercis occidentalis*) and small oaks and willows. Herbaceous plants consist primarily of non-native annual grasses, including wild oat (*Avena fatua*) and broomsedge bluestem (*Andropogon virginicus*) on the upper banks. Riparian wetland vegetation in the channel includes arroyo willow (*Salix lasiolepis*), red willow (*Salix laevigata*), sandbar willow (*Salix exigua*), and California grape (*Vitis californica*) and on the south side includes Himalayan blackberry (*Rubus armeniacus* [*discolor*]) and California grape.

At South Fork Dead Horse Slough, the riparian vegetation is only on the north side of SR 32 and is dominated by Fremont's cottonwood (*Populus fremontii*), arroyo willow, and red willow with an herbaceous understory. The freshwater emergent marsh is in the channel of this portion of the creek.

Vernal Pool and Seasonal Wetland

The non-native annual grassland between El Monte Avenue and the east end of the project area supports a complex of vernal pools connected by vegetated drainage pathways called vernal swales. Seasonal wetlands and swales are similar to vernal pools and swales, but generally have shorter inundation periods, are shallower, and support more non-native species. Species observed in project area vernal pools and swales include vernal pool foxtail (*Aloepecurus saccatus*), spikerush (*Eleocharis* sp.), coyote thistle (*Eryngium vaseyi*), Fremont's goldfields (*Lasthenia fremontii*), needle-leaved navarretia (*Navarretia intertexta*

ssp. *intertexta*), white-headed navarretia (*Navarretia leucocephala*), downy navarretia (*Navarretia pubescens*), wooly marbles (*Psilocarphus brevissimus*), and stalked popcorn flower (*Plagiobothrys stipitatus*). Dominant species in seasonal wetland communities include Italian ryegrass, curly dock (*Rumex crispus*), coyote thistle, and stalked popcorn flower. The state and federally listed endangered Butte County meadowfoam (BCM) also occurs in project area vernal pools, as discussed below in the "Special-Status Plants" section.

Fresh Emergent Wetland

Fresh emergent wetland is present in the channel of South Fork Dead Horse Slough on the north side of SR 32. This vegetation community is a wetland that supports needle spikerush (*Eleocharis acicularis*), blunt spikerush (*Eleocharis obtuse*), and flatsedge (*Cyperus* sp.). The wetland remains ponded until late summer.

Seasonal Drainage

Within the project area, seven drainages, including Dead Horse Slough and South Fork Dead Horse Slough, were delineated as other waters of the United States. All of the drainages are seasonal and become dry by summer. SR 32 crosses Dead Horse Slough by bridge, and the other six drainages cross under SR 32 in culverts.

South Fork Dead Horse Slough drains to Dead Horse Slough on the west side of Bruce Road approximately 400 feet north of SR 32. The confluence of the sloughs is at the outlet of California Park Lake, a reservoir constructed in North Fork Dead Horse Slough. Dead Horse Slough drains to Little Chico Creek near Forest Avenue, approximately 600 feet south of SR 32. Drainages such as Dead Horse Slough and South Fork Dead Horse Slough are recognized as sensitive natural communities by DFG, the Corps, and USFWS.

The remaining five unnamed seasonal drainages cross SR 32 at points east of El Monte Avenue and connect seasonal wetland and vernal pool complexes separated by SR 32. Because these drainages are part of wetland complexes and support the hydrological conditions necessary for the function of the wetlands, they are also considered sensitive natural communities by DFG, the Corps, and USFWS.

Special-Status Species

Special-status species are plants and animals that are legally protected under the California Endangered Species Act (CESA) the federal Endangered Species Act (ESA), or other regulations, as well as species considered sufficiently rare by the scientific community to qualify for such listing. Special-status species are defined as:

- Species listed or proposed for listing as threatened or endangered under the ESA (50 CFR 17.11 [listed animals], 50 CFR 17.12 [listed plants], and various notices in the Federal Register [FR] [proposed species])

- Species that are candidates for possible future listing as threatened or endangered under the ESA (72 FR 69034, December 6, 2007)
- Species listed or proposed for listing by the State of California as threatened or endangered under the CESA (14 California Code of Regulations [CCR] 670.5)
- Species that meet the definitions of rare or endangered under CEQA (State CEQA Guidelines Section 15380)
- Plants listed as rare under the CNPPA (California Fish and Game Code 1900 et seq.)
- Plants considered by CNPS to be "rare, threatened, or endangered in California" (California Native Plant Society 2008)
- Plants listed by CNPS as plants about which more information is needed to determine their status and plants of limited distribution, which may be included as special-status species on the basis of local significance or recent biological information (California Native Plant Society 2008)
- Animal species of special concern to CDFG (California Department of Fish and Game 2008)
- Animals fully protected in California (California Fish and Game Code 3511 [birds], 4700 [mammals], 5050 [amphibians and reptiles], and 5515 [fish]).

Special-Status Plants

Table 5-1 lists those special-status plant species with potential to occur in the project area. As noted in the table, all but two species were not observed during blooming period surveys conducted for this project. The two special-status plants that occur in the project area are BCM and Bidwell's knotweed.

BCM is federally and state listed endangered and is on the CNPS List 1B. BCM is found primarily in vernal swales and to a lesser extent on the margin of vernal pools. Occupied swales are inundated periodically by water from the surrounding uplands, causing the soil to become saturated. However, BCM does not persist in pools or swales that are inundated for prolonged periods or remain wet during the summer months, nor does it occur in drainages where water flows swiftly. Populations of BCM occur both east and west of Bruce Road south of SR 32. One small population is on the project site south of SR 32 and east of the South Fork Dead Horse Slough. The most dense and extensive occurrences are located 2 to 4 feet above the road elevation and are outside the project site.

Bidwell's knotweed is a CNPS List 4 species, which has limited distribution but is not typically protected under CEQA unless it is locally rare. This species occurs in annual grassland habitat in the project area east of Yosemite Drive between SR 32 and the fenceline.

Special-Status Wildlife

Based on existing information from the CNDDB records search (2008), the USFWS (2008) list, *Natural Environment Study for the State Route 32 Widening Project* (Gallaway Consulting 2006a; pages 23-27), 23 special-status wildlife

Table 5-1. Special-Status Plant Species with Potential to Occur in the Project Area

Common Name *Scientific Name*	Status[a] Federal/State/CNPS	Distribution	Habitat	Occurrence in Project Area
Ferris' milk-vetch *Astragalus tener* var. *ferrisiae*	–/–/1B.1	Central Valley from Butte to Alameda County	Subalkaline flats and floodlands, usually on adobe soil; between 5-75 m (15-250 ft); blooms April-May	Habitat (suitable soils) not present; nearest recoded occurrence more than 5 miles from project area (CNDDB 2008); not observed during blooming-period surveys
Flagella-like atractylocarpus *Atractylocarpus flagellaceus*	–/–/2.2	Known in California from one occurrence near Helena in Trinity County and in Butte County; also known from elsewhere	Cismontane woodland, often on seeps on road cut cliffs; 1 between 00-500 m (330-1,640 ft); moss	Habitat not present; nearest recoded occurrence approximately 3 ½ miles northeast of project area (CNDDB 2008); not observed during blooming-period surveys
Round-leaved filaree *California macrophylla*	–/–/1B.1	Widely scattered from the Sacramento Valley south through the San Joaquin Valley and South Coast Ranges to the Peninsular Ranges; to Northern Mexico, SW US	Cismontane woodland, valley and foothill grassland on clay soils; between 15-1,200 m (50-3,940 ft); blooms March-May	Habitat (suitable soils) not present; nearest recoded occurrence more than 5 miles from project area (CNDDB 2008); not observed during blooming-period surveys
Butte County calycadenia *Calycadenia oppositifolia*	–/–/4.2	Endemic to Butte County	Volcanic or serpentine soils in openings in chaparral, cismontane woodland, lower montane coniferous forest, meadows and seeps, valley and foothill grassland; between 90-945 m (295-3,100 ft); blooms April-July	Habitat present; nearest recoded occurrence more than 5 miles from project area (CNDDB 2008); not observed during blooming-period surveys
Butte County morning-glory *Calystegia atriplicifolia* ssp. *buttensis*	–/–/1B.2	Northern Sierra Nevada foothills: Shasta, Tehama, & Butte Counties	Lower montane coniferous forest, between 600-1,200 m (1,970-3,940 ft); blooms May-July	Habitat not present; nearest recoded occurrence more than 5 miles from project area (CNDDB 2008); not observed during blooming-period surveys
Dissected leaf toothwort *Cardamine pachystigma* var. *dissectifolia*	–/–/3	Sierra Nevada Foothills and interior North Coast Ranges: Butte, Glenn, Mendocino, Placer, Sonoma, and Tehama Counties	Typically rocky serpentine soils in chaparral and lower montane coniferous forest; 255-2,100 m (840-6,890 ft); blooms February-May	Habitat (suitable soils) not present; nearest recoded occurrence more than 5 miles from project area (CNDDB 2008); not observed during blooming-period surveys
Brown fox sedge *Carex vulpinoidea*	–/–/2.2	Scattered locations in Northern California, from Siskiyou County to Butte County	Freshwater marshes and swamps, riparian woodland; between 30-1,200 m (100-3,940 ft); blooms May-June	Habitat present; nearest recoded occurrence more than 5 miles from project area (CNDDB 2008); not observed during blooming-period surveys

Common Name *Scientific Name*	Status[a] Federal/State/CNPS	Distribution	Habitat	Occurrence in Project Area
Pink creamsacs *Castilleja rubicundula* ssp. *rubicundula*	–/–/1B.2	Southern inner North Coast Ranges, west side of the Sacramento Valley, San Francisco Bay Area	Grassland and open grassy areas in chaparral and foothill woodlands, often on serpentinite, between 20-900 m (66-2950 ft); blooms April-June	Habitat (suitable soils) not present; nearest recoded occurrence more than 5 miles from project area (CNDDB 2008); not observed during blooming-period surveys
Hoover's spurge *Chamaesyce hooveri*	T/–/1B.2	Central Valley from Butte County to Tulare County	Below the high-water mark of large northern hardpan and volcanic vernal pools; between 25-250 m (80-820 ft); blooms July-September	Habitat present; nearest recoded occurrence more than 5 miles from project area (CNDDB 2008); not observed during blooming-period surveys
White-stemmed clarkia *Clarkia gracilis* ssp. *albicaulis*	–/–/1B.2	Southern Cascade Range Foothills: Tehama and Butte Counties	Chaparral and foothill woodlands, between 240-1085 m (800-3560 ft); blooms May-July	Habitat not present, project below elevational range; nearest recoded occurrence approximately 4 ½ miles northeast of project area (CNDDB 2008);not observed during blooming-period surveys
Recurved larkspur *Delphinium recurvatum*	–/–/1B.2	San Joaquin Valley and interior valleys of the South Coast Ranges, from Contra Costa County to Kern County	Alkaline soils in valley and foothill grassland, saltbush scrub, cismontane woodland; below 750 m (2,460 ft); blooms March-May	Habitat (suitable soils) not present; nearest recoded occurrence more than 5 miles from project area (CNDDB 2008); not observed during blooming-period surveys
Butte County fritillary *Fritillaria eastwoodiae*	–/–/3.2	Northern Sierra Nevada foothills, from Shasta County to Placer County	Chaparral, foothill woodland, lower montane coniferous forest, between 50-1490 m (160-4900 ft); blooms March-May	Habitat not present; nearest recoded occurrence more than 5 miles from project area (CNDDB 2008); not observed during blooming-period surveys
Adobe lily *Fritillaria pluriflora*	–/–/1B.2	Northern Sierran and inner Coast Range foothills, from Butte to Solano County	Chaparral, cismontane woodland, valley and foothill grassland, often on adobe soils; 60-705 m (200-2,300 ft); blooms February-April	Habitat (suitable soils) not present; nearest recorded occurrence approximately 3.5 miles northwest of project area (CNDDB 2008); not observed during blooming-period surveys
Woolly rose mallow *Hibiscus lasiocarpus*	–/–/2.2	Scattered small locations in central California, from Butte to San Joaquin County	Freshwater marshes along rivers and sloughs; below 120 m (400 ft); blooms June-September	Habitat present; nearest recoded occurrence approximately 3 miles northeast of project area (CNDDB 2008);not observed during blooming-period surveys

Common Name *Scientific Name*	Status[a] Federal/State/CNPS	Distribution	Habitat	Occurrence in Project Area
California satintail *Imperata brevifolia*	–/–/2.1	Butte, Fresno, Imperial, Inyo, Kern, Lake*, Los Angeles, Orange, RiversIde, San Bernardino, Tehama, Tulare, Ventura Counties; Arizona, Baja California-Mexico, New Mexico*, Nevada, Texas, Utah	Mesic sites in chaparral, coastal scrub, Mojave desert scrub, meadows often alkali, riparian scrub; 0-500 m (0-1,640 ft); blooms September-May	Habitat not present; nearest recoded occurrence more than 5 miles from project area (CNDDB 2008); not observed during blooming-period surveys
Red Bluff dwarf rush *Juncus leiospermus* var. *leiospermus*	–/–/1B.1	Shasta, Tehama, and Butte counties	Vernally mesic sites in chaparral, valley and foothill grassland, cismontane woodlands; 33-1010 m (110-3315 ft) elevation.	Habitat present; nearest recoded occurrence more than 5 miles from project area (CNDDB 2008); not observed during blooming-period surveys
Butte County meadowfoam *Limnanthes floccosa* ssp. *californica*	E/E/1B.1	Butte County	Wet areas in valley and foothill grassland, vernal pools and swales; 50-930 m (160-3,050 ft); blooms March-May	**Present** in project area
Veiny monardella *Monardella douglasii* var. *venosa*	–/–/1B.1	Butte County	Cismontane woodland, valley and foothill grassland on heavy clay soils; 60-410 m (200-1,350 ft); blooms May-July	Habitat (suitable soils) not present; nearest recoded occurrence more than 5 miles from project area (CNDDB 2008); not observed during blooming-period surveys
Hairy Orcutt grass *Orcuttia pilosa*	E/E/1B.1	Scattered locations along east edge of the Central Valley and adjacent foothills, from Tehama County to Merced County	Vernal pools; 55-200 m (180-650 ft); blooms May-September	Habitat present; nearest recoded occurrence more than 5 miles from project area (CNDDB 2008); not observed during blooming-period surveys
Ahart's paronychia *Paronychia ahartii*	–/–/1B.1	Northern Central Valley	Cismontane woodland, valley and foothill grassland, vernal pools; 30-510 m (100-1,670 ft); blooms March-June	Habitat present; nearest recoded occurrence approximately 3 miles north of project area (CNDDB 2008);not observed during blooming-period surveys
Bidwell’s knotweed *Polygonum bidwelliae*	–/–/4.3	Cascade Range foothills, northern Sierra Nevada Foothills in in Butte, Shasta, and Tehama Counties	Volcanic soils in valley and foothill grassland, chaparral, cismontane woodland; 60-1200 m (200-3,940 ft); blooms April-July	**Present** in project area

Table 5-1. Continued

Common Name *Scientific Name*	Status[a] Federal/State/CNPS	Distribution	Habitat	Occurrence in Project Area
California beaked-rush *Rhynchospora californica*	–/–/1B.1	Scattered occurrences in Northern California: Butte, Mariposa, Marin, and Sonoma Counties	Bogs and fens, meadows and seeps, lower montane coniferous forest, freshwater marshes and swamps; 45-1,010 m (150-3,310 ft); blooms May-July	Habitat present; nearest recoded occurrence approximately 2 ¼ miles northeast of project area (CNDDB 2008);not observed during blooming-period surveys
Brownish beaked-rush *Rhynchospora capitellata*	–/–/2.2	Northwest California and northern Sierra Nevada foothills	Moist areas and wetlands in montane coniferous forest, between 455-2,000 m (1,490-6,560 ft); blooms July-August	Habitat not present, project below elevational range; nearest recoded occurrence more than 5 miles from project area (CNDDB 2008); not observed during blooming-period surveys
Butte County checkerbloom *Sidalcea robusta*	–/–/1B.2	Endemic to the Sierra Nevada foothills of Butte County	Chaparral and foothill woodland, between 90-1,600 m (300-5,250 ft); blooms April-June	Habitat not present; nearest recoded occurrence approximately ¼ mile south of SR 32, east of Bruce Road (CNDDB 2008); not observed during blooming-period surveys
Butte County golden clover *Trifolium jokerstii*	–/–/1B.2	Endemic to Butte County	Moist areas in valley and foothill grassland, swales, vernal pool margins; 50-385 m (165-1,260 ft); blooms March-May	Habitat present; nearest recoded occurrence more than 5 miles from project area (CNDDB 2008); not observed during blooming-period surveys
Greene's tuctoria *Tuctoria greenei*	E/R/1B.1	Eastern Central Valley and foothills	Large, deep vernal pools with prolonged inundation; 30-1,070 m (100-3,510 ft); blooms May-September	Marginal habitat present; nearest recoded occurrence more than 5 miles from project area (CNDDB 2008); not observed during blooming-period surveys
Columbian watermeal *Wolffia brasiliensis*	–/–/2.3	Few occurrences along Sacramento River in Butte and Glenn Counties; elsewhere	Shallow freshwater in marshes and swamps; 30-100 m (100-330 ft); blooms April-December	Habitat present; nearest recoded occurrence more than 5 miles from project area (CNDDB 2008); not observed during blooming-period surveys

Sources: California Natural Diversity Data Base (2008), California Native Plant Society (2008).

[a] Status explanations:

*** =** Species extirpated from this county or state.

Federal

E = listed as endangered under the federal Endangered Species Act.
T = listed as threatened under the federal Endangered Species Act.
– = no listing.

State

E = listed as endangered under the California Endangered Species Act.
R = listed as rare under the California Native Plant Protection Act. This category is no longer used for newly listed plants, but some plants previously listed as rare retain this designation.
– = no listing.

California Native Plant Society

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.
3 = List 3 species: plants about which more information is needed to determine their status.
4 = List 4 species: plants of limited distribution.
0.1 = seriously endangered in California.
0.2 = fairly endangered in California.
0.3 = not very endangered in California.

species are known or have the potential to occur within the vicinity of the project area (Table 5-2). Coast (California) horned lizard (*Phrynosoma coronatum*), western yellow-billed cuckoo (*Coccyzus americanus occidentalis*), and bank swallow (*Riparia riparia*) would not occur because there is no suitable habitat in the project area for these species. California red-legged frog (*Rana aurora draytonii*) would not occur because the project is outside of the species current known range (Jennings and Hayes 1994; 63) and is thought to be extirpated from the valley floor (U.S. Fish and Wildlife Service 2002; 5). The Gallaway biologist determined that the Conservancy fairy shrimp (*Branchinecta conservatio*) is unlikely to be present in the project area because it has not been found at other sites in the project vicinity that had more suitable habitat than that present in the project area (Dawson pers. comm.). These five species will not be discussed further.

Six species – bald eagle (*Haliaeetus leucocephalus*), American peregrine falcon (*Falco peregrinus anatum*), western burrowing owl (*Athene cunicularia hypugea*), yellow warbler (*Dendroica petechia brewsteri*), tricolored blackbird (*Agelaius tricolor*), and American badger (*Taxidea taxus*) may forage in the project area, but would not nest there (or den there, in the case of badger) because of a lack of suitable nesting or denning habitat. These species are unlikely to be impacted by the proposed project and are not discussed further. The remaining 12 species occur or have the potential to occur in the project area and are briefly discussed below. Non-special-status migratory birds could nest in and adjacent to the project area and are discussed below as well.

Vernal Pool Fairy Shrimp and Vernal Pool Tadpole Shrimp

Vernal pool fairy shrimp (*Branchinecta lynchi*) and vernal pool tadpole shrimp (*Lepidurus packardi*) live in ephemeral freshwater habitats, including vernal pools. These federally listed vernal pool branchiopods are dependent upon seasonal fluctuations in their habitat such as presence or absence of water during specific times of the year, the duration of inundation, and other environmental characteristics such as salinity, conductivity, dissolved solids, and pH (59 FR 48136; September 16, 1994.). There is a record for vernal pool tadpole shrimp within 0.5 mile south of the project area and several records for vernal pool fairy shrimp and vernal pool tadpole shrimp within 3 miles north of the project (California Natural Diversity Database 2008). The vernal pools and seasonal wetlands in the project area provide suitable habitat for listed vernal pool branchiopods.

Valley Elderberry Longhorn Beetle

Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) (VELB) is closely associated with elderberry shrubs, an obligate host for beetle larvae (Barr 1991; 4). Elderberry shrubs are found in riparian forests and adjacent uplands in the Central Valley and foothills (Barr 1991; 5). Adult VELBs feed on elderberry foliage and are present from March through early June, during which time the adults mate. Females lay their eggs, either singularly or in small clusters, in bark crevices or at the junction of stem/trunk or leaf petiole/stem. After hatching, the larva burrows into the stem, where it creates a gallery that it fills with frass and shredded wood. After the larva transforms into an adult, it chews an exit hole and emerges. The life cycle of VELB ranges from 1 to 2

years. (Barr 1991; 4-5.) There are three records for exit holes of valley elderberry longhorn beetle within 3 miles of the project area (California Natural Diversity Database 2008). One large elderberry cluster is present east of Forest Avenue on the north side of SR 32. A portion of the cluster is growing between the existing wooden fence and chain link fence.

Western Spadefoot

Western spadefoot (*Spea hammondii*) is a lowland toad that occurs in washes, river floodplains, alluvial fans, playas, and alkali flats within valley and foothill grasslands, open chaparral, and pine-oak woodlands. It breeds in quiet streams and temporary rain pools. This toad prefers habitats with open vegetation and short grasses where the soil is sandy or gravely (Stebbins 2003; 203.). Western spadefoot toads spend a considerable portion of the year underground in burrows (Zeiner et al. 1988; 56). There is one record for an occurrence of western spadefoot approximately 2.5 miles north of the project area (California Natural Diversity Database 2008). The vernal pools and seasonal wetlands in the project area provide suitable habitat for western spadefoot.

Western Pond Turtle

Western pond turtle (*Actinemys marmorata*) occurs throughout much of California except for east of the Sierra-Cascade crest and desert regions (with the exception of the Mojave River and its tributaries (Zeiner et al. 1988; 100). Aquatic habitats used by western pond turtles include ponds, lakes, marshes, rivers, streams, and irrigation ditches with a muddy or rocky bottom in grassland, woodland, and open forest areas (Stebbins 2003; 250). Western pond turtles spend a considerable amount of time basking on rocks, logs, emergent vegetation, mud or sand banks, or human-generated debris (Jennings et al. 1992; 11). Western pond turtles move to upland areas adjacent to watercourses to deposit eggs and overwinter (Jennings and Hayes 1994; 98). Turtles have been observed overwintering several hundred meters from aquatic habitat. In the southern portion of the range and along the central coast, western pond turtles are active year round. In the remainder of their range, these turtles typically become active in March and return to overwintering sites by October or November. (Jennings et al. 1992; 11.) There is a record for an occurrence of western pond turtle in Little Chico Creek approximately 0.25 mile from the project area (California Natural Diversity Database 2008). When flowing, Dead Horse Slough and South Fork Dead Horse Slough provide suitable aquatic habitat for western pond turtle. Riparian and grassland areas adjacent to these waterways provide suitable upland habitat for western pond turtle.

Giant Garter Snake

Giant garter snake (*Thamnophis gigas*) occurs in the Central Valley from Butte County south to Fresno County. Giant garter snakes inhabit agricultural wetlands and other waterways including irrigation and drainage canals, ricelands, marshes, sloughs, ponds, small lakes, and low gradient streams, as well as adjacent upland areas. They do not occur in larger rivers and wetlands with sand, gravel, or rock substrates. Giant garter snake requires permanent water during its active season (early spring through mid-fall) to maintain dense populations of food organisms. The snake also requires herbaceous, emergent vegetation for protective cover and foraging habitat, and open areas and grassy banks for basking. In addition,

Table 5-2. Special-Status Wildlife Species with Potential to Occur in the State Route 32 Widening Project Area

Common Name *Scientific Name*	Status[a] Federal/State	California Distribution	Habitats	Occurrence in Project Area
Conservancy fairy shrimp *Branchinecta conservatio*	E/–	Disjunct occurrences in Solano, Merced, Tehama, Butte, and Glenn Counties	Large, deep vernal pools in annual grasslands	Gallaway biologist determined that species was unlikely to occur based on lack of known occurrences and habitat suitability
Vernal pool fairy shrimp *Branchinecta lynchi*	T/–	Central Valley, central and south Coast Ranges from Tehama County to Santa Barbara County. Isolated populations also in Riverside County	Common in vernal pools; also found in sandstone rock outcrop pools	Assumed to be present—suitable habitat present
Vernal pool tadpole shrimp *Lepidurus packardi*	E/–	Shasta County south to Merced County	Vernal pools and ephemeral stock ponds	Assumed to be present—suitable habitat present
Valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	T/–	Stream side habitats below 3,000 feet throughout the Central Valley	Riparian and oak savanna habitats with elderberry shrubs; elderberries are the host plant	May occur—suitable habitat present
Western spadefoot *Spea hammondii*	–/SSC	Sierra Nevada foothills, Central Valley, Coast Ranges, coastal counties in southern California	Shallow streams with riffles and seasonal wetlands, such as vernal pools in annual grasslands and oak woodlands	May occur—suitable habitat present
California red-legged frog *Rana aurora draytonii*	T/SSC	Found along the coast and coastal mountain ranges of California from Marin County to San Diego County and in the Sierra Nevada from Tehama County to Fresno County	Permanent and semipermanent aquatic habitats, such as creeks and cold-water ponds, with emergent and submergent vegetation. May estivate in rodent burrows or cracks during dry periods	Would not occur—believed to be extirpated from the valley floor
Western pond turtle *Actinemys marmorata*	–/SSC	Occurs throughout California west of the Sierra-Cascade crest. Found from sea level to 6,000 feet. Does not occur in desert regions except for along the Mojave River and its tributaries.	Occupies 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	May occur—suitable habitat present
Coast (California) horned lizard *Phrynosoma coronatum* (*frontale* population)	–/SSC	Sacramento Valley, including foothills, south to southern California; Coast Ranges south of Sonoma County; below 4,000 feet in northern California	Grasslands, brushlands, woodlands, and open coniferous forest with sandy or loose soil; requires abundant ant colonies for foraging	Unlikely to occur because of absence of sandy or loose soil

Table 5-2. Continued

Common Name *Scientific Name*	Status[a] Federal/State	California Distribution	Habitats	Occurrence in Project Area
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 water-ways 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	May occur—suitable habitat present
Bald eagle *Haliaeetus leucocephalus*	D/E, FP	Nests in Siskiyou, Modoc, Trinity, Shasta, Lassen, Plumas, Butte, Tehama, Lake, and Mendocino Counties and in the Lake Tahoe Basin. Reintroduced into central coast. Winter range includes the rest of California, except the southeastern deserts, very high altitudes in the Sierra Nevada, and east of the Sierra Nevada south of Mono County	In western North America, nests and roosts in coniferous forests within 1 mile of a lake, reservoir, stream, or the ocean	Could occasionally occur in project area but would not nest in project area or be impacted by the project
Swainson's hawk *Buteo swainsoni*	–/T	Lower Sacramento and San Joaquin Valleys, the Klamath Basin, and Butte Valley. Highest nesting densities occur near Davis and Woodland, Yolo County	Nests in oaks or cottonwoods in or near riparian habitats. Forages in grasslands, irrigated pastures, and grain fields	May occur—suitable nesting and foraging habitat present
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	Low foothills or valley areas with valley or live oaks, riparian areas, and marshes near open grasslands	May occur—suitable nesting and foraging habitat present
American peregrine falcon *Falco peregrinus anatum*	–/E, FP	Permanent resident along the north and south Coast Ranges. May summer in the Cascade and Klamath Ranges and through the Sierra Nevada to Madera County. Winters in the Central Valley south through the Transverse and Peninsular Ranges and the plains east of the Cascade Range	Nests and roosts on protected ledges of high cliffs, usually adjacent to lakes, rivers, or marshes that support large prey populations	Could occasionally forage in project area but would not nest in project area or be impacted by the project
Western yellow-billed cuckoo *Coccyzus americanus occidentalis*	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	Would not occur—extensive riparian forest not present in project area

Common Name *Scientific Name*	Status[a] Federal/State	California Distribution	Habitats	Occurrence in Project Area
Western burrowing owl *Athene cunicularia hypugea*	–/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	Could forage in project area—no ground squirrel burrows observed and species not observed during 2005 and 2008 surveys
Loggerhead shrike *Lanius ludovicianus*	–/SSC	Resident and winter visitor in lowlands and foothills throughout California. Rare on coastal slope north of Mendocino County, occurring only in winter	Prefers open habitats with scattered shrubs, trees, posts, fences, utility lines, or other perches	May occur—suitable nesting and foraging habitat present
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	Would not occur—no suitable habitat in project area
Yellow warbler *Dendroica petechia brewsteri*	–/SSC	Nests over all of California except the Central Valley, the Mojave Desert region, and high altitudes and the eastern side of the Sierra Nevada. Winters along the Colorado River and in parts of Imperial and Riverside Counties. Two small permanent populations in San Diego and Santa Barbara Counties	Nests in riparian areas dominated by willows, cottonwoods, sycamores, or alders or in mature chaparral; may also use oaks, conifers, and urban areas near stream courses	Could occasionally forage in project area but would not nest in project area or be impacted by the project
Tricolored blackbird *Agelaius tricolor*	–/SSC	Permanent resident in the Central Valley from Butte County to Kern County. Breeds at scattered coastal locations from Marin County south to San Diego County; and at scattered locations in Lake, Sonoma, and Solano Counties. Rare nester in Siskiyou, Modoc, and Lassen Counties	Nests in dense colonies in emergent marsh vegetation, such as tules and cattails, or upland sites with blackberries, nettles, thistles, and grainfields. Habitat must be large enough to support 50 pairs. Probably requires water at or near the nesting colony	Could occasionally forage in project area but would not nest in project area or be impacted by the project
Western red bat *Lasiurus blossevillii*	–/SSC	Scattered throughout much of California at lower elevations	Found primarily in riparian and wooded habitats. Occurs at least seasonally in urban areas. Day roosts in trees within the foliage. Found in fruit orchards and sycamore riparian habitats in the Central Valley	May occur—suitable roosting and foraging habitat present

Common Name *Scientific Name*	Status[a] Federal/State	California Distribution	Habitats	Occurrence in Project Area
Pallid bat *Antrozous pallidus*	–/SSC	Occurs throughout California except the high Sierra from Shasta to Kern County and the northwest coast, primarily at lower and mid elevations	Occurs in a variety of habitats from desert to coniferous forest. Most closely associated with oak, yellow pine, redwood, and giant sequoia habitats in northern California and oak woodland, grassland, and desert scrub in southern California. Relies heavily on trees for roosts	May occur—suitable roosting and foraging habitat present
Western mastiff bat *Eumops perotis californicus*	–/SSC	Occurs along the western Sierra primarily at low to mid elevations and widely distributed throughout the southern coast ranges. Recent surveys have detected the species north to the Oregon border.	Found in a wide variety of habitats from desert scrub to montane conifer. Roosts and breeds in deep, narrow rock crevices, but may also use crevices in trees, buildings, and tunnels	Unlikely to occur based on species known range
American badger *Taxidea* taxus	–/SSC	Throughout California, except for the humid coastal forests of northwestern California in Del Norte and the northwestern Humboldt Counties	Requires sufficient food, friable soils, and relatively open uncultivated ground; preferred habitat includes grasslands, savannas, and mountain meadows near timberline	Unlikely to occur because of absence of sandy or loose soil and suitable burrows

[a] Status explanations:

Federal

E = listed as endangered under the federal Endangered Species Act.
T = listed as threatened under the federal Endangered Species Act.
– = no status.

State

E = listed as endangered under the California Endangered Species Act.
T = listed as threatened under the California Endangered Species Act.
FP = fully protected under the California Fish and Game Code.
SSC = species of special concern in California.
– = no status.

higher elevation upland habitats for cover and refuge from flood waters are needed during the winter when the snake is inactive. Giant garter snakes begin to search for mates soon after emergence from overwintering sites. The breeding season extends from March through May and resumes briefly in September. (U.S. Fish and Wildlife Service 1999; 12, 13, 22.) There are no records for giant garter snake within 5 miles of the project area (California Natural Diversity Database 2008). When flowing, Dead Horse Slough and South Fork Dead Horse Slough provide suitable aquatic habitat for giant garter snake. Grassland areas adjacent to these waterways provide suitable upland habitat for giant garter snake.

Swainson's Hawk

Swainson's hawks (*Buteo swainsoni*) forage in grasslands, grazed pastures, alfalfa and other hay crops, and certain grain and row croplands. Vineyards, orchards, rice, cotton, and cotton crops are generally unsuitable for foraging due to the density of the vegetation (California Department of Fish and Game 1992; 41). Swainson's hawks usually nest in large, mature trees. Most nest sites (87%) in the Central Valley are found in riparian habitats (Estep 1989; 35), primarily because trees are more available there. Swainson's hawks also nest in mature roadside trees and in isolated trees in agricultural fields or pastures. The breeding season is from March through August (Estep 1989; 12, 35.). There is one record for a Swainson's hawk nest from 1998 approximately 4 miles from the project area (California Natural Diversity Database 2008). Additional records for occurrences 5-10 miles from the project area also exist. The project area and adjacent areas contain suitable nesting trees for Swainson's hawks. In addition, annual grassland in the project area provides suitable foraging habitat for Swainson's hawks.

White-Tailed Kite

White-tailed kite (*Elanus leucurus*) occurs in coastal and valley lowlands in California (Zeiner et al. 1990a; 120). White-tailed kites generally inhabit low-elevation grassland, savannah, oak woodland, wetland, agricultural, and riparian habitats. Some large shrubs or trees are required for nesting and for communal roosting sites. Vegetation structure and prey populations appear to be more important than plant associations in determining suitability. Nest trees range from small, isolated shrubs and trees to trees in relatively large stands (Dunk 1995; 6, 8.) White-tailed kites make nests of loosely piled sticks and twigs, lined with grass and straw, near the top of dense oaks, willows, and other tree stands. The breeding season lasts from February through October and peaks between May and August. They forage in undisturbed, open grassland, meadows, farmland, and emergent wetlands (Zeiner et al. 1990a; 120.). There are no CNDDB records for white-tailed kite nests within 5 miles of the project area. The project area and adjacent areas contain suitable nesting trees for white-tailed kites. In addition, annual grassland in the project area provides suitable foraging habitat for white-tailed kites.

Loggerhead Shrike

Loggerhead shrikes (*Lanius ludovicianus*) occur in open habitats with scattered trees, shrubs, posts fences, utility lines, or other types of perches. Nests are built in trees or shrubs with dense foliage and are usually hidden well. Loggerhead

shrikes search for prey from perches and frequently impale their prey on thorns, sharp twigs, or barbed-wire. The nesting period for loggerhead shrikes is March through June (Zeiner et al. 1990a; 546). Potential nesting habitat for loggerhead shrike exists along South Fork Dead Horse Slough (just east of Bruce Road) and within scattered shrubs in grassland in the project area. There are no CNDDB records for loggerhead shrike nests within 5 miles of the project area.

Western Red Bat, Pallid Bat, and Non-Special-Status Bats

Western red bat (*Lasiurus blossevillii*) occurs throughout much of California at lower elevations. It is found primarily in riparian and wooded habitats but also occurs seasonally in urban areas (Brown and Pierson 1996; no page numbers). Western red bats roost in the foliage of trees that are often located on the edge of habitats adjacent to streams, fields, or urban areas. This species breeds in August and September and young are born in May through July (Zeiner et al. 1990b; 60). There are no CNDDB records for western red bat within 5 miles of the project area.

Pallid bat (*Antrozous pallidus*) is found throughout most of California at low to middle elevations (6,000 feet). Pallid bats are found in a variety of habitats including desert, brushy terrain, coniferous forest, and non-coniferous woodlands. Daytime roost sites include rock outcrops, mines, caves, hollow trees, buildings, and bridges. Night roosts are commonly under bridges but are also in cave and mines (Brown and Pierson 1996; no page number.) Hibernation may occur during late November through March. Pallid bats breed from late October through February (Zeiner et al. 1990b; 70) and one or two young are born in May or June (Brown and Pierson 1996). There is one record for an occurrence of pallid bat within 2 miles of the project area (California Natural Diversity Database 2008).

The bridge over Dead Horse Slough does not have expansion joints or other crevices that provide suitable roosting habitat for bats (Ladd pers. comm.). However, western red bats, pallid bats, and non-special-status bats could roost in trees in the project area.

Non Special-Status Migratory Birds, including Raptors

Several non-special-status migratory birds, including raptors, could nest in on the ground or in shrubs or trees in and adjacent to the project area. The breeding season for most birds is generally from March 1 to August 30. The occupied nests and eggs of these birds are protected by federal and state laws, including the MBTA and California Fish and Game Code Sections 3503 and 3503.5. CDFG is responsible for overseeing compliance with the codes and makes recommendations on nesting bird and raptor protection.

A focused nest survey was not conducted during the 2004 and 2005 surveys by Gallaway Consulting or during the reconnaissance field visit in 2008 by ICF Jones & Stokes. Several migratory birds, including red-tailed hawk (*Buteo jamaicensis*), Anna's hummingbird (*Calypte anna*), oak titmouse (*Baeolophus inornatus*), and western meadowlark (*Sturnella neglecta*) could nest in or adjacent to the project area. These generally common species are locally and regionally abundant.

Potential Waters of the U.S., Including Wetlands

The wetland delineation identified a total of 0.759 acre of jurisdictional features within the project area including vernal pools and swales, seasonal wetlands and swales, fresh emergent wetland, riparian wetlands, and other waters of the U.S. (including seasonal drainages), as described above in the "Biological Communities" section and shown on Figure 5-1. These features are subject to regulation under CWA Section 404. Local, state, and federal agencies recognize seasonal wetlands as sensitive natural communities.

Protected Trees

The City of Chico tree ordinance regulates the removal of most species of trees with a dbh of 6 inches or more. A total of 455 protected trees of 6 inches or greater dbh are present on the road shoulders; of these, 107 trees are 24 inches or greater. Tree species include 233 valley oak (*Quercus lobata*), 17 interior live oak (*Quercus wislizenii*), and 205 ornamental trees. Chinese pistache (*Pistacia chinensis*) and coast redwood (*Sequoia sempervirens*) are the most common ornamental species accounting for 32% and 30% of the ornamental species, respectively. These trees are located between Fir Street and El Monte Avenue and most are within the area mapped as urban habitat. Approximately 20 of the trees are within the riparian habitat.

Invasive Plants

Plants that are rated by Cal-IPC as invasive species occur in the project area (California Invasive Plant Council 2006 and 2007). Invasive species observed in the project area are listed in Table 5-3 .

Table 5-3. Invasive Plant Species Located in the Project Area

Species	CDFA	Cal-IPC
Tree of heaven (*Ailanthus altissima*)	–	Moderate
Black mustard (*Brassica nigra*)	–	Moderate
Red brome (*Bromus madritensis* spp. *rubens*)	–	High
Ripgut brome (*Bromus diandrus*)	–	Moderate
Star thistle (*Centaurea solstitialis*)	C	High
Bindweed (*Convolvulus arvensis*)	C	–
Bermuda grass (*Cynodon dactylon*)	C	Moderate
Red-stemmed filaree (*Erodium cicutarium*)	–	Limited
Tall fescue (*Festuca arundinacea*)	–	Moderate
Fig (*Ficus carica*)	–	Moderate
Klamath weed (*Hypericum perforatum*)	C	Moderate
Olive (*Olea europaea*)	–	Limited
Himalayan blackberry (*Rubus armeniacus* [*discolor*])	–	High
Medusahead (*Taeniatherum caput-medusae*)	C	High
Woolly mullein (*Verbascum thapsus*)	–	Limited
Periwinkle (*Vinca major*)	–	Moderate

Notes: The CDFA and Cal-IPC lists assign ratings that reflect the CDFA and Cal-IPC views of the statewide importance of the pest, the likelihood that eradication or control efforts would be successful, and the present distribution of the pest in the state. These ratings are guidelines that indicate the most appropriate action to take against a pest under general circumstances. The Cal-IPC species list is more inclusive than the CDFA list; however, Executive Order 13112 requires the use of only the CDFA list.

The CDFA category indicated in the table are defined as follows:

C: State-endorsed holding action and eradication only when found in a nursery; action to retard spread outside nurseries at the discretion of the county agricultural commissioner.

– : Not listed

The Cal-IPC categories indicated in the table are defined as follows:

High: Species with severe ecological impacts, high rates of dispersal and establishment, and usually widely distributed.

Moderate: Species with substantial and apparent ecological impacts, moderate to high rates of dispersal, and establishment dependent on disturbance, and that are limited to widespread distribution.

Limited: Species with minor ecological impacts, low to moderate rates of invasion, and limited distribution, and that are locally persistent and problematic.

–: Not listed

Impact Analysis

This section discusses the approach and methodology used to assess the impacts of the proposed project; thresholds used to determine whether an impact would be significant; discussions of individual impacts relative to the thresholds; mitigation measures to minimize, avoid, rectify, reduce, eliminate, or compensate for significant impacts, and overall significance of the impact with mitigation incorporated.

Approach and Methodology

This biological resources impact analysis is based on the most current project description of the proposed project and alternatives, existing biological resource information (sources are listed at the beginning of this chapter), and current baseline conditions. The impact analysis for each special-status plant or wildlife species documented or with potential to occur in the project area is based on the species' known presence in or near the project area and/or the presence of suitable habitat in the project area or immediate vicinity. Along with the State CEQA guidelines, standard professional practice was used to determine whether an impact on biological resources would be significant.

Thresholds of Significance

The State CEQA Guidelines (14 CCR 15000 *et seq.*) were used to determine whether the proposed project would have a significant impact on biological resources. A project would have a significant impact on biological resources if it would:

- have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the DFG, USFWS, or NMFS;
- have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the DFG or USFWS;
- have a substantial adverse effect on wetlands and other waters that are protected under federal (CWA Sections 404 and 401) or state law (Porter-Cologne Water Quality Control Act) 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;
- conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan; or
- degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number, or restrict the range of an endangered, rare or threatened species.

Impact Assumptions

This impact analysis assumes construction of the proposed project would result in permanent direct impacts on biological resources located at the project site and short-term or long-term indirect impacts on biological resources located adjacent to the project site. In assessing the magnitude of potential impacts, the following assumptions were made regarding proposed project and potential impacts on biological resources:

- To construct the proposed roadway improvements, the following trees would be removed: trees occurring within the footprint of the proposed roadway, bridge, or sidewalk; trees occurring within the fill soil placement limit; trees occurring outside the fill soil placement limit that would not require immediate removal but where a significant amount of grading or fill placement would occur within the drip line; and trees occurring within the CRZ.
- Construction of the concrete sound barrier (Sound Barrier Design Option A2) would remove all trees between the wall and SR 32. Additional impacts would occur on trees on private property, or on the Caltrans right-of-way whose root zones would be significantly impacted or whose canopy would require significant canopy pruning to construct the wall.
- It is assumed that construction of the pre-cast concrete wall (Sound Barrier Design Option A1) would remove fewer trees than construction of the block concrete wall. All trees occurring within the footprint of the wall would be removed. Additional impacts would occur on trees on private property, or on the Caltrans right-of-way whose root zones would be significantly impacted or whose canopy would require significant canopy pruning to construct the sound barrier.
- Construction of the wooden fence (Sound Barrier Design Option A3) would remove several trees on or near the Caltrans right-of-way. It is assumed that most trees could be avoided with the wooden fence offset from the right-of-way and a non-linear fence alignment used to avoid some trees.
- Wetland and drainage impact acreages are based on the preliminary impacts map included in the March 2009 pre-construction notification (PCN) submitted to the Corps by Gallaway Consulting.
- The project could result in the removal of a small population of Bidwell's knotweed, a CNPS List 4 species, near the intersection of SR 32 and Yosemite Drive. This area could be outside of the construction zone. Loss of the knotweed is not addressed below, because it is not considered rare enough to be protected under CEQA.
- The project area could support listed branchiopod species for which there is suitable habitat and for which focused surveys have not been conducted.
- Gallaway Consulting biologists and USFWS biologists established a topographic boundary during a field visit in the area south of SR 32 and west of Bruce Road (shown on Figure 5 in the project NES [Gallaway Consulting, 2006a; 20]). They determined that project construction would have no indirect impacts on the wetlands between the boundary and Bruce Road

because the wetlands are at a higher elevation than the road and shoulder where construction will occur (Dawson pers. comm.). Calculation of indirect impacts on vernal pools, BCM, and listed vernal pool branchiopods is based on this agreement between Gallaway Consulting and USFWS. Direct and indirect impact acreages on vernal pools, BCM, and listed vernal pool branchiopods are based on the impacts acreages calculated for "Alternative 1" (which included intersection widening and signal modification at SR 32 and Bruce Road, similar to the proposed action) in the 2006 NES (Gallaway Consulting 2006a; 32-33, 42).

- Impacts to giant garter snake habitat are based on the analysis for "Alternative 1" (which included intersection widening and signal modification at SR 32 and Bruce Road, similar to the proposed project) in the project NES (Gallaway Consulting 2006a; 43) and the Biological Assessment for the project (Gallaway Consulting 2006b; 24).
- The City will obtain all necessary permits for impacts on sensitive biological resources, including a Clean Water Act Section 404 permit from the Corps and Section 401 certification from the RWQCB; a Section 1602 streambed alteration agreement from DFG; and a consistency determination under section 2081 for BCM impacts from DFG.
- A Section 7 Biological Opinion has been received from the USFWS (see Appendix J of this report).

Impacts and Mitigation Measures of Proposed Project and Alternatives

Impact BIO-1: Loss of Riparian Vegetation and Wetland (Less than Significant with Mitigation Incorporated)

Construction associated with road and bridge widening would result in the loss of riparian vegetation associated with Dead Horse Slough and South Fork Dead Horse Slough.

Native riparian trees to be affected at Dead Horse Slough include valley oak, interior live oak, and Fremont's cottonwood. Trees would be removed for placement of the new deck of the widened bridge. Direct impacts on 0.202 acre of wetland riparian habitat under the jurisdiction of the Corps would also occur due to road widening and widening of the Dead Horse Slough bridge (Gallaway Consulting 2009; map). Placement of structures or other fill in these wetland areas would be regulated by the Corps under a Clean Water Act Section 404 permit. The City has submitted a request for a nationwide Section 404 permit from the Corps for impacts on wetlands and other waters of the United States.

At South Fork Dead Horse Slough, affected native riparian trees would include Fremont's cottonwood, arroyo willow, and red willow. Trees would be removed for extension or replacement of the existing culvert to accommodate the widened road.

In addition to impacts on the trees, the shrub and herbaceous understory in the construction zone would be removed or disturbed. Understory vegetation would be permanently removed for widening of the bridge over Dead Horse Slough and South Fork Dead Horse Slough and would be temporarily disturbed in the remainder of the construction zone.

At both sloughs, trees would be trimmed to remove branches that impede the movement of construction equipment and vehicles. Trenching within the drip line of trees would destroy roots and could cause direct tree mortality or could weaken the trees, making them more susceptible to disease. The movement and storage of construction equipment could damage roots and compact soil around the roots of trees located within the construction zone. These disturbances could affect the health of the trees and possibly lead to mortality.

Riparian habitats are considered sensitive locally, regionally, and statewide because they provide numerous habitat values and are in decline across the state. Substantial statewide decline of riparian communities in recent years has increased concerns about dependent plant and wildlife species, leading state and federal agencies to adopt policies to arrest further loss. Riparian vegetation provides a variety of functions, such as bank stabilization, erosion control, and wildlife habitat. The DFG has adopted a no-net-loss policy for riparian habitat value, and the USFWS mitigation policy identifies California's riparian habitats in Resource Category 2, for which no net loss of existing habitat value is recommended (46FR 7644, January 23, 1981). Additionally, DFG regulates activities that alter the beds, channels, and banks of stream. The proposed bridge widening at Dead Horse Slough would include such activities and therefore would require a streambed alteration agreement with DFG under Section 1602 of the California Fish and Game Code.

Impacts on the riparian vegetation are considered to be significant because the project could result in the fill of a wetland and in long-term degradation and loss of a sensitive plant community and associated wildlife habitat. This impact would be mitigated to a less-than-significant level with implementation of the mitigation measures identified below. Mitigation Measures BIO-1a–BIO-1c are general measures to protect sensitive biological resources, including riparian habitat. Mitigation Measures BIO-1d and BIO-1e minimize and compensate for riparian wetland and vegetation impacts, and reduce the impact to a less-than-significant level. Mitigation for loss of individual trees is included in the protected trees section below (Mitigation Measure BIO-15a).

Mitigation Measure BIO-1a: Conduct a Biological Resources Education Program for Construction Crews and Enforce Construction Restrictions

Before any work occurs in the project area, including grading, the City or its Contractor will retain a qualified biologist will conduct mandatory contractor/worker awareness training for construction personnel. The awareness training will be provided to all construction personnel to brief them on the need to avoid impacts on sensitive biological resources (e.g., wetlands, drainages, riparian vegetation, and native trees) and special-

status plants and wildlife (i.e., Butte County meadowfoam, vernal pool branchiopods, western spadefoot toad, western pond turtle, giant garter snake, active nests of migratory birds, and bats) and the penalties for not complying with biological mitigation requirements. If new construction personnel are added to the program, the contractor will ensure that the personnel receive the mandatory training before starting work.

Mitigation Measure BIO-1b: Install Construction Barrier Fencing to Protect Sensitive Biological Resources Adjacent to the Construction Zone

The construction specifications will require that the City or its contractor retain a qualified biologist to identify environmentally sensitive areas that are to be avoided during construction. The areas to be disturbed need to be clearly delineated and temporary fencing placed at the edge of the area to be disturbed so that no equipment or grading be allowed within the fenced areas. Sensitive communities adjacent to the directly affected area required for construction, including staging and access, will be fenced off to avoid disturbance in these areas. When the fenced areas encroach into the drip line of trees, measures such as pruning to elevate foliage (to accommodate equipment) and root cutting will be used.

Before construction, the contractor will work with the project engineer and a resource specialist to identify the locations for the barrier fencing and will place stakes around the sensitive resource sites to indicate these locations. The protected area will be designated an environmentally sensitive area and will be clearly identified on the construction specifications. The fencing will be installed at least 20 feet (except as described under Mitigation Measure BIO-6a for vernal pool branchiopods) from the environmentally sensitive area and will be in place before construction activities are initiated. The fencing will be maintained throughout the duration of the construction period. The following paragraph will be included in the construction specifications:

The contractor's attention is directed to the areas designated "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 City and/or Caltrans. The contractor will take measures to ensure that the 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 program 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-1c: Retain a Biological Monitor

The City will retain qualified biologists to monitor construction activities in and adjacent to environmentally sensitive areas (i.e., sensitive biological resources). The biologists will assist the construction crew, as needed, to comply with all project implementation restrictions and guidelines. In addition, the biologists will be responsible for ensuring that the City or its contractor maintains the staked and flagged perimeters of the construction area and staging areas adjacent to sensitive biological resources.

Mitigation Measure BIO-1d: Minimize Loss of Trees

The construction contractor will implement the following measures during project construction:

- **Enforce tree protection measures stipulated in the construction specifications.** The special provisions of the construction specifications will include prescriptive measures regarding tree resources that are developed specifically for this project as a synthesis of City of Chico standards, as well as standards of arboriculture practice. Trees to be replaced will be replaced with 15-gallon sized trees.
- **Ensure all tree work is performed by a licensed tree service firm.** All tree work, including tree removal and pruning will be performed by a licensed tree service firm under the direction of a certified arborist. The cutting of roots greater than 2-inches in diameter will be performed under the direction of a certified arborist.
- **Place protection fencing.** Protection fencing will be installed (as described in Mitigation Measure BIO-1b) around all trees to be retained. To the greatest extent feasible, protection fencing will be installed to demarcate, at a minimum, the drip line. When the fenced areas encroach into the drip line of trees, measures such as pruning to elevate foliage (to accommodate equipment) and root cutting will be used.
- **Minimize or exclude vehicle traffic within the drip line of tree canopies.** To avoid the potential for soil compaction and subsequent damage to tree roots vehicle traffic within the drip line of tree canopies will be avoided or minimized to the greatest extent feasible. If vehicular or equipment access must occur within the drip line, it will be restricted to a temporary access road.
- **Minimize or avoid soil disturbance within the drip line of tree canopies.** To avoid the potential for root damage, grading or other soil disturbing activities will be minimized to the greatest practicable degree, particularly within the drip line of the tree canopies.
- **Minimize tree pruning.** Pruning will be required for equipment access and to facilitate construction activities. Pruning will be minimized to the greatest extent feasible. All tree pruning should be

performed by a licensed, tree service firm under the direction of a certified arborist.

- **Site restoration following construction.** To avoid the potential for root damage within the drip line of the tree canopies, grading to restore site grades following construction will be minimized and performed under the direction of a certified arborist. These actions will help minimize damage to structural or feeder roots.
- **Cover undisturbed areas within the drip lines of trees to be protected with chip mulch.** Chip mulch from the removal of existing trees will be used to cover the area underneath the drip line of all trees to be protected within the construction area. The placement of mulch encourages new root growth closer to the trunks of trees and reduces moisture loss during the construction process.
- **Stump grinding.** Tree removal will be accompanied by stump grinding to remove roots when trees are adjacent to trees to be preserved, rather than pulling of the stumps, which disturbs the roots of preserved trees.

Mitigation Measure BIO-1e: Compensate for Loss of Riparian Habitat

The City will compensate for the loss of 0.202 acre of riparian habitat at a ratio of 1:1 or as approved by the Corps in the Section 404 permit. The City will mitigate the loss out-of-kind by purchasing 0.202 acre of seasonal wetland mitigation credits at a wetland mitigation bank. This mitigation will be finalized in coordination with the Corps.

Impact BIO-2: Loss of Fresh Emergent Wetland (Less than Significant with Mitigation Incorporated)

Construction associated with road widening and extension or replacement of the culvert at South Fork Dead Horse Slough would result in the direct loss of 0.011 acre of fresh emergent wetland in the slough (Gallaway Consulting 2009; map). The City has submitted a request for a nationwide Section 404 permit from the Corps for impacts on wetlands and other waters of the United States.

Fresh emergent wetlands are considered sensitive communities by DFG and USFWS, and are protected as wetlands under federal and state law. Therefore, loss of fresh emergent wetland would be a significant impact. Implementation of Mitigation Measure BIO-2a would reduce this impact to a less-than-significant level.

Indirect impacts on fresh emergent wetland downstream of the project site could result from sedimentation caused by construction activities in the slough. Preparation and implementation of a Storm Water Pollution Prevention Plan (SWPPP) for the project would prevent effects on fresh emergent wetland located outside of the project site and avoid indirect impacts.

Mitigation Measure BIO-2a: Compensate for Loss of Fresh Emergent Wetland

The City will compensate for the loss of 0.011 acre of fresh emergent wetland at a ratio of 1:1 or as approved by the Corps in the Section 404 permit. The City will mitigate the loss out-of-kind by purchasing 0.011 acre of seasonal wetland mitigation creation credits at a wetland mitigation bank. This mitigation will be finalized in coordination with the Corps.

Impact BIO-3: Loss of Vernal Pool, Vernal Swale, and Seasonal Wetland (Less than Significant with Mitigation Incorporated)

Construction associated with road widening east of El Monte Avenue would result in the direct loss of 0.265 acre of vernal pool, vernal swale, and seasonal wetland habitat. Indirect impacts on 0.906 acre of vernal pool, vernal swale, seasonal wetland, and seasonal swale habitat would occur during project construction (Gallaway Consulting 2009; map). The City has submitted a request for a nationwide Section 404 permit from the Corps for impacts on wetlands and other waters of the United States.

Vernal pool, vernal swale, seasonal wetland, and seasonal swale are considered sensitive communities by DFG and USFWS, and are protected as wetlands under federal and state law. Therefore, loss of these communities would be a significant impact. Implementation of Mitigation Measure BIO-3a would reduce this impact to a less-than-significant level.

Indirect impacts on vernal pool and seasonal wetland outside of the project site could result from sedimentation caused by construction activities in the adjacent wetlands. Preparation and implementation of a Storm Water Pollution Prevention Plan (SWPPP) for the project would minimize effects on wetlands located outside of the project site. However, wetlands that support special-status species would still require mitigation for indirect impacts, as described in Impacts BIO-5 and BIO-6 (vernal pool branchipods). Mitigation Measures BIO-5a (BCM) and BIO-6d (vernal pool branchiopods) compensate for these indirect impacts.

Mitigation Measure BIO-3a: Compensate for Loss of Vernal Pool, Vernal Swale, and Seasonal Wetland

The City will compensate for the direct loss of 0.265 acre of vernal pool, vernal swale, and seasonal wetland at a ratio of 1:1 or as approved by the Corps in the Section 404 permit. The City will purchase 0.265 acre of seasonal wetland mitigation credits at a wetland mitigation bank. This mitigation will be finalized in coordination with the Corps.

Impact BIO-4: Loss of Seasonal Drainage (Less than Significant with Mitigation Incorporated)

Construction associated with widening of the bridge over Dead Horse Slough, extension or replacement of the culvert at South Fork Dead Horse Slough, and extension or replacement of culverts in seasonal drainages would result in direct impacts on 0.013 acre of seasonal drainage habitat (Gallaway Consulting 2009; map). A total of 0.010 acre of temporary impacts on seasonal drainages and culverts would also result from project construction (Gallaway Consulting 2009; map). The seasonal drainages on the project site are other waters of the United States, and the City has submitted a request for a nationwide Section 404 permit from the Corps for these impacts.

Seasonal drainages are considered sensitive communities by DFG and USFWS, and are protected as waters of the U.S. or waters of the State under federal and state law, respectively. Therefore, loss of other waters of the United States in the seasonal drainages would be a significant impact. Implementation of Mitigation Measure BIO-4a would reduce this impact to a less-than-significant level.

Indirect impacts on seasonal drainage downstream of the project site could result from sedimentation caused by construction activities in the slough. Preparation and implementation of a Storm Water Pollution Prevention Plan (SWPPP) for the project would prevent effects on seasonal drainage habitat located outside of the project site and avoid indirect impacts.

Mitigation Measure BIO-4a: Compensate for Temporary and Permanent Loss of Seasonal Drainage

The City will compensate for the temporary loss of 0.010 acre of seasonal drainage and associated culverts at a ratio of 1:1 by regrading the affected drainages following construction and replacing the culverts.

The City will compensate for the permanent loss of 0.013 acre of seasonal drainage at a ratio of 1:1 or as approved by the Corps in the Section 404 permit. The City will mitigate the loss out-of-kind by purchasing 0.013 acre of seasonal wetland mitigation creation credits at a wetland mitigation bank. This mitigation will be finalized in coordination with the Corps.

Impact BIO-5: Loss of Butte County Meadowfoam (Less than Significant with Mitigation Incorporated)

Construction associated with road widening east of El Monte Avenue would result in the direct loss of 0.001 acre and indirect impacts on 0.183 acre of BCM habitat (Gallaway Consulting; 32, Dawson pers. comm.). The direct impact would occur south of SR32 approximately 200 feet east of the Bruce Road intersection. No direct impacts on BCM would occur west of Bruce Road.

Indirect impacts on BCM would occur west of Bruce Road. These plants occur close to the road, but will be outside of the limit of construction. In the area

south of SR 32 between El Monte Road and Bruce Road, no indirect impacts on BCM would occur east of the line shown on Figure 5-1. This assessment is based on the elevational difference between the project site and the adjacent wetlands that support BCM (Gallaway Consulting 20006a; 33). The adjacent wetlands east of the mapped line lie between 2 and 10 feet above the road bed, and these wetlands would not receive runoff from the road.

BCM is a state and federal listed plant species and is included in the USFWS recovery plan for vernal pools (USFWS 2005). Because the project would have a direct adverse effect on the species and would modify its habitat, this would be considered a significant impact. Implementation of Mitigation Measure BIO-5a would reduce this impact to a less-than-significant level.

Mitigation Measure BIO-5a: Compensate for Loss of Butte County Meadowfoam and Its Habitat

The City will compensate for the direct loss of 0.0001 acre of BCM and indirect impact on 0.1829 acre of BCM habitat by preserving and/or creating additional BCM habitat. The City will compensate for directly affected BCM habitat at a ratio of 19:1 (0.0019 acre) and for indirectly affected BCM habitat at a ratio of 5:1 (0.915 acre), for a total of 0.917 acre of compensation. The compensation ratios have been previously approved by the USFWS (Gallaway Consulting 2006a; 33).

Mitigation credits must be acquired from a USFWS-approved mitigation bank or conservation area. The City will implement one or a combination of the following three mitigation options for a total of 0.917 acre of compensation:

- If available, purchase BCM credits from Dove Ridge Mitigation Bank.
- Preserve BCM at the proposed Bidwell Ranch Conservation Area. As part of the mitigation plan for the nearby Chico Municipal Airport project, the City has proposed Bidwell Ranch as a suitable BCM conservation area; however, a final management plan must be prepared. The City will develop a final management plan prior to initiating construction of the SR 32 widening.
- Establish a new BCM preserve within a USFWS pre-approved off-site location. The City will develop a monitoring plan, placing the property in a USFWS-approved conservation easement, and assuring an endowment fund will be available to protect the property in perpetuity.

Impact BIO-6: Potential Mortality and Loss or Degradation of Habitat for Vernal Pool Fairy Shrimp and Vernal Pool Tadpole Shrimp (Less than Significant with Mitigation Incorporated)

Construction associated with road widening would result in the direct loss or disturbance of 0.265 acre of suitable habitat for listed vernal pool branchiopods.

Suitable habitat in or adjacent to the construction area could be removed or altered during ground disturbing activities by construction equipment. In addition, dirt could be inadvertently placed in suitable habitat during construction, which could bury branchiopods cysts and alter the capacity or suitability of the pool. Construction that occurs when suitable habitat is inundated could result in the loss of individual fairy shrimps or tadpole shrimps. Changes in hydrology or sedimentation of pools from erosion after project construction could also indirectly affect suitable habitat for vernal pool branchiopods or cause mortality of individuals. It is estimated that 0.904 acre of suitable habitat for vernal pool branchiopods would be indirectly affected by the project. Pools that are at the same elevation or below the elevation of construction and are within 250 feet of construction were assumed to be indirectly impacted. These impacts would be considered adverse because the project could reduce the local population sizes of federally-listed vernal pool branchiopods, either through direct mortality or habitat loss. This impact would be significant, but implementation of the following mitigation measures would reduce this impact to a less-than-significant level.

Mitigation Measure BIO-1a: Conduct a Biological Resources Education Program for Construction Crews and Enforce Construction Restrictions

This measure was described above.

Mitigation Measure BIO-1c: Retain a Biological Monitor

This measure was described above.

Mitigation Measure BIO-6a: Fence Habitat for Vernal Pool Branchiopods and Implement Erosion Control Measures

Prior to the commencement of construction activities, a qualified biologist hired by the City or the City's contractor will determine the location of placement of high visibility fencing around suitable vernal pool branchiopod habitat. Fences will be installed 2 feet from the edge of pavement or a minimum distance of 50 feet from the suitable vernal pool branchiopod habitat. No construction personnel and equipment will be allowed within the fenced areas. The fencing will be inspected before the start of each work day and maintained by the contractor until completion of the project, at which time, it will be removed.

Mitigation Measure BIO-6b: Implement Erosion Control Measures

The City or the City's contractor will prepare a site-specific Storm Water Pollution Prevention Plan (SWPPP) for the project to protect receiving waters from pollution. The SWPPP will include standard sediment and erosion control measures which will include limiting soil disturbances during the winter rainfall season. Given the conditions of the project area, the SWPPP for this project will limit soil disturbances during the winter rainfall season of October 15 through April 15 and fully stabilize

disturbed areas prior to December 1. Standard sediment erosion control measures, such as silt fencing, straw bale barriers, sediment traps, or other measures will also directly reduce the offsite transport of sediment from disturbed slopes. Existing vegetation that can be preserved will be identified and flagged or fenced to avoid disturbance. Erosion in disturbed areas will be controlled through the use of grading operations that eliminate direct routes for conveying runoff to drainage channels and use of soil stabilization BMPs, such as mulching, erosion control fabrics, and/or reseeding with grass or other plants where necessary. Standard staging area practices for sediment tracking reduction also will be identified where necessary including vehicle washing and street sweeping. Temporary concentrated flow conveyance systems also will be considered, such as berms, ditches, and outlet flow-velocity dissipation devices to reduce erosion from newly disturbed slopes.

Mitigation Measure BIO-6c: Avoid Changes in Hydrology and Avoid or Minimize Long-Term Water Quality Impacts

The City or its contractor will ensure that there will be no alteration of existing topography that could change the hydrology of vernal pool branchiopod habitat, including the placement of fill material into suitable habitat. In addition, the City will incorporate permanent post-construction BMPs in the project design to avoid or minimize long-term water quality impacts, pursuant to the NPDES storm water permit. BMPs will include stabilization measures such as preservation of existing vegetation, concentrated flow conveyance systems (ditches, berms, drains, flared culvert end sections, outlet protection, and flow-velocity dissipation), and slope roughening or terracing for new cut-and-fill slopes as deemed necessary by the project engineer. Slope protection measures will be implemented to control erosion such as reducing the length of disturbed slopes, reducing the gradient of slopes, and preventing concentrated flow over slope soils. The City will be responsible for long-term inspection and maintenance of the permanent BMPs to ensure that they are maintained in good working order

Mitigation Measure BIO-6d: Compensate for Direct and Indirect Impacts to Vernal Pool Branchiopod Habitat

To compensate for the direct and indirect impacts on habitat for listed vernal pool branchiopods, the City will mitigate at an off-site USFWS-approved conservation area or at a USFWS approved mitigation bank.

Direct effects on an estimated 0.265 acre of suitable vernal pool branchiopod habitat will be compensated by creating habitat at a 1:1 ratio at a mitigation bank or at an off-site conservation area (e.g., 0.265 acre created). The ratios used in this measure were determined from the *Programmatic Formal Endangered Species Consultation on Issuance of 404 Permits for Projects with Relatively Small Effects on Listed Crustaceans within the Jurisdiction of the Sacramento Field Office, California* (U.S. Fish and Wildlife Service 1996). If creation credits are

not available at a bank, the City will investigate mitigating at a USFWS approved off-site location. If mitigation takes place at an off-site location, the City will be responsible for developing a monitoring plan, placing the property in a USFWS conservation easement, and assuring an endowment fund will be available to protect the property for perpetuity.

Direct effects on 0.265 acre and indirect effects on 0.906 acre of suitable vernal pool branchiopod habitat will be compensated by preserving vernal pool habitat at a 2:1 ratio at a mitigation bank or at an off-site conservation area (e.g., 2.34 acres preserved). The City proposes to purchase vernal pool preservation credits from Dove Ridge Mitigation Bank or preserve features within a USFWS approved off-site location. The actual fee paid will be that in effect at the time of payment. Mitigation credits will be purchased prior to any ground-disturbing activities in the project area, including grading, or site grubbing.

Impact BIO-7: Potential Mortality and Loss of Habitat for Valley Elderberry Longhorn Beetle (Less than Significant with Mitigation Incorporated)

Implementation of Location Option B1 (sound barrier extended east of Forest Avenue to El Monte Avenue on north side of SR 32) would result in the removal of and/or disturbance within 20 feet of an elderberry cluster that is located within the project area between Forest Avenue and Dead Horse Slough. Vegetation removal for construction of the sound barrier would likely include removal of the portion of the elderberry cluster that is on the south side of the fence or would cause disturbance in close proximity to the elderberry. The portion of the cluster that is growing between the existing wooden fence and chain link fence may not be removed. This impact is considered significant since the project could reduce the local population size of a federally-listed species, either through direct mortality or habitat loss. USFWS requires compensation for direct impacts to habitat for valley elderberry longhorn beetle. This impact would be significant, but implementation of the following mitigation measure would reduce this impact to a less-than-significant level.

Mitigation Measure BIO-7a: Compensate for Impacts to Valley Elderberry Longhorn Beetle and its Habitat

Before construction begins, the City will compensate for direct effects to the elderberry cluster by transplanting a portion of the cluster to a USFWS-approved conservation area. Elderberry seedlings or cuttings and associated native species will also be planted in the conservation area. The elderberry shrubs would likely be transplanted to Wildlands' River Ranch Conservation Bank.

The relocation of a portion of the elderberry cluster will be conducted according to USFWS-approved procedures outlined in the *Conservation Guidelines for the Valley Elderberry Longhorn Beetle* (Guidelines) (U. S. Fish and Wildlife Service 1999). USFWS will be provided with a map and written details identifying the conservation area before the

mitigation program is initiated. The City must receive approval from USFWS that the conservation area is acceptable. The portion of the elderberry cluster will be transplanted during the plant's dormant phase (November through the first two weeks of February). A qualified biological monitor will remain onsite while the shrub is being transplanted.

Evidence of VELB occurrence in the conservation area, the condition of the elderberry shrub in the conservation area, and the general condition of the conservation area itself will be monitored over a period of 10 consecutive years or for 7 years over a 15-year period from the date of transplanting. The City will be responsible for funding and providing monitoring reports to Caltrans and USFWS in each of the years in which a monitoring report is required. As specified in the Guidelines, the report will include information on timing and rate of irrigation, growth rates, and survival rates and mortality.

To meet the success criteria specified in the Guidelines, a minimum survival rate of 60% of the original number of elderberry replacement plantings and associated native plants must be maintained throughout the monitoring period.

A portion of one elderberry cluster will be transplanted to the conservation area according to USFWS-approved procedures outlined in the Guidelines. In addition to this transplanting, the Guidelines require that each elderberry stem measuring 1.0 inch or greater in diameter at ground level that is directly or indirectly affected be replaced in a conservation area with elderberry seedlings or cuttings at ratios between 1:1 and 8:1. The ratio used is based on whether or not the shrub is located in riparian or nonriparian habitat, the diameters of elderberry stems, and whether or not VELB exit holes are present. Based on the project directly affecting one elderberry cluster having a combined total of 11 stems measuring 2.5 centimeters (1.0 inch) or more in diameter, 34 elderberry seedlings or cuttings and 68 native plants will be planted at the conservation area (Table 5-4). Elderberry cuttings or seedlings and native plants will be obtained from local sources or from an approved plant donor site.

A mix of native plants associated with the elderberry shrubs at the project site will be planted in the conservation area at a ratio of 1:1 or 2:1 native tree/elderberry seedling or cutting. The ratio used depends on whether or not the transplanted shrub contains VELB exit holes. A mixture of native grasses and forbs from local stock should also be planted along with the native trees. The conservation area will be at least 0.45 acre in size to accommodate a portion of the elderberry cluster, 34 elderberry cuttings or seedlings, and 68 native plants. The conservation area in which the transplanted elderberry shrubs and seedlings are planted shall be protected in perpetuity as habitat for the VELB.

Table 5-4. Required Compensation for VELB for the State Route 32 Widening Project

Habitat	Stem Diameter	Number of Stems	Exit Holes (Y/N)	Seedling Ratio	Native Plant Ratio	Total Seedling	Total Native Plants
Riparian	Stems ≥1" to ≤3"	0	N	2:1	1:1	0	0
	Stems ≥1" to ≤3"	0	Y	4:1	2:1	0	0
	Stems >3" to <5"	0	N	3:1	1:1	0	0
	Stems >3" to <5"	0	Y	6:1	2:1	0	0
	Stems ≥5"	0	N	4:1	1:1	0	0
	Stems ≥5"	0	Y	8:1	2:1	0	0
Nonriparian	Stems ≥1" to ≤3"	0	N	1:1	1:1	0	0
	Stems ≥1" to ≤3"	6	Y	2:1	2:1	12	24
	Stems >3" to <5"	0	N	2:1	1:1	0	0
	Stems >3" to <5"	4	Y	4:1	2:1	16	32
	Stems ≥5"	0	N	3:1	1:1	0	0
	Stems ≥5"	1	Y	6:1	2:1	6	12
Total		**11**				**34**	**68**

Impact BIO-8: Potential Mortality of Western Spadefoot Toads and Loss or Degradation of Suitable Habitat (Less than Significant with Mitigation Incorporated)

Construction associated with road widening would result in the loss or disturbance of suitable habitat for western spadefoot toads. Suitable habitat in or adjacent to the construction area could be removed or altered during ground disturbing activities by construction equipment. Construction activities could also result in the mortality or injury of individuals that are in underground aestivation areas or in within pool areas. Changes in hydrology or sedimentation of pools from erosion after project construction could also indirectly affect suitable habitat for western spadefoot or cause mortality of individuals. There has been a substantial decrease in vernal pool habitat and degradation of vernal pool complexes because of development and other land conversions (Jennings and Hayes 1994:96). Because these areas provide essential breeding habitat for western spadefoot toads and substantial declines in populations have been documented in the Central Valley and southern California (Jennings and Hayes 1994:96), these impact are considered adverse. This impact would be significant, but implementation of the measures described above for vernal pool branchiopods would avoid and minimize direct and indirect impacts on western spadefoot toads. No further mitigation would be required. The following measures are described above.

Mitigation Measure BIO-1a: Conduct a Biological Resources Education Program for Construction Crews and Enforce Construction Restrictions

Mitigation Measure BIO-1c: Retain a Biological Monitor

Mitigation Measure BIO-6a: Fence Habitat for Vernal Pool Branchiopods and Implement Erosion Control Measures

Mitigation Measure BIO-6b: Implement Erosion Control Measures

Mitigation Measure BIO-6c: Avoid Changes in Hydrology and Avoid or Minimize Long-Term Water Quality Impacts

Mitigation Measure BIO-6d: Compensate for Direct and Indirect Impacts to Vernal Pool Branchiopod Habitat

Impact BIO-9: Potential Mortality of Western Pond Turtles and Loss or Disturbance of Suitable Habitat (Less than Significant with Mitigation Incorporated)

Widening of the bridge over Dead Horse Slough and lengthening and replacement of the box culvert over South Fork Dead Horse Slough would result in temporary and permanent losses of suitable aquatic habitat for western pond turtle. Road widening activities would result in the loss or disturbance of suitable upland habitat for western pond turtle in the vicinity of these drainages. Based on estimates of habitat impacts to giant garter snake habitat determined by Gallaway Consulting (2006a; 43-44), approximately 0.093 acre and 0.227 acre of suitable aquatic habitat for western pond turtle would be permanently and temporarily, respectively, affected by the proposed project. In addition, approximately 1.519 acres of suitable upland habitat would be directly affected by the project. Construction activities (such as grading and movement of heavy equipment) adjacent to the Dead Horse Slough and South Fork Dead Horse Slough could result in injury or mortality of western pond turtles or pond turtle nests containing eggs or young individuals if these areas are being used for egg deposition. Declines in populations of western pond turtles throughout the species range have been documented (Jennings and Hayes 1994). Loss of individuals within the project area could diminish the local population and lower reproductive potential, which could contribute to the further decline of this species. The loss of upland nesting sites or eggs would also decrease the local population. This impact would be significant, but implementation Mitigation Measure BIO-9a, which applies to aquatic habitat for turtles, and Mitigation Measure BIO-9b, which applies primarily to upland habitat for turtles, would reduce this impact to a less-than-significant level.

Mitigation Measure BIO-9a: Conduct Work in Creeks Only During the Dry Season or Conduct a Preconstruction Survey for Western Pond Turtles

To avoid construction-related impacts on western pond turtles, work will be conducted in Dead Horse Slough and South Fork Dead Horse Slough only during the dry season (June 1 through October 15) when these creeks are dry. If work must be conducted when either creek contains water, the City or its contractor will retain a qualified wildlife biologist to conduct a preconstruction survey for western pond turtles within 24 hours of the start of construction within suitable aquatic habitat (as

discussed above). If a western pond turtle is located in the construction area either during the preconstruction survey or during monitoring of construction, a biologist with a valid memorandum of understanding (MOU) from DFG will move the turtle to a suitable aquatic site, outside the construction area.

Mitigation Measure BIO-9b: Conduct Preconstruction Surveys for Western Pond Turtle and Giant Garter Snake

Within 24-hours prior to the start of construction activities, suitable aquatic and upland habitat in the project area will be surveyed for giant garter snakes by a qualified biologist who is approved by the USFWS's Sacramento Fish and Wildlife Office. The biologist will provide the USFWS with a field report form documenting the survey effort and results within 24-hours of commencement of construction activities. Concurrent with the giant garter snake survey, the biologist will look for adult pond turtles, in addition to nests containing pond turtle hatchlings and eggs. If an active pond turtle nest containing either pond turtle hatchlings or eggs is found, the City will contact DFG to determine and implement appropriate avoidance measures, which may include a no-disturbance buffer around the nest site until the hatchlings have moved to a nearby aquatic site.

Impact BIO-10: Potential Mortality of Giant Garter Snakes and Loss or Disturbance of Suitable Habitat (Less than Significant with Mitigation Incorporated)

Widening of the bridge over Dead Horse Slough and lengthening and replacement of the box culvert over South Fork Dead Horse Slough would result in temporary and permanent losses of suitable aquatic habitat for giant garter snake. Road widening activities would result in the loss or disturbance of suitable upland habitat for giant garter snake in the vicinity of these drainages. Approximately 0.093 acre and 0.227 acre of suitable aquatic habitat for giant garter snake would be permanently and temporarily, respectively, affected by the proposed project (Gallaway Consulting 2006b; 24). In addition, approximately 1.519 acres of suitable upland habitat would be directly affected by the project. Bridge and road widening activities (such as grading and movement of heavy equipment) in or adjacent to the Dead Horse Slough and South Fork Dead Horse Slough could result in injury or mortality of giant garter snakes. No indirect impacts on giant garter snake or its habitat would occur. Loss of habitat and potential injury or mortality of snakes are considered adverse impacts since the project could reduce the local population size of a federally-listed species. This impact would be significant, but implementation of the following mitigation measures would reduce this impact to a less-than-significant level.

Mitigation Measure BIO-1a: Conduct a Biological Resources Education Program for Construction Crews and Enforce Construction Restrictions

This measure was described above.

Mitigation Measure BIO-9b: Conduct Preconstruction Surveys for Western Pond Turtle and Giant Garter Snake

This measure was described above.

Mitigation Measure BIO-10a: Conduct Construction Activities during the Active Period of Giant Garter Snakes

All construction activity within giant garter snake aquatic and upland habitat will be conducted during the snake's active period (between May 1 and October 1). During this timeframe, potential for injury and mortality are lessened because snakes are actively moving and avoiding danger. Giant garter snakes are more vulnerable to danger during their inactive period, because they are occupying underground burrows or crevices and are more susceptible to direct effects, especially during excavation. If work must be conducted between October 2 and April 30 the City will contact the USFWS to determine if additional measures are necessary to minimize and avoid take. If the project is expected to go past the October 1 deadline the City must notify the USFWS by July 15 of the same construction season.

Mitigation Measure BIO-10b: Monitor Construction Activities in Giant Garter Snake Habitat

A USFWS approved biological monitor will be present during initial construction activities within suitable aquatic and upland habitat for giant garter snakes. Giant garter snakes encountered during construction activities will be allowed to move away from construction activities on their own. Capture and relocation of trapped or injured individuals can only be attempted by individuals with current USFWS recovery permits pursuant to section 10(a)(1)(A) of the ESA. The biologist will report any incidental take to the USFWS within 1 working day. The project area will be re-inspected whenever a lapse in construction activity of 2 weeks or greater has occurred.

Mitigation Measure BIO-10c: Restore and Compensate for Direct and Indirect Impacts to Giant Garter Snake Habitat

To compensate for the direct and indirect impacts on habitat for giant garter snake, the City will acquire a fee title or conservation easement for an off-site location. If an off-site location is not logistically feasible, alternative options will be investigated, such as purchasing mitigation credits at a USFWS approved conservation bank (if available), or through the in-lieu species fund.

Loss of 0.093 acre of aquatic habitat and 1.519 acres of upland habitat for giant garter will be compensated by replacing habitat at a 3:1 ratio. This ratio is appropriate because the proposed project will have Level 3 impacts as described in the *Programmatic Formal Consultation for U.S. Army Corps of Engineers 404 Permitted Projects with Relatively Small*

Effects Giant Garter Snake within Butte, Colusa, Glenn, Fresno, Merced, Sacramento, San Joaquin, Solano, Stanislaus, Sutter, and Yolo Counties, California (U.S. Fish and Wildlife Service 1997). Therefore, 0.28 acre of aquatic habitat and 4.56 acres of upland habitat surrounding the aquatic habitat will be created and preserved. No more than 0.14 acre of aquatic habitat may be preserved (e.g., the remaining amount of habitat must be created). Because temporary disturbance of 0.227 acre of suitable aquatic habitat would be limited to one season, impacted areas would be restored and additional compensation would not be required. Final acreage impacts based on the 65% project design will be submitted to the USFWS to assess the final required mitigation.

Impact BIO-11: Potential Disturbance of Nesting Swainson's Hawks, White-Tailed Kites, Loggerhead Shrikes, and Non-Special-Status Migratory Birds, Including Swallows (Less than Significant with Mitigation Incorporated)

Suitable nesting habitat (grassland areas, trees and shrubs) for Swainson's hawk, white-tailed kite, loggerhead shrike, and other migratory birds is present in and adjacent to the project area. In addition, the bridge over Dead Horse Slough provides suitable nesting habitat for swallows and swallows nests have been observed on this bridge. Raptors (e.g., eagles, kites, hawks, and owls) and other migratory birds and their nests are protected under both California Fish and Game Code Section 3503 (active bird nests) and the MBTA. Removal of nests or suitable nesting habitat and construction disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings or otherwise lead to nest abandonment. Loss of raptor and other migratory bird eggs or nests, or any activities resulting in nest abandonment, would be considered an adverse impact. This impact would be significant, but implementation of the following mitigation measure would reduce this impact to a less-than-significant level.

Mitigation Measure BIO-11a: Avoid Construction during the Nesting Season of Migratory Birds or Conduct Preconstruction Survey for Nesting Birds

To avoid disturbing any active ground-, tree-, or shrub-nesting migratory birds, construction activities should be conducted during the non-breeding season (generally between September 1 and February 28). If construction activities cannot be avoided during the nesting season (generally between March 1 and August 30), a preconstruction survey will be conducted by a qualified biologist to determine whether there are active nests on the site. The survey will include a search of all trees and shrubs, as well as annual grassland areas, for ground-nesting birds. The survey should be conducted no more than 30 days prior to construction. If the biologist determines that the area surveyed does not contain any active nests, then construction activities can commence without any further mitigation. If construction activities cease and begin again during a 12-month period, they should be reinitiated before the next breeding season begins or another preconstruction survey will be conducted.

If active raptor nests or other migratory bird nests are located on or adjacent to the project site during the preconstruction survey, and construction must occur during the breeding season, construction will not occur within 500 feet of an active nest until the young have fledged, as determined by a qualified biologist, or until the City receives written authorization from the DFG to proceed.

Mitigation Measure BIO-11b: Avoid Bridge Work during the Swallow Nesting Period or Implement Measures to Exclude Swallows from the Bridge

If swallows are nesting on the bridge over Dead Horse Slough, work on the bridge will be avoided for the duration of the nesting period (generally March 1 through August 1). Because bridge work will need to be conducted during the dry season to avoid impacts to giant garter snakes and western pond turtles (Mitigation Measure BIO-9a), work will occur during the swallow nesting period. Therefore, to avoid impacts to nesting swallows, the following measures will be implemented to preclude swallows from nesting on the bridge.

- Remove old swallow nests prior to March 1 of the construction year by spraying the mud nests with water and/or knocking them down with poles or scrapers. All remnants of nests and traces of mud will be removed
- Under the supervision of a qualified biologist, place exclusionary netting with a diameter of ¾ inch or less (high density, ultra-violet stabilized polyethylene twine) on the underside of the existing bridge structure and extend it around the sides of the bridge and attach the netting near the bridge deck to prevent swallows from accessing the bridge.

Impact BIO-12: Loss of Swainson's Hawk Foraging Habitat (Less than Significant with Mitigation Incorporated)

There is one record for a Swainson's hawk nest from 1998 approximately 4 miles from the project area (California Natural Diversity Database 2008). Additional records for nests that are 5-10 miles from the project area also exist. Mitigation is required for the loss of foraging habitat within 10 miles of an active nest (i.e., a nest that has been active in the last 5 years). It is assumed that one or more of the nests within 10 miles of the project has been active in the last 5 years. Annual grassland in the project area provides suitable foraging habitat for Swainson's hawk. Road widening would result in the loss of 15.46 acres of foraging habitat for this species. Because there has been a substantial reduction in the historic range of Swainson's hawk in California and continues to be rapid loss and modification of its habitat throughout the Central Valley (California Department of Fish and Game 2005), the loss of foraging habitat is considered an adverse impact. This impact would be significant, but implementation of the following mitigation measure would reduce this impact to a less-than-significant level.

Mitigation Measure BIO-12a: Compensate for the Loss of Swainson's Hawk Foraging Habitat

Removal of suitable foraging habitat for Swainson's hawks will be mitigated by providing off-site habitat management lands as described in the DFG *Staff Report Regarding Mitigation for Impacts to Swainson's Hawks in the Central Valley of California* (California Department of Fish and Game 1994).

The final acreage of off-site management lands to be provided would depend on the distance between the project area and the nearest active nest site. Prior to the grading of any potential foraging habitat, the CNDDB should be consulted and/or DFG should be contacted to determine the nearest active nest. The 1994 DFG staff report states:

Projects within 1-mile of an active nest tree shall provide:

- One acre of Habitat Management (HM) land (at least 10% of the HM land requirements shall be met by fee title acquisition or a conservation easement allowing for the active management of the habitat, with the remaining 90% of the HM lands protected by a conservation easement [acceptable to the Department] on agricultural lands or other suitable habitats that provide foraging habitat for Swainson's hawk) for each acre of development authorized (1:1 ratio); or
- One-half acre of HM land (all of the HM land requirements shall be met by fee title acquisition or a conservation easement [acceptable to the Department] which allows for the active management of the habitat for prey production on the HM lands) for each acre of development authorized (0.5:1 ratio).

Projects within 5 miles of an active nest tree but greater than 1 mile from the nest tree shall provide 0.75 acre of HM land for each acre of urban development authorized (0.75: 1 ratio). All HM lands protected under this requirement may be protected through fee title acquisition or conservation easement (acceptable to the department) on agricultural lands or other suitable habitats that provide foraging habitat for Swainson's hawks.

Projects within 10 miles of an active nest tree but greater than 5 miles from an active nest tree shall provide 0.5 acre of HM land for each acre of urban development authorized (0.5: 1 ratio). All HM lands protected under this requirement may be protected through fee title acquisition or conservation easement (acceptable to the Department) on agricultural lands or other suitable habitats that provide foraging habitat for Swainson's hawks.

Management Authorization holders/project sponsors shall provide for the long-term management of the HM lands by funding a management endowment (the interest on which shall be used for managing the HM

lands) at the rate of $400 per HM acre (adjusted annually for inflation and varying interest rates).

Based on the nearest nest being 4 miles from the project area (California Natural Diversity Database 2008), the City would compensate for the loss of 15.46 acres of foraging habitat by protecting 11.6 acres of HM land (using a ratio of 0.75:1) or contributing to the City's Swainson's hawk in-lieu fund (if acceptable to DFG). As mentioned above, information on the nearest nest should be obtained prior to the start of construction to determine the appropriate mitigation ratio.

Impact BIO-13: Potential Injury or Mortality of and Disturbance or Loss of Suitable Roosting Habitat for Special-Status Bats (Less than Significant with Mitigation Incorporated)

Trees in the project area that provide suitable roosting habitat for special-status bats may be removed or trimmed during construction activities associated with road widening and construction of the sound wall. Injury or mortality of pallid or western red bat during tree removal would be considered an adverse impact. Based on available information on distribution, status, ecology, and known threats, pallid bat and western red bat have been rated in the category of highest priority by the Western Bat Working Group and are considered imperiled or are at high risk of imperilment in California (Western Bat Working Group 2007). This impact would be significant, but implementation of the following mitigation measures would reduce this impact to a less-than-significant level.

Mitigation Measure BIO-13a: Conduct Preconstruction Surveys for Roosting Bats

Prior to tree removal or trimming, a qualified biologist will examine trees with suitable roosting habitat for bats. If bats are observed, tree trimming and removal will be delayed until the bats leave the roosting sites or until DFG authorizes trimming/ removal of the tree.

Impact BIO-14: Potential Disturbance of Wildlife Movement and Increased Mortality of Special-Status and Common Wildlife Species (Less than Significant)

Common wildlife species (ground squirrels, deer, raccoon, opossum etc.) and some special-status species (western pond turtle and giant garter snake, if present) likely use the corridors along Dead Horse Slough and South Fork Dead Horse Slough to travel north-south through the project area. The areas along the drainages will continue to allow wildlife movement through these areas (under the widened roadway), as no barriers will be installed in these areas as part of the project. Therefore, impacts to movement of special-status and common wildlife in these areas are not expected to occur.

Common wildlife and special-status wildlife (western spadefoot, if present) may also move north-south through the grassland area between El Monte Avenue and Bruce Road, as this area is undeveloped. However, the area north of the

grassland area is intensively developed, which would hinder further movement to the north. The current posted speed limit between El Monte Avenue and Bruce Road is 55 mph and upon project completion, the posted speed limit will remain the same. However, because there is a tendency to drive faster on multiple lane roadways, it is expected that vehicles speeds may be higher once the project is completed. The completed project would result in a more substantial barrier to wildlife movement through the grassland area between El Monte Avenue and Bruce Road because they will have to cross a wider roadway and vehicles likely traveling at higher speeds. These conditions could result in an increase in the injury or mortality of common wildlife species from being struck by vehicles. Because of the relatively small area impacted, the absence of natural habitat north of the grassland area that wildlife could move to and from, and because corridors along the waterways would allow safe passage under the widened road, this impact would be less than significant. No mitigation measure is required.

Impact BIO-15: Loss of Protected Trees (Significant and Unavoidable in the short-term and Less than Significant with Mitigation Incorporated in the long-term)

Activities associated with road construction and vegetation removal in the CRZ would result in the removal of 59 protected trees (trees with a dbh greater than 6 inches). Of this total number, 44 are oak trees and 15 are other species, including coast redwood and non-native ornamental species.

An additional 52 protected trees (49 oak trees and 3 trees of other species) would be removed with construction of a pre-cast concrete wall sound barrier (Design Option A1) in the proposed project area. Construction of a pre-cast concrete wall sound barrier between Forest Avenue and El Monte Avenue on the north side of SR 32 (Location Option B1) would affect a total of 2 protected valley oak trees. Construction of a pre-cast concrete wall sound barrier east of Fir Street for approximately 1,100 feet on the north side of SR 32 (Location Option B2) would not affect any protected trees.

An additional 76 trees (73 oak trees and 3 trees of other species) would be removed with construction of a concrete block wall sound barrier (Design Option A2). Construction of a concrete block wall sound barrier between Forest Avenue and El Monte Avenue on the north side of SR 32 (Location Option B1) would affect a total of 11 protected valley oak trees. Construction of a concrete block wall sound barrier east of Fir Street for approximately 1,100 feet on the north side of SR 32 (Location Option B2) would affect a total of 6 protected trees (5oak trees and 1 other species).

An additional 39 trees (37 oak trees and 2 trees of other species) would be removed with construction of a wooden fence sound barrier (Design Option A3) in the proposed project area. No trees would be removed for fence construction under Location Options B1 and B2.

Detailed numbers for tree removal associated with the road construction, CRZ, and fence are provided in Appendix F. The City of Chico tree preservation measures require a permit for the removal of any tree over 6 inches dbh and

generally require mitigation for tree removal. The proposed project would include replanting the area outside of the 30-foot CRZ with appropriate species. Implementation of Mitigation Measure BIO-15a provides specific performance standards that would be met in compensating for the loss of these trees. This measure would reduce the long-term impact of tree loss, and its associated loss of wildlife habitat, to a less-than-significant level, although in the short-term this impact would be significant and unavoidable, because replanting of young trees would not compensate for the loss of fully grown native trees that take many years to mature.

Implementation of Mitigation Measure BIO-1d would minimize the loss of trees by requiring measures to protect trees to be preserved in the project area

Mitigation Measure BIO-15a: Compensate for Loss of Protected Trees

The City will compensate for the loss of protected trees through the preparation of a mitigation planting plan, including a species list and number of each species, planting locations, and maintenance requirements. Because the tree ordinance does not specify mitigation ratios for replacement plantings, compensation ratios will be developed in coordination with the City of Chico Urban Forester. Potential mitigation areas will be also be identified in coordination with the City of Chico Urban Forester.

Plantings would occur outside of the 30-foot wide CRZ. Planted species will be based on those removed from the project area and will include primarily valley oak and interior live oak. Plantings will consist of cuttings taken from local plants, or plants grown from local material. Plantings will be monitored annually for three years or as required in the project permits. A minimum of 75 percent of the plantings will have survived at the end of the monitoring period for mitigation to be considered successful. If the survival criterion is not met at the end of the monitoring period, planting and monitoring will be repeated until the survival criterion is met.

Impact BIO-16: Potential Introduction of New Invasive Plant Species or Spread of Existing Invasive Plant Species (Less than Significant with Mitigation Incorporated)

Soil-disturbing activities during construction and maintenance of the project could promote the introduction of plant species not currently found in the project area, including invasive pest plant species. Because the project area is primarily urban, the proposed project is not expected to substantially add to the level of disturbance already experienced in the area. This impact is considered to be significant since if the project resulted in the spread of invasive species, it could result in the reduction or elimination of native species diversity or abundance. Implementation of Mitigation Measure BIO-15 would be implemented to reduce this impact to a less-than-significant level.

Mitigation Measure BIO-16a: Avoid the Introduction of New Invasive Plant Species or the Spread of Existing Invasive Plant Species

The City or the contractor will be responsible for avoiding the introduction of new invasive plant species and the spread of invasive plant species previously documented in the project area. Accordingly, the following measures will be implemented during construction:

a. Educate construction supervisors and managers on invasive plants identification and the importance of controlling and preventing the spread of invasive plant infestations.

b. Clean construction equipment at designated wash stations before entering the construction area.

c. Seed all disturbed areas with certified weed-free native and nonnative mixes. Use only certified weed-free mulch or rice mulch in upland areas.

d. Conduct a follow-up inventory of the construction area to verify that construction activities have not resulted in the introduction of new invasive plant infestations. If new invasive plant infestations are located during the follow-up inventory, the appropriate resource agency will be contacted to determine the appropriate species-specific treatment methods.

Timber Barrier Alternative

Impacts to biological resources would be the same at those described above for the proposed action except that a greater number of trees would be impacted. In addition, the magnitude of Impact BIO-14 (Potential Disturbance of Wildlife Movement and Increased Mortality of Special-Status and Common Wildlife Species) on common wildlife may be less since the raised median and trees planted in this area may slow traffic speeds or may be more if the trees attract more wildlife to them, causing more animals to attempt to cross the road. This impact is still expected to be less than significant, based on the same reasons listed above for the proposed project.

No-Project Alternative

If the no-project alternative is implemented, the project would not be constructed and the impacts on biological resources described above would not occur.

Cumulative Impacts

Development within properties adjacent to the proposed project would affect sensitive biological communities, special-status species, and habitats for special-status species that are the same or similar to those in the project area. The SR 99 Auxiliary Lane Project is located at the western terminus of the proposed project and will impact sensitive biological communities; habitats for VELB, western pond turtle, Swainson's hawk, nesting birds, and bats; and protected trees. The Oak Valley residential development that is planned for the south side of SR 32 between Bruce Road and Yosemite Drive would likely affect the same or similar biological communities and habitats for special-status species as the proposed project. The Humboldt Road Burn Dump remediation project is located in the same general area as the Oak Valley development, and would likely impact some of the same communities and special-status species affected by the proposed action. The Miriam Park mixed use development will be located west of Bruce Road and south of Humboldt Road, and would likely impact sensitive biological communities such as vernal pools as well as special status plants and wildlife.

Impacts from proposed projects may consist of tree and habitat loss and degradation, potential injury or mortality of special-status species, disturbances from construction noise or activity, disruption of foraging activities, spread of invasive plant species, and increased pollutants into wetlands and waterways from urban runoff.

The proposed project together with these other proposed projects in the immediate vicinity, would cumulatively impact sensitive biological communities, special-status species, habitats for special-status species, and protected trees. Implementation of mitigation measures BIO- 1a through 16a would reduce the project's incremental impact to less than cumulatively considerable. Implementation of similar mitigation measures for each proposed development affecting biological resources would reduce the cumulative effect on biological resources. However, there would likely still be some net losses of habitat, as well as habitat degradation from increased pollutants and spread of invasive plant species that may not be fully mitigated for.

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Figure 5-1a
Biological Resources in the Project Area

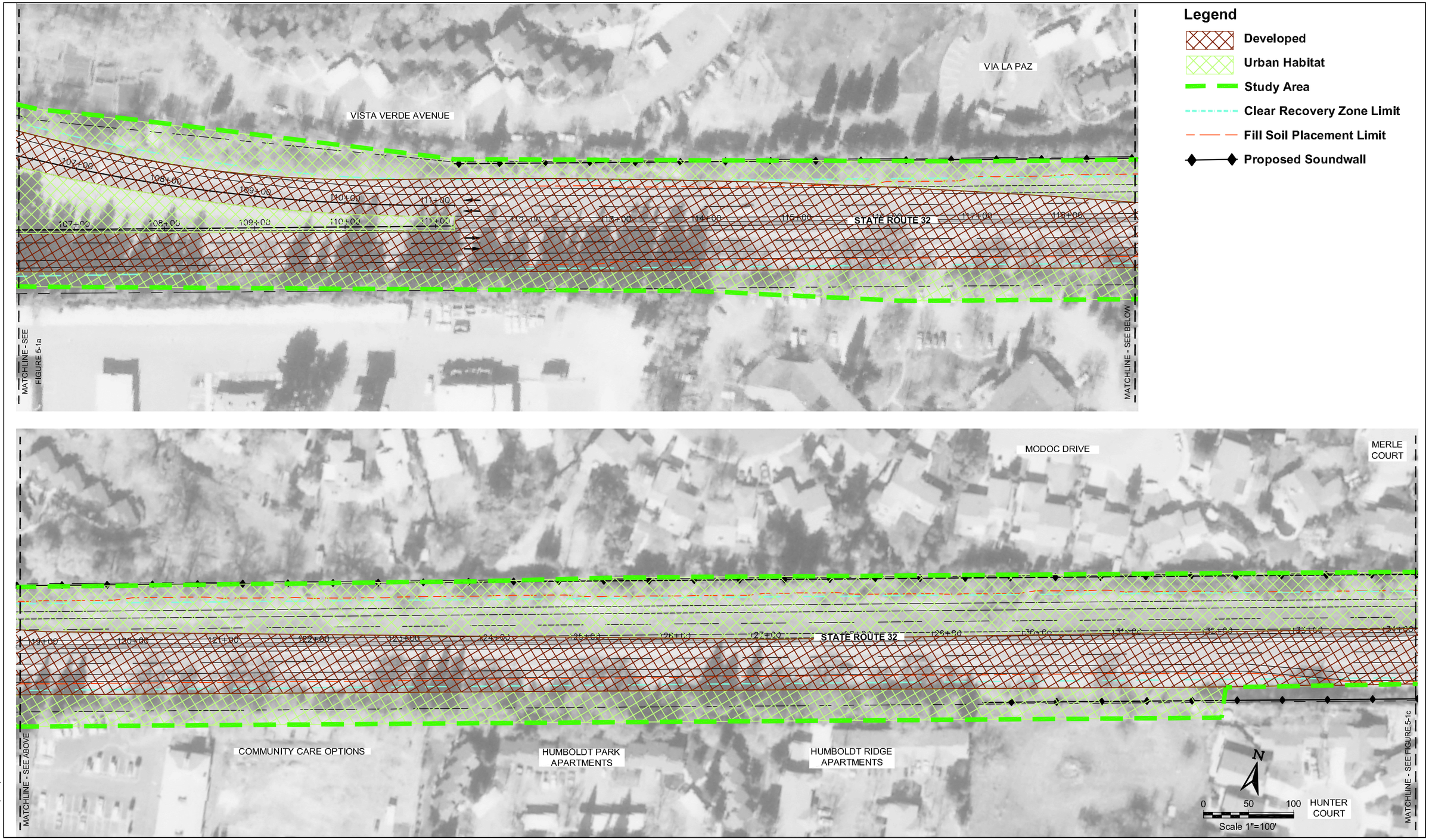

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Figure 5-1b
Biological Resources in the Project Area