

## 3.7 Hydrology, Water Quality, and Floodplains

The information below is summarized from the project hydrology and water quality report (Jones & Stokes 2002e), the design hydraulic study (Norman S. Braithwaite Inc. 2002), and the drainage report (Quincy Engineering, Inc. 2002); these reports are available for review at County offices (see the List of Technical Studies in the Introduction of this joint document for the address and phone number of County offices). This section addresses impacts on drainage, flooding, and water quality.

### 3.7.1 Affected Environment

#### Hydrology

##### ***Climate***

The project area is situated in the western foothills of the Sierra Nevada, which is within a Mediterranean subtropical climate zone. The area is characterized by hot, dry summers with occasional temperatures above 38°C (100°F), and by wet, cool winters with some temperatures below 0.6°C (32°F). Rainfall in the area averages about 94 centimeters (37 inches) annually. Ninety percent of the total rainfall occurs between November and May, and 70% occurs between January and May.

##### ***Topography and Surface Drainage***

The land surface within the project area generally forms an elevated crest among rolling hills, with elevations east and west of the interchange decreasing. The Weber Creek drainage forms an incised valley along the east side of the project area. Elevation varies from approximately 448 meters (1,470 feet) at Weber Creek to 476 meters (1,560 feet) in the southwest portion of the project area.

The locations and directions of flow for predominant surface water drainage features within the project area are shown in Figure 3.7-1. Weber Creek is an intermittent stream and tributary of the South Fork of the American River (SFAR) that traverses the eastern end the project area in a northwesterly direction. The stream corridor is undeveloped open space and has a densely vegetated riparian corridor. Stormwater runoff generated from the U.S. 50 corridor, the existing interchange, and surrounding commercial and undeveloped properties that are generally east of Missouri Flat Road drains to Weber Creek. In addition, land that is generally southwest of the existing interchange drains to an unnamed ditch that drains east to Weber Creek.

Mound Springs Creek is a small intermittent stream that originates from a pond to the west of the existing interchange, passes under U.S. 50, and flows several miles to the northwest, where it joins Weber Creek. Drainage from the highway and interchange area, the Prospector's Plaza commercial center, and surrounding properties that are generally west of Missouri Flat Road drain to Mound Springs Creek. A small area of land in the western portion of the project area drains to Indian Creek, which is also a tributary to Weber Creek.

### **Flooding and Floodplain Management**

A review of the Federal Emergency Management Agency (FEMA) flood insurance rate map indicates that there are no designated 100-year floodplains within the project area. However, there is a designated floodplain for Weber Creek approximately 3.2 kilometers (2 miles) downstream, and the stream has been identified as flood-prone in the County General Plan (El Dorado County 1996a). Mound Springs Creek and Indian Creek have no historical flooding problems; peak winter flows for the streams are estimated to be 0.7 cubic meters per second (cms) (25 cubic feet per second [cfs]) and 1.4 cms (50 cfs), respectively (Quad Consultants 1990).

A design hydraulic study was prepared for the portion of Weber Creek within the project area. The report describes estimated peak flows, existing and projected channel scour conditions, and flood conveyance conditions (Norman S. Braithwaite Inc. 2002). The peak 50- and 100-year recurrence flows in Weber Creek are estimated to be 252 and 339 cubic meters per second (cms), respectively (equivalent to 8,900 and 11,970 cfs).

A drainage plan was prepared for the project. The report identifies and describes the performance of existing stormwater drainage facilities, existing stormwater runoff conditions, and projected changes in drainage and associated improvements to convey the drainage offsite (Quincy Engineering 2002). The report indicates that drainage facilities in the project area are adequate and that there is no history of flooding or other drainage-related problems. However, most of the drainage infrastructure was constructed in the 1960s, and metal pipes may be nearing their useful design life. The report indicates that Caltrans staff identifies weed growth in the existing swales as a problem for maintaining drainage facility performance.

### **Groundwater**

Specific groundwater information from the project area was not investigated because the project is not expected to substantially affect groundwater resources. No wells

would be constructed, and construction activities would not intercept or alter groundwater recharge, discharge, or flow conditions. The project area is located within the Central Nevada geomorphic province, with groundwater occurring primarily in fractured bedrock formations. In the foothills of the Sierra Nevada, the thickness of the main fresh groundwater body is generally several hundred feet thick; however, well yields are limited compared to alluvial aquifers (California Department of Water Resources 1978). Well production is generally higher nearer the ground surface, where the density of bedrock fracturing is greatest. A previous well survey indicated that domestic well yields near the project area ranged from 19 to 76–114 liters (5 to 20–30 gallons) per minute (Quad Consultants 1990).

### **Water Quality**

Surface water quality is primarily dependent on mineral composition of the soils and associated parent materials within a watershed, hydrologic characteristics, and sources of contaminants in the watershed. The study area is characterized by rocky to sandy loam soils that typically have slight to high water erosion potential that generally increases on steeper slopes (for a detailed discussion, refer to the Earth Resources Technical Study prepared for this project [Jones & Stokes 2002d]). Historical land use of the project area has consisted of the U.S. 50 corridor, commercial, low-density residential, and open space.

The County does not have a routine water quality monitoring program; therefore, existing water quality data for streams in the area are not available. One water sample was collected in Weber Creek and two in Mound Springs Creek in 1998 for a shopping center project located within the project area (EDAW 1998). The data indicated that suspended sediment and inorganic ion content (as measured by electrical conductivity) were very low. Trace metals (cadmium, chromium, copper, lead, nickel, zinc) were not detected. Based on this water sample, field reconnaissance of the project area, and the rural character of the watershed, it can be presumed that the runoff water quality does not likely pose a threat to existing beneficial uses as established by the Central Valley Regional Water Quality Control Board (RWQCB) basin plan (discussed below in “Regulatory Overview”).

### **Regulatory Overview**

#### ***Drainage and Floodplain Regulations***

FEMA administers the National Flood Insurance Program (NFIP) to provide subsidized flood insurance to communities complying with FEMA regulations that

limit development in floodplains. FEMA issues flood insurance rate maps for communities participating in the NFIP. These maps delineate flood hazard zones in the community.

Executive Order 11988 (Floodplain Management) addresses floodplain issues related to public safety, conservation, and economics. The policy applies to projects that would significantly encroach into the floodplain and requires findings to be made that ensure that the following goals are achieved:

- avoidance of incompatible floodplain development,
- consistency with the standards and criteria of the NFIP, and
- restoration and preservation of the natural and beneficial floodplain values.

Federal guidelines were developed for implementing Executive Order 11988 directives that outline an 8-step decision-making process, as follows. Both FHWA and Caltrans have developed regulations pursuant to the 8-step process for location and hydraulic design procedures of projects that significantly encroach on the floodplain.

- Step 1: Determine whether a proposed action would take place in the base floodplain.
- Step 2: Provide for public review.
- Step 3: Identify and evaluate practicable alternatives to locating in the base floodplain.
- Step 4: Identify the impact of the proposed action.
- Step 5: Minimize threats to life and property and to natural and beneficial floodplain values, and restore and preserve natural and beneficial floodplain values.
- Step 6: Reevaluate alternatives.
- Step 7: Issue findings and a public explanation.
- Step 8: Implement the action.

At the local level, the El Dorado County Flood Damage Protection Ordinance stipulates that the Director of Community Development is the Floodplain Manager for the County. The County Department of Transportation maintains drainage facilities within the public road rights-of-way. In addition, the County Department of Transportation provides planning, design, and construction review and oversight on

discretionary development projects to ensure that stormwater drainage and flooding are managed so that public health and environmental resources are protected.

### **Water Quality Regulations**

Surface water and groundwater resources and their associated water quality are regulated in California through many different applicable laws, regulations, and ordinances administered by local, state, and federal agencies. These regulations ensure that the hydrologic characteristics of surface water and groundwater resources are considered so that the existing uses they provide (e.g., water supply, flood control, recreation, and fish and wildlife habitat) are not impaired. Similarly, water quality regulations and permitting processes are designed to limit the discharge of pollutants to the environment, maintain surface water and groundwater quality at existing levels, protect fish and wildlife and their habitats, and protect beneficial uses.

The RWQCB has primary responsibility for designating the beneficial uses of water bodies and setting water quality objectives required to ensure that those uses are protected under the State Porter-Cologne Water Quality Control Act, Section 303 of the Clean Water Act (CWA), and general provisions of Section 13000 in the California Water Code (California Regional Water Quality Control Board 1998). There are no officially designated beneficial uses for Weber Creek, Indian Creek, or Mound Springs Creek. Therefore, these streams are assumed to provide existing beneficial uses of the SFAR, the nearest tributary with designated beneficial uses. The designated beneficial uses of the SFAR include municipal supply, irrigation, hydropower, contact and noncontact recreation, warm and cold freshwater fish habitat, and wildlife habitat.

The RWQCB implements its authority through the issuance and enforcement of waste discharge requirements or other permit authorizations for waste discharges to land and waters within its jurisdiction. Construction activities that disturb greater than 5 acres are required to obtain authorization for waste discharges from the RWQCB under the statewide National Pollutant Discharge Elimination System (NPDES) stormwater permit for general construction activity (statewide general permit). (Effective March 10, 2003, this requirement will apply to projects disturbing 1 acre or more.)

Caltrans has a separate NPDES stormwater permit issued by the State Water Resources Control Board and administered by the applicable RWQCB for projects within Caltrans' rights-of-way. Caltrans' Stormwater Management Plan (SWMP)

(California Department of Transportation 2001) is a policy document that describes the permit implementation procedures. The SWMP includes specific stormwater and non-stormwater quality protection measures and protocols for any construction activity associated with Caltrans facilities or rights-of-way.

Applicants for activities subject to the NPDES permit system and Caltrans' requirements (for projects within Caltrans rights-of-way) must submit a notice of intention to the RWQCB for coverage under the statewide general permit and develop a Stormwater Pollution Prevention Plan. The SWPPP generally describes proposed construction activities, receiving waters, stormwater discharge locations, and Best Management Practices (BMPs) that will be used to reduce project construction effects on receiving water quality. The Caltrans SWMP specifies standard stormwater pollution prevention BMPs that may be included in the SWPPP to prevent soil erosion, contaminated runoff, channel scour, and discharges of construction-related pollutants (e.g., petroleum-based fuels and oils, solvents, paints, cement, and other materials). An appropriate selection of post-construction permanent pollution control and treatment measures must also be implemented to prevent long-term water quality impairment.

In addition to erosion control measures, if the project will involve soil contaminated with aerial deposited lead (ADL) (see Impact ER7 for a discussion of project-related ADL), Caltrans' procedure is to notify the RWQCB 30 days prior to advertisement for bids. The RWQCB then determines whether Waste Discharge Requirements (WDRs) are necessary to specify environmental protection measures for the reuse or disposal of the soils. If the project will reuse ADL-contaminated soil, the California Department of Toxic Substances Control (DTSC) is also contacted to determine whether a variance for the reuse can be authorized. Therefore, it is recommended that the RWQCB be notified promptly if the variance is to be invoked.

Federal and state agencies have jurisdiction over specific activities conducted in stream channels, wetlands, and other water bodies. The federal government supports a policy of minimizing "the destruction, loss, or degradation of wetlands" (Executive Order 11990, May 24, 1977). The U.S. Army Corps of Engineers (Corps) and the U.S. Environmental Protection Agency (EPA) regulate the placement of dredged and fill material into "waters of the United States", including wetlands, under Section 404 of the CWA. Unvegetated stream channels, mudflats, and open water such as ponds and lakes are not considered wetlands but fall under Corps and EPA jurisdiction

under Section 404 of the CWA as “other waters of the United States.” The jurisdictional limits of stream channels and lakes are delineated, in the absence of adjacent wetlands, at the ordinary high-water mark. For all work subject to a Section 404 permit, project proponents also must obtain a certification from the RWQCB under Section 401 of the CWA stating that the project would comply with applicable water quality regulations. The California Department of Fish and Game (DFG) regulates streambed alterations under Section 1600 et seq. of the California Fish and Game Code. Alterations by public agencies to creeks are regulated under Section 1601, which includes strict measures to protect water quality and fish and wildlife habitat and mitigate unavoidable habitat losses, including loss of riparian vegetation.

### **3.7.2 Environmental Consequences**

#### **Methods**

Evaluation of the impacts in this section was based on professional standards and results from technical reports prepared for the project. This impact analysis assumes that the project proponent will conform to County building standards, grading permit requirements, and erosion control requirements. This impact analysis also assumes that all disclosed project effects apply to both construction at the interchange and bridge sites unless otherwise indicated.

This evaluation was based on the Missouri Flat Specific Plan (Quad Consultants 1990), the MC&FP draft EIR (EDQA 1998), the County General Plan EIR (El Dorado County 1996a), information provided El Dorado County staff, the draft project drainage report (Quincy Engineering 2002), and the project flood hydraulic study (Norman S. Braithwaite Inc. 2002). The key project-related hydrologic and water quality impacts were identified and evaluated based on the physical characteristics of the study area and the magnitude, intensity, and duration of activities.

Construction and operational activities of the proposed action would not intercept or change the nature of occurrence of groundwater resources within the project area. Therefore, this discussion is limited to issues of concern to surface water resources.

#### **Permanent Impacts: 4-Lane Tight Diamond Interchange**

##### ***Impact WQ1: Changes in Local Stormwater Drainage***

Construction of roadways for the interchange and highway modifications would create more impervious areas than currently exist within the project area. The

introduction of new impervious surfaces would reduce the ground surface available for infiltration of rainfall and runoff and subsequently generate additional runoff during storm events. Increased runoff can contribute to flood potential of natural stream channels, accelerate processes of soil erosion and stream channel scour, and increase the transport of pollutants to waterways. A draft drainage report (Quincy Engineering 2002) has been prepared in which Caltrans Highway Design Manual drainage design standards have been applied to the project. The report indicates that the quantity of stormwater runoff would increase once the additional roadway surfaces are constructed. Caltrans requires facilities to be constructed to accommodate the 25-year storm event. The existing drainage quantities and rates cannot be calculated until the final design phase of the project because survey information for all of the existing facilities has not been gathered. However, the combined rate of runoff from all proposed facilities for this alternative during a 25-year event would be about 0.34 cms (12.3 cfs). Some of the drainage would flow to Weber Creek, and the remainder would flow to either Mound Springs Creek or Indian Creek. The drainage report indicates that only minor modifications to the existing facilities would be required to accommodate the runoff consisting of new culverts and site grading to direct drainage to the appropriate culvert locations.

The impact is not considered adverse because the course and direction of offsite drainage is not being changed and drainage would not exceed the capacity of existing or planned stormwater systems.

#### ***Mitigation Measure***

None proposed.

#### ***Impact WQ2: Flooding and Hydraulic Changes***

Additional bridge piers would be constructed for the U.S. 50 bridges over Weber Creek to accommodate the additional highway lanes. The piers are located within the floodplain of Weber Creek, and thereby constitute a linear encroachment of the floodplain that is subject to compliance with Executive Order 11988. Increasing the degree of encroachment in the floodplain can alter flood conveyance, channel scour, and/or inundation and backwater patterns of floodwater. Based on the design hydraulic study prepared for the project (Norman S. Braithwaite Inc. 2002), the potential changes in water elevation and velocity would be minimal, and no channel deepening is expected to occur during the expected design life of the bridge. The projected change in water surface elevation during a 100-year flood following



construction would increase at the bridge by less than 0.07 meter (0.22 foot). Based on the final drainage report (Quincy Engineering 2002), the combined rate of drainage from all stormwater conveyance facilities would be about 0.34 cms (12.3 cfs) during a 25-year event. Calculations were not performed for a 50- or 100-year event; therefore, the additional stormwater drainage during larger events is not known. However, the additional 0.34 cms (12.3 cfs) is negligible compared to the 50-year flow in the river (252 cms or 8,896 cfs), and the additional stormwater drainage presumably would not appreciably add to streamflow during larger storms.

Construction of the bridge piers is not considered a significant encroachment on the floodplain pursuant to Executive Order 11988 for several reasons (refer to Appendix A, "Floodplain Evaluation Report Summary" in the project Hydrology and Water Quality Technical Report [Jones & Stokes 2002e]). The proposed action would contribute a relatively small amount of flow relative to existing peak flows and is considered consistent with the goals of Executive Order 11988. The "Floodplain Evaluation Report Summary" identifies several findings:

- The risks associated with the implementation of the proposed action are not significant because the change in water surface elevation during flooding would be negligible. There are no residential or other inhabited structures within the Weber Creek channel portion of the project area; therefore, there would be no additional flood risk to life or property from the incremental increase in water surface elevations resulting from pier encroachment on the floodplain.
- The proposed action would not support incompatible floodplain development because it does not support development within the floodplain or alter existing access to the floodplain.
- The proposed action would not have any significant adverse impacts on natural and beneficial floodplain values because the encroachment would be minor and would cause negligible changes in water surface elevations and/or channel scouring.
- There are no special mitigation measures necessary to minimize impacts to floodplain values because the probable changes are negligible.
- The proposed action does not constitute a significant floodplain encroachment as defined in 23 CFR, Section 650.105(q), because the action would not alter emergency access or evacuation routes during flooding, does not pose an appreciable increased risk associated with flooding, does not adversely impact floodplain beneficial uses, and does not support base floodplain development.

This impact is not considered to be adverse since the change in water surface elevation would be negligible, and there would be no additional flood risk to life or property from the negligible increase in water surface elevations.

As described in Chapter 1, the County has identified the need to modify one small part of one adopted mitigation measure for the MC&FP. See Impact WQ2 in Chapter 5 for a description of this modification.

#### ***Mitigation Measure***

None proposed.

#### ***Impact WQ3: Water Quality Impacts from Changes in Stormwater Drainage***

The proposed action would increase the amount of impervious paved roadway surfaces associated with widened roadways and interchange ramp improvements, and thereby increase the amount of contaminants in stormwater runoff from the project area. The improvements would require minor modifications to existing drainage improvements, primarily involving contouring during grading activities to control the direction and rate of drainage to project facilities. Culverts would need to be extended where roadways would be widened and/or upgraded where currently undersized. There would be no appreciable change in the direction or routing of storm drainage from existing conditions.

In addition to increased runoff, as development in the surrounding urban areas and use of the roadway improvements increase, greater quantities of contaminants such as petroleum products and other substances (e.g., trace metals, hazardous materials, litter) could be deposited on the road surfaces. Contaminants in roadway runoff, if discharged untreated to receiving water bodies, can be toxic to fish and other aquatic organisms. In particular, the initial storm events occurring each fall season can transport elevated levels of contaminants that have resulted from deposition during the dry season. Increases in the total runoff volume can also accelerate soil erosion and stream channel scour and increase the transport of contaminants to waterways. Caltrans statewide data for stormwater runoff characteristics indicate that runoff can contain contaminant concentrations that exceed the applicable water quality standards (California Department of Transportation 2001).

This long-term water quality impact is considered adverse because temporary and intermittent stormwater discharges from project-related drainage facilities could have reduced water quality.

***Mitigation Measure WQ3a: Obtain Authorization under the NPDES Permit for Permanent Post-Construction Best Management Practices***

The County and Caltrans or its contractor will avoid or minimize long-term water quality impacts through development and implementation of permanent stormwater quality BMPs for the project area, pursuant to the NPDES stormwater permit. The BMPs would be identified and incorporated into the Plans, Specifications, & Estimates (PS&E) design package. The SWPPP and PS&E documents describe measures to accommodate the additional drainage discharges and avoid adverse effects such as offsite erosion, sedimentation, or water quality impairments.

Two broad classes of permanent post-construction BMPs, and several specific types of BMPs, were approved in the Caltrans NPDES permit. The first category of measures consists of erosion control 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 protection measures. Permanent post-construction erosion control BMPs for slopes, such as mulching, seeding and planting, and slope roughening or terracing would be implemented for new cut-and-fill slopes and swales as deemed necessary by the project engineer. Slope protection measures would 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. Caltrans requires different slope protection measures based on whether the vertical to horizontal slope gradient is less than 1:4, between 1:4 and 1:2, or is steeper than 1:2. The Caltrans District Landscape Architect must design or approve all slope stabilization designs for slopes with greater than 1:4 gradients. By controlling erosion, directing runoff through vegetation, or otherwise reducing the offsite discharge of particulate matter and sediment, the permanent erosion control measures would control offsite discharges of roadway pollutants that are associated with particulate matter. Caltrans would be responsible for long-term inspection and maintenance of the permanent BMPs within their jurisdictional right-of-way to ensure that they are maintained in good working order. Likewise, the County would be responsible for maintenance of all other project-related permanent BMPs adjacent to the state right-of-way.

The second category of approved permanent post-construction BMPs consists of runoff treatment measures such as detention infiltration and retention basins and detention basins. The drainage report for the project does not identify the need for retention or detention facilities for the project (Quincy Engineering 2002). However, because drainage runoff volumes will increase, the existing drainage system will need to be modified to accommodate the increased volumes without causing erosion of conveyance channels. This proposed action will include selection of specific BMPs in accordance with Caltrans SWMP.

### **Temporary Impacts: 4-Lane Tight Diamond Interchange**

#### ***Impact WQ4: Temporary Construction Water Quality Impacts***

Construction activities can impair water quality temporarily because disturbed and eroded soil, petroleum products, and miscellaneous wastes may be discharged into receiving waters. Soil and associated contaminants that enter stream channels can increase turbidity, stimulate algae growth, increase sedimentation of aquatic habitat, and introduce compounds that are toxic to aquatic organisms. Construction materials such as fuels, oils, paints, and concrete are potentially harmful to fish and other aquatic life if released into the environment. The extent of potential environmental effects depends on the erodibility of soil types encountered, type of construction practices, extent of disturbed area, duration of construction activities, timing of precipitation, proximity to receiving water bodies, and sensitivity of those water bodies to contaminants of concern. Accidental spills of construction-related substances such as oils, fuels, and concrete can contaminate both surface water and groundwater.

This proposed action would involve construction grading, earthmoving, and facility construction activities that would occur over a number of months. The construction activities would directly disturb soils and surface drainage swales adjacent to the interchange area. In addition, construction would occur within the Weber Creek channel for additional bridge piers.

This temporary water quality impact is considered adverse because temporary and intermittent discharges of contaminated stormwater could occur from the construction activities.

***Mitigation Measure WQ4a: Obtain Authorization under the NPDES Stormwater Permit for Construction-Related Best Management Practices***

The County and Caltrans or its contractors would avoid or minimize potential construction-related water quality by developing and implementing the appropriate water pollution prevention and erosion control measures as dictated through the SWPPP that is prepared for this project. The County would independently coordinate with the RWQCB and ensure compliance with NPDES stormwater permit conditions for those portions of the project that lie outside of the Caltrans right-of-way. The county's preparation and implementation of a SWPPP that includes selection of BMPs consistent with Caltrans SWMP is expected to meet these requirements.

The following grading and erosion control BMP specifications that are necessary to prevent water quality impairment would be included in the SWPPP and final PS&E design package for the project (California Department of Transportation 2001). Several classes of construction BMPs are identified in the Caltrans NPDES permit including soil stabilization, sediment control, wind erosion control, tracking control, non-storm water control, and waste management and materials pollution control practices. There are numerous approved BMPs within each of these classes, although, not every BMP is used for each project. Typically, the general contractor(s) develop the SWPPP that includes an appropriate suite of BMPs for the specific activities that will occur. All elements of the SWPPP are reviewed by Caltrans.

Given the site-specific conditions of the project area, the SWPPP for this project would generally include limiting soil disturbances during the designated winter rainfall season of October 15 through April 15 and standard sediment erosion control measures, such as silt fencing, straw bale barriers, sediment traps, or other measures to directly reduce the offsite transport of sediment from disturbed slopes. Existing vegetation that can be preserved would be identified and flagged or fenced to avoid disturbance. Erosion in disturbed areas would 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 would also be identified where necessary including vehicle washing and street sweeping. Temporary concentrated flow conveyance systems would also be considered such as berms, ditches, and outlet flow velocity dissipation devices to reduce erosion from newly disturbed slopes.

Under the direction of Caltrans engineering staff, the general contractor(s) and subcontractor(s) conducting the work would be responsible for constructing or implementing, regularly inspecting, and maintaining the BMPs in good working order. The construction contractor(s) and subcontractor(s) would also be required to implement appropriate hazardous materials management practices to reduce the possibility of chemical spills or releases of contaminants, including any nonstormwater discharge to drainage channels. Standard hazardous materials management and spill control and response measures would minimize the potential for surface and groundwater contamination. If soils containing ADL are proposed for reuse within the project area, Caltrans would coordinate with the RWQCB and DTSC as needed to identify necessary protective measures.

Work conducted within Weber Creek for pier construction would require additional BMPs such as placing staging areas away from the stream bank, conducting all in-water work behind coffer dams, sheet piling, or other containment facilities to control discharges of contaminated runoff. Potential water quality impacts from suspended sediment associated with construction within the Weber Creek channel is considered potentially adverse.

- ***Mitigation Measure BR3f: Limit In-Water Construction Activities to the Summer Low- or No-Flow Period.*** Refer to Impact BR3 in section 3.8 of this joint document for a description of this mitigation measure.
- ***Mitigation Measure BR3g: Ensure That Turbidity Increases Do Not Exceed Central Valley Regional Water Quality Control Board Standards.*** Refer to Impact BR3 in section 3.8 of this joint document for a description of this mitigation measure.
- ***Mitigation Measure BR3h: Develop and Implement a Toxic Materials Control and Spill-Response Plan.*** Refer to Impact BR3 in section 3.8 of this joint document for a description of this mitigation measure.
- ***Mitigation Measure BR3i: Store Hazardous Materials at an Approved Storage Facility.*** Refer to Impact BR3 in section 3.8 of this joint document for a description of this mitigation measure.

### **Cumulative Impacts: 4-Lane Tight Diamond Interchange**

See Chapter 4 for a discussion of cumulative impacts.

### **No-Action Alternative**

Under the No-Action Alternative, no interchange and intersection improvements would be constructed along Missouri Flat Road. Additionally, the improvements to the Weber Creek bridge would also not occur. There would be no impacts on hydrology or water quality.

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### **3.8 Wildlife and Botanical Resources, Threatened and Endangered Species, and Wetlands and Waters of the U.S.**

The information below is summarized from the project natural environment study report (Jones & Stokes 2002f), project final biological assessment (Jones & Stokes 2003), revised delineation of waters of the U.S. prepared for this project (Jones & Stokes 2002k), and results of a site assessment and protocol-level surveys for the CRLF (Jones & Stokes 2002l); these reports are available for review at County offices (see the List of Technical Studies in the Introduction of this joint document for the address and phone number of County offices). The Affected Environment contains a description of the regulatory framework for biological resources. This section, together with the Environmental Consequences section, addresses biological communities and special-status species found in the project area.

#### **3.8.1 Affected Environment**

The project area is located in the northern Sierra Nevada foothills geographic subdivision of the Sierra Nevada (Hickman 1993). The topography of the project area is hilly, with elevations ranging from 470 meters (1,550 feet) above sea level at Weber Creek to 520 meters (1,700 feet) at the north and south ends of the project area. Approximately 75–125 centimeters (30–50 inches) of precipitation fall in the project vicinity annually (U.S. Natural Resources Conservation Service 1974).

#### **Description of the Biological Communities**

The project area encompasses both sensitive and common biological communities as classified by Holland (1986): blue oak woodland, white alder riparian forest, seasonal wetland, non-native grassland, and rural and developed areas (Figure 3.8-1). The level of mapping detail does not allow for distinguishing between blue oak woodland and non-native grassland, which are scattered throughout the project area and interspersed with one another. Each of these biological communities is described below. The scientific names of plant and animal species encountered in the project area are included in project Natural Environment Study (NES) report (Jones & Stokes 2002f). Tables 3.8-1 and 3.8-2 identify the special-status plant and wildlife species, respectively, that have the potential to occur in each of the habitats identified below.

### **Blue Oak Woodland**

The project site is dominated by blue oak woodland that covers up to 8–12 hectares (20–30 acres). Most of the blue oak woodland on the project site is characterized by a dense overstory of tree species and a shrubby understory that surrounds the urban and rural development throughout the site. A chaparral community type that exists on the project site is very small and insignificant, so it is included in the blue oak community description. The blue oak woodland is dominated by blue oak, gray pine, interior live oak, and ponderosa pine, with an annual grassland understory. Understory shrubs and vines include poison oak, manzanita, buck brush, coyote brush, coffeeberry, and Himalayan blackberry. Where disturbance appears to be minimal, a diversity of native plants and forbs are present. Some of the forbs and grasses found include 2 species of buttercup, white fairy lantern, soaproot, several clarkia species, 2 larkspur species, white meadowfoam, common muilla, purple needlegrass, Hartweg sidalcea, pretty face, and blue-eyed grass.

The blue oak woodland habitat in the project area provides moderate-quality habitat for woodland wildlife species. The human disturbance from U.S. 50, rural roads, and development reduces the habitat value for wildlife. Pine seeds and oak acorns within the project site are important food resources for wild turkey, California quail, mule deer, western gray squirrel, and white-breasted nuthatch. The oak trees provide nest sites for cavity-nesting wildlife including acorn woodpecker, northern flicker, plain titmouse, white-breasted nuthatch, and western gray squirrel. Large oak trees near grassland foraging areas and water provide potential nesting opportunities for raptors such as red-tailed hawk and red-shouldered hawk.

### **Weber Creek and Associated White Alder Riparian Forest**

Weber Creek is an intermittent creek that runs in a westerly direction where it eventually joins the South Fork of the American River. Within the project site, the creek occurs in a narrow canyon about 60–70 meters (200–300 feet) wide with canyon walls that have 30–120% slopes. The channel is composed of fine sediments and cobbles and appears to have moderate to high spring runoff. The associated riparian vegetation is approximately 35 meters (120 feet) wide and is primarily comprised of native trees and shrubs, except where existing bridges span the creek. In these areas, dense thickets of Himalayan blackberry have formed. The diversity of riparian plants along the creek does not occur anywhere else in the project vicinity. Plants within the riparian corridor include Fremont cottonwood, ponderosa pine, poison oak, interior live oak, black oak, white alder, Oregon ash, black willow, arroyo

**Table 3.8-1. Special-Status Plants Identified during the Pre-Field Investigation as Having the Potential to Occur in the U.S. 50/Missouri Flat Road Interchange Project Area**

<b>Name<sup>a</sup></b>	<b>Status<sup>b</sup> Federal/State/CNPS</b>	<b>Distribution</b>	<b>Habitat</b>	<b>Period of Identification</b>	<b>Occurrence in the Project Area<sup>c</sup></b>
Nissenan manzanita <i>Arctostaphylos nissenana</i>	SC/--/1B	Sierra Nevada foothills, El Dorado Co. to Tuolumne Co.	Closed-cone coniferous forest, chaparral	February–March	Low to none
Pleasant valley mariposa lily <i>Calochortus clavatus</i> var <i>avius</i>	SC/--/1B	Northern and central Sierra Nevada foothills, El Dorado and Amador Co.	Lower montane coniferous forest, volcanic substrate	June–July	Low to none
Stebbin's morning glory <i>Calystegia stebbinsii</i>	E/E/1B	Northern Sierra Nevada foothills, El Dorado Co.	Chaparral, cismontane woodland, on serpentine and gabbro around 300m (1000')	May–June	None
Pine hill ceanothus <i>Ceanothus roderockii</i>	E/R/1B	Northern Sierra Nevada foothills, west El Dorado Co.	Chaparral, cismontane woodland, often on serpentine or gabbro soils, 300-600m (980-2,000')	May–June	None
Red hills soaproot <i>Chlorogalum grandiflorum</i>	SC/--/1B	Northern and central Sierra Nevada foothills, Placerville, El Dorado and Tuolumne Co.	Cismontane woodland, chaparral, lower montane coniferous forest, on serpentine or gabbro soils, between 300-500m (1,000-1,650')	May–June	None
Brandegee's fairyfan <i>Clarkia biloba</i> ssp <i>brandegeae</i>	--/--/1B	Northern and central Sierra Nevada foothills	Chaparral, cismontane woodland	May–July	High
Sierra clarkia <i>Clarkia virgata</i>	--/--/4	Northern and central Sierra Nevada, including portions of Amador, Calaveras, El Dorado, Mariposa, and Tuolumne Counties	Cismontane woodland, lower montane coniferous forest	May–July	Low to none
Pine hill flannelbush <i>Fremontodendron decumbens</i>	E/R/1B	El Dorado Co.	Chaparral, cismontane woodland on gabbro and serpentine soil	April–June	None
El dorado bedstraw <i>Galium californicum</i> ssp <i>sierrae</i>	E/R/1B	El Dorado Co.	Cismontane woodland, chaparral, lower montane coniferous forest on gabbro soils from 100-500m (330-1,650')	May–June	None

Table 3.8-1. Continued

Name <sup>a</sup>	Status <sup>b</sup> Federal/State/CNPS	Distribution	Habitat	Period of Identification	Occurrence in the Project Area <sup>c</sup>
Bisbee peak rush-rose <i>Helianthemum suffrutescens</i>	--/--/3	Hilly areas from northern to southern California	Chaparral, often on serpentine, gabbro, or lone soils, below 1500m (5,000')	April–May	None
Parry's horkelia <i>Horkelia parryi</i>	SC/--/1B	Northern and central Sierra Nevada foothills	Chaparral, cismontane woodlands, especially lone formation, dry slopes, below 1000m (3,500')	April–June	None
Saw-toothed lewisia <i>Lewisia serrata</i>	SC/--/1B	El Dorado and Placer Counties	Broad-leaved upland forest, lower montane coniferous forest, riparian forest; 400-1300m (1,500'~4,100')	May–June	None
Sierra monardella <i>Monardella candicans</i>	--/--/4	Amador, Calaveras, El Dorado, Fresno, Kern, Madera, Mariposa, Nevada, Placer, San Joaquin, Stanislaus, Tulare, and Tuolumne Counties	Chaparral, woodland, low coniferous forest, sandy or gravelly soils	April–July	Low to none
Northern adder's-tongue <i>Ophioglossum pusillum</i>	--/--/1A	El Dorado* and Siskiyou* Counties	Marsh margins, mesic valley and foothill grassland 1000-2000m (3300-6600')	July	None
Stebbins's phacelia <i>Phacelia stebbinsii</i>	SC/--/1B	El Dorado, Nevada, and Placer Counties	Cismontane woodland, lower montane coniferous forest, meadows	June–July	None
Narrow-petaled rein orchid <i>Piperia leptopetala</i>	--/--/4	Coast ranges, Cascades, Sierra Nevada to southern California	Cismontane woodland, lower and upper montane coniferous forest, 380-2225m (1200-7200')	May–July	Low to none
Layne's ragwort <i>Senecio layneae</i>	T/R/1B	Northern Sierra Nevada foothills, El Dorado and Tuolumne County	Chaparral, cismontane woodland, rocky serpentine or gabbro soils, between 200-1000m (660-3,300')	April–July	None
El dorado county mule ears <i>Wyethia reticulata</i>	SC/--/1B	El Dorado County	Chaparral, cismontane woodland, lower montane coniferous forest on clay or gabbro soils, 300-500m (1,000-1,640')	May–July	None

**Table 3.8-1. Continued**

<sup>a</sup> Record occurrence in the NDDDB (2000)

<sup>b</sup> Status explanations:

**Federal**

- E = listed as endangered under the federal Endangered Species Act.
- T = listed as threatened under the federal Endangered Species Act.
- SC = species of concern; species for which existing information indicates it may warrant listing but for which substantial biological information to support a proposed rule is lacking.
- = no listing.

**State**

- E = listed as endangered under the California Endangered Species Act.
- T = listed as threatened 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**

- 1A = List 1A species: presumed extinct in California.
- 1B = List 1B species: rare, threatened, or endangered in California and elsewhere.
- 3 = List 3 species: plants about which more information is needed to determine their status.
- 4 = List 4 species: plants of limited distribution.

<sup>c</sup> Potential for occurrence is defined as follows:

- High: Known occurrence of plant in region from Natural Diversity Data Base, or other documents in the vicinity of the project; or presence of suitable habitat conditions and suitable microhabitat conditions.
- Moderate: Known occurrence of plant in region from Natural Diversity Data Base, or other documents in the vicinity of the project; or presence of suitable habitat conditions but suitable microhabitat conditions are not present.
- Low: Plant not known to occur in the region from the Natural Diversity Data Base, or other documents in the vicinity of the project; or habitat conditions of poor quality.
- None: Plant not known to occur in the region from the Natural Diversity Data Base, or other documents in the vicinity of the project; or suitable habitat not present in any condition.

**Table 3.8-2. Special-Status Wildlife Species with Potential to Occur in the U.S. Highway 50/Missouri Flat Road Interchange Project Area, El Dorado County**

Common Name Scientific Name	Status <sup>a</sup>	Distribution	Habitat	Potential for Occurrence at the Project Site
	Federal/State			
Valley elderberry longhorn beetle <i>Desmocerus californicus dimorphus</i>	T/--	Streamside habitats below 3,000 feet through the Central Valley of California	Riparian and oak savanna habitats with elderberry shrubs; elderberries are host plant	Low potential to occur
Northwestern pond turtle <i>Clemmys marmorata marmorata</i>	SC/SSC	In California, range extends from Oregon border of Del Norte and Siskiyou Counties south along the coast to San Francisco Bay, inland through Sacramento Valley, and on the western slope of Sierra Nevada; range overlaps with that of southwestern pond turtle through the Delta and Central Valley to Tulare County	Woodlands, grasslands, and open forests; occupies ponds, marshes, rivers, streams, and irrigation canals with muddy or rocky bottoms and with watercress, cattails, water lilies, or other aquatic vegetation	Moderate potential to occur
California red-legged frog <i>Rana aurora draytoni</i>	T/SSC	Found along the coast and coastal mountain ranges of California from Humboldt County to San Diego County; Sierra Nevada (midelevations [above 1,000 feet] from Butte County to Fresno County)	Permanent and semipermanent aquatic habitats, such as creeks and coldwater ponds, with emergent and submergent vegetation and riparian species along the edges; may estivate in rodent burrows or cracks during dry periods	Moderate potential to occur
Foothill yellow-legged frog <i>Rana boylei</i>	SC/SSC	Occurs in the Klamath, Cascade, north Coast, south Coast, and Transverse Ranges; through the Sierra Nevada foothills up to approximately 6,000 feet (1,800 meters) south to Kern County	Creeks or rivers in woodlands or forests with rock and gravel substrate and low overhanging vegetation along the edge; usually found near riffles with rocks and sunny banks nearby	Moderate potential to occur

<sup>a</sup> Status explanations

**Federal**

T = listed as threatened under the federal Endangered Species Act.

SC = species of concern; species for which existing information indicates it may warrant listing but for which substantial biological information to support a proposed rule is lacking.

**State**

T = listed as threatened under the California Endangered Species Act.

SSC = species of special concern in California.

willow, Himalayan blackberry, horsetail, sedge, black locust, and various annual grasses.

Approximately 0.29 hectare (0.71 acre) of alder riparian forest occurs along both banks of Weber Creek. The riparian forest is characterized by medium to tall broadleaved deciduous trees with a shrubby deciduous understory. Riparian forest and the associated creek (Weber Creek) are considered high-quality habitat for wildlife and support the most diverse wildlife community in the project region. The mixture of plant species and multi-layered vegetation (i.e., shrub layers, small tree layers, and large tree layers) provides a variety of foods and micro-habitat conditions for wildlife. Wildlife species commonly occurring in this habitat include bushtit, blue-gray gnatcatcher, northern oriole, and rufous-sided towhee. Pacific treefrog, California newt, downy woodpecker, mule deer, wild turkey, raccoon, and coyote probably live in the riparian and stream habitats also.

### **Seasonal Wetlands**

The Corps has verified that one seasonal wetland (Seasonal Wetland 1) and 2 seasonal drainages (Seasonal Drainages 1 and 2) comprising 0.144 hectare (0.370 acre) occur on the project site (Jones & Stokes 2002k) (see Figure 3.8-1). These features are artificial and were created from highway construction activities. Because these features are small and have been disturbed by human activities, they are considered to have low to moderate habitat value.

Two additional wetlands will not be regulated by the Corps under Section 404 of the Clean Water Act (Maniccia pers. comm.). One of these seasonal wetlands (Seasonal Wetland 2) occurs outside the project area (Figure 3.8-1) and will be affected by another project that is currently being verified by the Corps. The second seasonal wetland (Seasonal Wetland 3) is not hydrologically connected to a water of the U.S. through a culvert, drainage ditch, or any other connection and was therefore verified by the Corps as a non-navigable, isolated feature.

### **Non-Native Grassland**

Non-native grassland habitat is scattered throughout the project area and covers approximately 2–4 hectares (5–10 acres). Other portions of the project area support annual grassland species as understory (see description of blue oak woodland below). Dominant annual grassland species in the project area include wild oat, dogtail, soft chess, barley, Italian ryegrass, ripgut brome, smallpod mustard, star-thistle, and strawberry clover.

The non-native annual grassland in the project area provides wildlife species with low-quality habitat because of the human disturbance from U.S. 50, rural roads, and commercial and residential development. Also, much of the annual grassland habitat has been disturbed by past activities, encouraging the growth of non-native plant species, which have lower wildlife value than native plants. Wildlife species commonly found in this habitat include lesser goldfinch, Botta's pocket gopher, house finch, and European starling. Rodent populations in grassland habitat provide foraging opportunities for red-tailed hawks and other raptors.

### **Ruderal and Developed Areas**

Ruderal (containing non-native and weedy species) and developed areas at the project site include the roadways and shoulders of U.S. 50, Missouri Flat Road, Forni Road/Placerville Drive, ornamental landscapes, and all other associated access roads. Ruderal vegetation also occurs on vacant lots in the project area.

Ruderal and developed areas generally provide moderate-value wildlife habitat. Songbirds, such as American robin, rufous-sided towhee, cedar waxwing, and northern mockingbird feed on the fruits, nuts, and insects in landscaped areas. Coyote, raccoon, and black-tailed hare may live or forage in ruderal areas. American kestrel, turkey vulture, and red-tailed hawk frequently forage in this habitat also.

### **Special-Status Species**

Special-status species are plants and animals that are legally protected under state and federal endangered species acts (ESAs) or other regulations, and species that are considered sufficiently rare by the scientific community to qualify for such listing. Special-status plants and animals fall into the following categories:

- species listed or proposed for listing as threatened or endangered under the federal ESA (50 CFR 17.12 [listed plants], 50 CFR 17.11 [listed animals], and in various notices in the Federal Register [proposed species]);
- species that are candidates for possible future listing as threatened or endangered under the federal ESA (64 FR 57534, October 25, 1999);
- species listed or proposed for listing by the State of California as threatened or endangered under the California ESA (14 CCR 670.5);
- species that meet the definitions of “rare” or “endangered” under the California Environmental Quality Act (CEQA) (State CEQA Guidelines, Section 15380);
- plants listed as rare under the California Native Plant Protection Act (California Fish and Game Code, Section 1900 et seq.);



- plants considered by the California Native Plant Society (CNPS) to be “rare, threatened, or endangered in California” (Lists 1B and 2, July 6, 2000, available at [www.cnps.org/rareplants/inventory/6thEdition/htm](http://www.cnps.org/rareplants/inventory/6thEdition/htm));
- plants listed by CNPS as plants about which more information is needed to determine their status and plants of limited distribution (Lists 3 and 4, July 6, 2000, available at [www.cnps.org/rareplants/inventory/6thEdition/htm](http://www.cnps.org/rareplants/inventory/6thEdition/htm)), which may be included as special-status species on the basis of local significance or recent biological information;
- animal species of special concern to the California Department of Fish and Game (Remsen 1978 [birds], Williams 1986 [mammals], and Jennings and Hayes 1994 [amphibians and reptiles]); and
- animals fully protected in California (California Fish and Game Code, Section 3511 [birds], 4700 [mammals], and 5050 [amphibians and reptiles]).

### **Special-Status Plant Species**

Special-status plants that could occur in the project area are listed in Table 3.8-1. Species were included in the table if they were known to occur in the County and if they have known California Natural Diversity Data Base (CNDDDB) occurrences (California Natural Diversity Data Base 2001) in the project area. Many of the species in the table occur on gabbro/serpentine substrate. This substrate was not found in the project area. No special-status plant species were found on the project site.

### **Special-Status Wildlife Species**

The CNDDDB and USFWS species list for the project vicinity included 26 special-status wildlife species (see Appendices B and A, respectively, in project NES [Jones & Stokes 2002f] for these lists). Species distribution and habitat suitability requirements indicate that 5 species, including south forks ground beetle, western spadefoot toad, California horned lizard, tricolored blackbird, and little willow flycatcher, would not occur at the project site. The south forks ground beetle appears to be restricted to the south fork of the American River (Kavanaugh 1979) and therefore would not be impacted by this project. Western spadefoot toad occurs in foothill grasslands, open chaparral, and pine-oak woodlands. Spadefoot toad prefers habitats with open vegetation and short grasses where the soil is sandy or gravelly for burrow construction (Stebbins 1985). It breeds and lays eggs in temporary pools formed by heavy winter rains (Zeiner et al 1988). Although the project site is within the species range, suitable breeding and burrowing habitat for this species is not present. California horned lizard occurs in a variety of habitats, including areas with

an exposed gravelly-sandy substrate containing scattered shrubs (Jennings and Hayes 1994), riparian woodlands (Stebbins 1985), Chamise chaparral (Banta and Morafka 1968), and annual grassland (Tollestrup 1981). The patchy distribution and ruderal nature of the annual grassland present within the project site make it an unlikely habitat area for California horned lizard. The riparian forest associated with Weber Creek does not qualify as California horned lizard habitat because of the generally rocky substrate and dense canopy cover. Tricolored blackbirds nest in dense wetland vegetation and blackberry thickets and forage in grasslands and agricultural fields as far as 6 kilometers (4 miles) from nesting colonies (Beedy et al. 1991). Although nesting habitat (dense blackberry thickets) is present within the project site, no suitable foraging habitat large enough to support a breeding colony is present within 6 kilometers (4 miles) of the project site. Willow flycatcher inhabits wet meadows larger than 1.3 hectares (3.2 acres) with willow thickets at least 2 meters (6.5 feet) tall. Habitat for the little willow flycatcher does not occur at the project site. Habitat for the burrowing owl does not occur at the project site; this species is rarely found in the foothills of El Dorado County because they prefer open grasslands at lower elevations.

The following 13 species on the USFWS list may occasionally fly through the project area while foraging over Weber Creek and the surrounding project area; however, they do not breed or roost at the site and will therefore not be affected by construction activities. Bald eagle, northern goshawk, and American peregrine falcon (latter is designated as "fully protected" by California Fish and Game Code section 3511 and is State-listed as endangered) may occasionally forage along Weber Creek, however no suitable nest sites exist. Special-status bats, including spotted bat, greater western mastiff bat, small-footed myotis bat, long-eared myotis bat, fringed myotis bat, long-legged myotis bat, and Yuma myotis bat may forage over the project site. However, no suitable cracks and crevices for roosting or evidence of bat use were identified on the concrete Missouri Flat Road overcrossing structure or concrete/steel bridge structures over Weber Creek. Therefore, these bats are unlikely to roost in the project site and thus would not be affected by the proposed action. Breeding bird surveys that focused on the yellow-breasted chat and California yellow warbler were conducted in April and May 2002, and no breeding activity for these 2 species or any other special-status bird species was observed. Three California yellow warblers were observed on the first visit and were determined to be migrant birds moving through the area based on the lack of detection on the second visit and the timing of the first visit during the migration period. Cooper's hawk would not likely nest close

to U.S. 50 due to the presence of traffic noise, and no Cooper's hawks were observed in the project area during the 2001 habitat-level or 2002 breeding surveys.

Based on species distribution, habitat suitability requirements, and field surveys, the following 4 special-status species were identified as having the potential to occur at the project site: valley elderberry longhorn beetle (VELB), northwestern pond turtle, California red-legged frog (CRLF), and foothill yellow-legged frog. Non-special-status nesting raptors and nesting swallows also have the potential to occur at the project site; although these species are not considered special-status wildlife species, their occupied nests and eggs are protected by both federal and state law. Table 3.8-2 lists the scientific and common names of the special-status wildlife species with the potential to occur at the project site.

The 4 potentially-occurring special-status wildlife species that are federally or state-listed and have a low to moderate potential to breed or occur at the project site, non-special-status nesting raptors, and swallows that could be affected by the proposed action are discussed in detail below.

#### ***Valley Elderberry Longhorn Beetle***

The VELB is designated as threatened by USFWS. It occurs from as far south as Kern County (Jones & Stokes Associates, Inc. 1985, 1986, 1987) to as far north as Shasta County (Twedt pers. comm.). Most of the specimens and records appear to be from the Sacramento/Davis area (Linsley and Chemsak 1972).

VELB occurs primarily along riparian corridors in areas containing its host plant, the blue elderberry (*Sambucus mexicana*). The larvae of VELB bore through elderberry stems and trunks that are greater than 1 inch in diameter. The greatest activity appears to be in areas where the corridor also maintains a complement of other riparian woody plant species such as willow, cottonwood, wild grape (*Vitis californica*), and boxelder (*Acer negundo*).

Habitat loss because of agricultural development, urbanization, riparian fragmentation, and levee maintenance appear to cause the greatest concern for VELB survival (Barr 1991). Pesticide drift may also be a factor where aerial application or fogging of crops occurs near riparian areas. Increased fragmentation of habitat also tends to reduce the gene flow among populations, thus potentially reducing genetic variability.

There are no CNDDDB records for VELB in the Placerville or surrounding quadrangles. Although no suitable habitat for VELB was identified within the project site, one blue elderberry shrub was observed approximately 9 meters (30 feet) north of the project site, immediately adjacent to Helmrich Lane (Figure 3.8-1). It consisted of several 1-inch stems sprouting near the base of a larger, dead blue elderberry shrub that has at least 3 breaks to the branches, possibly from passing vehicles. No VELB emergence holes (an indicator of VELB presence) were observed in the stems. The proposed action will have no effect on the VELB since the 1 isolated shrub identified as potential VELB habitat is located outside of the construction zone and would be avoided; there are no known VELB occurrences within 24 kilometers (15 miles) of the project area; the shrub found immediately adjacent to the project area does not have evidence of VELB occupancy; and the project site is located on the eastern edge of the species range. Fencing will be placed so as to protect the shrub from construction vehicles.

#### *Northwestern Pond Turtle*

The northwestern pond turtle is designated as a species of concern by USFWS and a species of special concern by DFG. In California, the range for this species extends from the Oregon border of Del Norte and Siskiyou Counties, south along the coast to San Francisco Bay; inland through Sacramento Valley; and on the western slopes of the Sierra Nevada. The northwestern pond turtle range overlaps with that of the southwestern pond turtle through the San Francisco Bay Delta and Central Valley to Tulare County.

Northwestern pond turtles are aquatic, preferring the quiet waters of ponds, reservoirs, and sluggish streams (Stebbins 1985). This species leaves the water to bask on rocks or logs and to deposit eggs along the streambank or in adjacent uplands. Northwestern pond turtles may overwinter in upland sites, which may enable them to occupy creeks or waterways that dry out for several months each year (Holland and Bury 1992).

Factors that have contributed to the decline of the northwestern pond turtle include commercial exploitation, alteration of aquatic and adjacent habitats, introduction of predators, population fragmentation, and drought (Holland and Bury 1992).

No northwestern pond turtles were observed in the project area during the June reconnaissance field surveys. However, suitable habitat for northwestern pond turtle is present at Weber Creek. One-to-three-foot deep pools with bedrock banks and

downed wood for basking sites along with upland grasslands and riparian woodland along Weber Creek provide suitable aquatic and nesting habitat for this species. Northwestern pond turtles were observed at the project site in 1994 and occur in upstream reaches of Weber Creek (Balfour pers. comm.). In addition, 2 CNDDDB records document occurrences 8–16 kilometers (5–10 miles) from the project site (along Camp Creek and the South Fork American River).

Because of the presence of northwestern pond turtle in the past and suitable habitat at the project site, the potential for this species to occur in the project site at Weber Creek is considered moderate.

#### *California Red-Legged Frog*

The CRLF is designated by USFWS as threatened and by DFG as a species of special concern. This species was once common from Redding south to Baja California, including the Sierra Nevada and Coast Ranges. Its current range is much reduced, and most remaining populations are found in central California along the coast from Marin County south to Ventura County (Jennings and Hayes 1994).

Within its range, CRLF breeds in lowland streams and wetlands, including livestock ponds. It may also be found in upland habitats near breeding areas and along intermittent drainages connecting wetlands.

Continued recent declines are attributed to ongoing loss of wetland and stream habitat (especially from dam construction and water management activities) and the introduction of non-native predators and competitors, including bullfrog (*Rana catesbeiana*), crayfish (*Procambarus clarki*), and fish (Jennings and Hayes 1994).

Designation of critical habitat for CRLF was finalized by USFWS on March 13, 2001. A portion of the project area (Weber Creek) was designated as Critical Habitat Unit 3. On July 2, 2002, the USFWS settled a suit brought by the Home Builders of Northern California that included a consent decree removing most of CRLF critical habitat designation, including all areas in El Dorado County that had been designated. The USFWS plans to redraw the CRLF critical habitat map by 2005 after further studying the economic impacts of this designation.

No CRLFs were observed in the project area during the protocol-level surveys. However, as described above, suitable habitat for this species exists at Weber Creek within the project site. The closest reported sightings of CRLFs are at least 13

kilometers (8 miles) east of the project site on the north and south forks of Weber Creek. CRLF's were also found approximately 16 kilometers (10 miles) east of the project site in Spivey Pond on the north fork of Weber Creek in 1997 (Davis pers. comm.). Although exotic predators such as bullfrogs, crayfish, and sunfish, as well as trout were observed at the project site at Weber Creek, the potential for CRLF to occur at the project site is considered moderate.

#### *Foothill Yellow-Legged Frog*

The foothill yellow-legged frog is designated as a species of concern by USFWS and a species of special concern by DFG. Foothill yellow-legged frog occurs in the Coast Ranges from the Oregon border south to the Transverse Mountains in Los Angeles County, west of the Cascade crest in most of northern California, and in the Sierra Nevada foothills south to Kern County. This species can occur from sea level to 6,000 feet (Stebbins 1985).

Foothill yellow-legged frog occupies rocky streams in valley-foothill hardwood, valley-foothill hardwood-conifer, valley-foothill riparian, ponderosa pine, mixed conifer, coastal scrub, mixed chaparral, and wet meadow types of habitat. It is rarely found far from water and will often dive into water to take refuge under rocks or sediment when disturbed (Jennings and Hayes 1994). Egg-laying occurs from mid-March to May and tadpoles take 3–4 months to complete metamorphosis (Jennings and Hayes 1994).

Exotic predators such as bullfrogs and fish species have been implicated in the reduction of foothill yellow-legged frog populations (Moyle 1973, Werschkul and Christensen 1977).

No foothill yellow-legged frogs were observed in the project area during the June reconnaissance field survey. The closest reported sighting of foothill yellow-legged frogs is approximately 15 kilometers (9.5 miles) southeast of the project site on the middle fork of the Cosumnes River in 1994. Weber Creek is an intermittent stream that contains a rocky substrate with large rocks that could be used by this species for basking. There is also a substantial layer of algae on some of the rocks that could provide food for tadpoles. For these reasons, there is a moderate potential for foothill yellow-legged frog to occur within the project site.

### ***Non-Special-Status Wildlife Species***

#### ***Swallows***

Cliff swallows and barn swallows are not considered special-status wildlife species; however, their occupied nests and eggs are protected by both federal and state laws, including the federal Migratory Bird Treaty Act (MBTA) (50 CFR 10 and 21). The USFWS is responsible for overseeing compliance with the MBTA, and the U.S. Department of Agriculture animal damage control officer makes recommendations on animal protection issues.

Cliff and barn swallows are 2 swallow species that frequently build mud nests on the undersides of artificial structures such as bridges. Cliff swallows are colonial nesters and often nest in colonies of hundreds of birds. The 2 species winter in South America and arrive back in California to breed in February. Nesting occurs from April to August, and southward migration occurs in September and October (Zeiner et al. 1990).

Active cliff swallow nests were observed on the underside of the Missouri Flat Road interchange overcrossing structure over U.S. 50 during June field surveys. Swallows could also potentially nest on the undersides of the U.S. 50 bridge structures over Weber Creek and the old Weber Creek bridge just south of U.S. 50. Based on the presence of nesting cliff swallows during the June field surveys and suitable habitat in the project site, the potential for nesting swallows to occur is high.

#### ***Nesting Raptors***

Several non-special-status raptors could potentially nest in the riparian and woodland habitats within the project area. The occupied nests and eggs of these raptors are protected by both federal and state laws, including the federal MBTA (50 CFR 10 and 21) and DFG code 3503.5. The DFG is responsible for overseeing compliance with DFG code 3503.5 and makes recommendations on nesting raptor protection.

Raptors such as red-tailed hawk nest in riparian and woodland forests. The breeding season for these species generally occurs from February 1 to August 15.

No active raptor nests were identified within the project site during the June reconnaissance field surveys. In April 2002, a single adult red-tailed hawk was observed circling within 152.4 meters (500 feet) of the Weber Creek bridges, but it was not considered to be associated with a nest site. The potential for non-special-status raptors to nest within the project site is considered moderate.

### **Special-Status Fish Species**

On June 24, 2001, Jones & Stokes wildlife biologist Stephanie Theis conducted a survey to determine the presence of special-status fish species in the project area. It was determined that no special-status fish species occur in Weber Creek. A typical foothill stream, Weber Creek is a second order tributary to the South Fork American River. It flows into the river at the upper end of Folsom Reservoir and therefore is not accessible to anadromous fish species such as chinook salmon and steelhead. As part of a master's thesis project (Balfour pers. comm.), field studies were conducted to determine fish species present in Weber Creek. The studies concluded that the creek supports resident species of fish, including rainbow and brown trout, Sacramento sucker, riffle sculpin, pikeminnow, and California roach. Weber Creek also has the potential to support warmwater fish including smallmouth bass, bluegill, and other sunfish and minnow species. The warmwater fish are likely to be fish that have escaped from stock ponds on private property bounding the stream. During the field survey, both trout species and bluegill were observed. Weber Creek is not actively managed through fish plantings by DFG.

Weber Creek has a healthy riparian zone that provides ample shade to the creek and thus suitable fish habitat. The substrate primarily consists of gravel and cobble with some sand. Riffle, run, and pool habitat alternate throughout the creek, indicating a variable habitat to support various fish species in the project area.

Mound Springs Creek originates in a small reservoir just south of the project site and passes through a culvert under U.S.50 in the project site. Mound Springs Creek is frequently dry and is not likely to support special-status fish or any other common fish populations because of its size and flow regime.

### **Regulatory Overview**

This section identifies relevant biological resource policies from the 1996 County General Plan. It also presents a summary of the in-depth studies conducted to comply with federal laws, including the federal Endangered Species Act (biological assessment), Executive Order (EO) 11990 (wetlands assessment), EO 11312 (invasive species), and EO 13186 (migratory birds).

### ***El Dorado County General Plan***

The consistency of the project with the following policies is evaluated under Impact BR14:



- Policy 7.3.3.2. All feasible project modifications shall be considered to avoid wetland disturbance. Direct or indirect losses of wetlands and/or riparian vegetation associated with discretionary application approval shall be compensated by replacement, rehabilitation, or creation of a wetlands habitat on a no-net-loss basis. Compensation may result in provision of wetlands habitat on- or off-site at a minimum of 1:1 ratio as associated with the disturbed resource. A wetland study and mitigation monitoring program shall be submitted to the County and concerned State and Federal agencies for review prior to permit approval.
- Policy 7.4.1.5. Species, habitat, and natural community preservation/conservation strategies shall be prepared to protect special status plant and animal species and natural communities and habitats when discretionary development is proposed on lands with such resources unless it is determined that those resources exist, and either are or can be protected, on public lands or private Natural Resource lands.
- Policy 7.4.1.6. Where substantial modifications of natural communities and habitats of special status plants and animal species through grading or other disturbances occur in anticipation of or prior to either the submittal and/or approval of a formal discretionary application, that application shall be accompanied with a comprehensive habitat restoration and/or off-site mitigation plan. The provisions of the plan shall be implemented as part of the project approval.
- Policy 7.3.3.2. All feasible project modifications shall be considered to avoid wetland disturbance. Direct or indirect losses of wetlands and/or riparian vegetation associated with discretionary application approval shall be compensated by replacement, rehabilitation, or creation of a wetlands habitat on a no-net-loss basis. Compensation may result in provision of wetlands habitat on- or off-site at a minimum of 1:1 ratio as associated with the disturbed resource. A wetland study and mitigation monitoring program shall be submitted to the County and concerned State and Federal agencies for review prior to permit approval.

### **Section 7 of the Federal Endangered Species Act**

Jones & Stokes requested species lists from USFWS of federal candidate, proposed, and listed endangered or threatened species that could occur in the project area. The list from USFWS was received on February 23, 2001 and updated on August 24, 2001 and March 7, 2002, and is included as Appendix C of this joint document. Jones & Stokes, the County, and USFWS representatives also conducted an informal site visit on October 3, 2001.

FHWA forwarded a draft biological assessment for VELB, CRLF, and CRLF critical habitat, in compliance with Section 7 of the federal Endangered Species Act of 1973 (16 USC 1536), to USFWS on September 4, 2000 for review (see correspondence in

Appendix C of this joint document). On July 2, 2002, the critical habitat designation in El Dorado County was rescinded, as explained in the “California Red-Legged Frog” section above.

On November 13, 2002, the second of 2 field visits was conducted with USFWS. In January 2003, representatives from USFWS, the County, American River Conservancy, and Jones & Stokes visited Spivey Pond to discuss the proposed option of the County contributing to the fund that is being established to create a pond for CRLF habitat below Spivey Pond.

In April 2003, the USFWS issued a draft biological opinion on this project. This draft biological opinion included a number of California red-legged frog conservation measures, as described under Impact BR3 in this EIR, including one that requires the County to fund the American River Conservancy or another party mutually agreed upon between the County and the USFWS for habitat restoration at Spivey Pond. On June 18, 2003, the USFWS, the County, and Jones & Stokes met to discuss the draft biological opinion and the final steps necessary to complete consultation. On September 12, 2003, the final biological assessment was forwarded to FHWA, and on September 16, 2003, FHWA forwarded the assessment to the USFWS. The final biological assessment concludes that the proposed action would likely adversely affect CRLFs due to unique circumstances: the overall large size of the proposed action and the direct impacts within Weber Creek. El Dorado County will implement measures to minimize degradation and loss of CRLF habitat and restore and enhance CRLF habitat in the project area, as described in this EIR. The final biological assessment also concludes that the proposed action will have no effect on VELB since the 1 isolated blue elderberry shrub identified as potential VELB habitat is located outside of the construction zone and would be avoided; no VELB occurrences exist within 24 kilometers (15 miles) of the project area; there is no evidence of VELB occupancy in the shrub; and the project area is located on the eastern edge of the species range. Fencing will be placed so as to protect the shrub from construction vehicles.

The County is awaiting issuance of a biological opinion from USFWS.

#### **Section 404 of the Federal Clean Water Act**

The Corps and the U.S. Environmental Protection Agency regulate the placement of fill into “waters of the United States” under Section 404 of the Clean Water Act. Project proponents must obtain a permit from the Corps for all discharges of fill

material into waters of the United States before proceeding with a proposed action. The Corps may either issue individual permits on a case-by-case basis or general permits on a program level. General permits exist to cover similar activities that are expected to cause only minimal adverse environmental effects. Nationwide permits (NWP) are a type of general permit that cover particular fill activities. All NWPs have a general set of conditions that must be met for the permits to apply to a particular project, as well as specific conditions that apply to each NWP. The County intends to apply for a NWP 14 for linear crossings.

Jones & Stokes conducted a Preliminary Delineation of Waters of the United States during the wet season (May 18 and November 19, 2001) to evaluate potential waters of the United States. Wetlands were evaluated and delineated using the routine onsite determination methods outlined in the Corps' 1987 Wetland Delineation Manual (Environmental Laboratory 1987). The jurisdictional boundary for other waters of the United States (Weber Creek) was determined using the definition of ordinary high water mark (defined under 33 CFR 328.4). The preliminary wetland delineation was sent to the Corps, Sacramento District, on March 4, 2002 to request verification (see Appendix C for correspondence). The Corps (Paul Maniccia) conducted a verification site visit on August 29, 2002. The purpose of this site visit was to visit each of the features in the study area delineated as waters of the United States. After conducting the site visit, the Corps contacted Jones & Stokes on September 20, 2002 to discuss the results of the verification visit. A revised delineation (Jones & Stokes 2002k) that incorporates the Corps' comments was forwarded to the Corps on October 30, 2002. Final verification from the Corps was received on February 27, 2003 (see Appendix C for a copy of the verification letter).

The Corps has verified that one seasonal wetland (Seasonal Wetland 1) and 2 seasonal drainages (Seasonal Drainages 1 and 2) comprising 0.144 hectare (0.370 acre) occur on the project site (Jones & Stokes 2002k) (see Figure 3.8-1). Two additional wetlands will not be regulated by the Corps under Section 404 of the Clean Water Act (Maniccia pers. comm.). One of these seasonal wetlands (Seasonal Wetland 2) occurs outside the project area (Figure 3.8-1) and will be affected by another project that is currently being verified by the Corps. The second seasonal wetland (Seasonal Wetland 3) is not hydrologically connected to a water of the U.S. through a culvert, drainage ditch, or any other connection and was therefore verified by the Corps as a non-navigable, isolated feature. This determination is based on the January 9, 2001, U.S. Supreme Court decision in *Solid Waste Agency of Northern*

Cook County (SWANCC) v. United States Corps of Engineers, [121 S.Ct. 675, 2001], which affected Corps jurisdiction over isolated waters. Mitigation measures are provided in this section to minimize the destruction, loss, and degradation of wetlands on the project site. Alternatives that avoid waters of the United States have been determined to be infeasible because achievement of the purpose and need for the project requires crossing Weber Creek.

***Executive Order 11990: Protection of Wetlands***

EO 11990 (May 24, 1977) directs all federal agencies to refrain from assisting in or giving financial support to projects that encroach on public or privately owned wetlands. The order further requires that federal projects must support a policy to minimize the destruction, loss, or degradation of wetlands. Such a project may not be undertaken unless the agency has determined that: (1) there are no practicable alternatives to such construction; (2) the proposed action includes all practicable measures to minimize harm to wetlands that would be affected by the project; and (3) the impact will be minor.

***Only Practicable Alternative Finding***

Avoidance alternatives to minimize harm to wetlands in compliance with Executive Order 11990 have been determined to be infeasible because achievement of the purpose and need of the project requires improvements to the U.S. 50/Missouri Flat Road interchange and the crossing of Weber Creek. The County has determined that there are no practicable alternatives to construction on wetlands in the project area. Based on these considerations, it is determined that there is no practicable alternative to the proposed construction in wetlands and that the proposed action includes all practicable measures to minimize harm to wetlands which may result from such use.

***Executive Order 11312: Invasive Species Assessment***

EO 11312 (February 3, 1999) directs all federal agencies to prevent and control introductions of invasive species in a cost-effective and environmentally sound manner. EO 11312 established a national Invasive Species Council made up of federal agencies and departments and a supporting Invasive Species Advisory Committee composed of state, local, and private entities. The Invasive Species Council and Invasive Species Advisory Committee will oversee and facilitate implementation of the EO, including preparation of a National Invasive Species Management Plan (NISMP). When complete, the NISMP will recommend objectives and measures to implement the EO and prevent the introduction and spread of

invasive species. The EO and directives from the Federal Highway Administration (FHWA) require consideration of invasive species in NEPA analyses, including their identification and distribution, their potential impacts, and measures to prevent or eradicate them.

A national invasive weed list is not approved at this time, but FHWA requires that state departments of transportation use the state's noxious weed list (CDFA noxious weed list) in the interim. Because FHWA has not yet developed a list of invasive species to be considered in the analysis of transportation projects, CDFA, the California Exotic Pest Plant Council (CalEPPC), and the Weeds of Interest in El Dorado County lists (West pers. comm.) were used for the analysis of invasive species at the project site. The following invasive species from the list have been documented at the project site by Jones & Stokes biologists: yellow star-thistle (*Centaurea solstitialis*), Himalayan blackberry (*Rubus discolor*), field bindweed (*Convolvulus arvensis*), Scotch broom (*Cytisus scoparius*), and medusahead (*Taeniatherum caput-medusae*) (Table 3.8-3).

**Table 3.8-3. Noxious Weeds Located on the U.S. 50/Missouri Flat Road Interchange Project Site**

Noxious Weed Species	California Department of Food and Agriculture	California Exotic Pest Plant Council	EI Dorado County
Yellow star-thistle	C	A-1	-
Himalayan blackberry	-	A-1	-
Field bindweed	C	CBNL	-
Scotch broom	C	A-1	Secondary
Medusahead	C	A-1	Secondary

Notes: The CDFA and CalEPPC lists assign ratings to each of the species on their lists, while the Weeds of Interest of EI Dorado County includes weeds of primary and secondary concern. These ratings reflect CDFA and CalEPPC 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 CDFA categories are defined as:

- a. The agency mandates that this weed be targeted for containment or eradication.
- b. This species is more widespread and therefore difficult to contain. The agency allows county agricultural commissioners to decide whether to target it for eradication or containment in their jurisdictions.
- c. This species is so widespread that the agency does not endorse state- or county-funded eradication or containment efforts, except in nurseries or seed lots.

The CalEPPC categories are defined as:

- A-1 = widespread pest plants that are aggressive and displace native plants and natural habitats.
- A-2 = regional pest plants that are aggressive and displace native plants and natural habitats.
- B = wildland plants of lesser invasiveness.
- Red Alert = species with the potential to spread explosively; infestations currently restricted in size.
- NMI = need more information.
- CBNL = considered but not listed.

The County has 2 categories that include primary concern and secondary concern. No guidelines from the agricultural commissioner are available for the County, except to complete a weed survey form for infestations found (West pers. comm.). The county has provided these forms for noxious weeds found in the project area.

The infestations of weed species at the project site are similar to those found along roadsides and in agricultural areas throughout the Sacramento Valley.

### 3.8.2 Environmental Consequences

#### Methods

#### ***Botanical Resources***

A botanical resource survey was conducted on May 18, 2001, by Jones & Stokes botanist/wetland ecologist Rob Weiss. Additional surveys were conducted on November 19, 2001 by Rob Weiss and on April 21 and June 5, 2002 by Jones & Stokes botanist Margaret Widdowson of the proposed construction staging area, access road, and adjacent areas north of U.S. 50, at the end of the dirt path extending from Helmrich Lane. The purpose of these surveys was to identify and gather descriptive information on biological communities, conduct a floristic survey for special-status plants, and survey for invasive species that could occur on the project site (also referred to as the project area, as shown in Figure 3.8-1).

The botanist/wetland ecologist walked the project area, including both sides of U.S. 50, along Missouri Flat Road and along Forni Road/Placerville Drive, and mapped resources on an aerial photograph (scale: 1m = 2000m). All plant species encountered during the field survey were recorded. All plant species were identified to the level necessary to determine if they are special-status species. Plant communities were noted and assessed for approximate total area in hectares.

### ***Waters of the United States***

During the walk-throughs on May 18 and November 19, 2001, wetlands were delineated to determine the size, location, and approximate acreage potentially subject to regulation by the Corps under Section 404 of the Clean Water Act (CWA). Wetlands in these areas were delineated using the Corps' Wetland Delineation Manual (Environmental Laboratory 1987), which outlines a 3-parameter approach based on the presence of hydrophytic vegetation, wetland hydrology, and hydric soils. The jurisdictional boundaries for other waters of the United States were identified based on the presence of an ordinary high-water mark as defined in the delineation manual (33 CFR 328.4 [e]). More detailed methods are provided in the Revised Delineation of Waters of the United States (Jones & Stokes 2002f).

### ***Wildlife Resources***

Wildlife surveys of the project area were conducted on June 5 and 24, 2001 and November 19, 2001, by Jones & Stokes wildlife biologist Brian Zettle. These surveys included evaluating habitat for special-status species and determining the potential for occurrence of special-status species. Breeding bird surveys of the project area were conducted on April 21 and May 20, 2002 by Jones & Stokes wildlife biologist, Bud Widdowson.

Jones and Stokes also conducted protocol-level surveys for CRLF within the study area. The protocol surveys were modified from 2 day and 2 night surveys to 1 day and 3 night surveys. The day survey was conducted on June 24, and the night surveys were conducted on July 2–4, 2001. They were performed according to the guidelines provided in the USFWS Guidance on Site Assessment and Field Surveys for California Red-Legged Frogs (U.S. Fish and Wildlife Service 1997).

### ***Fisheries Resources***

A reconnaissance-level survey was conducted on June 5, 2001, by Jones & Stokes fisheries biologist Stephanie Theis. The biologist conducted a qualitative evaluation

of the stream channel and fish habitat conditions in Weber Creek. No protocol-level surveys were conducted as part of the habitat assessment.

### **Permanent Impacts: 4-Lane Tight Diamond Interchange**

#### ***Impact BR1: Permanent Loss of Approximately 0.0016 Hectare (0.004 Acre) of Weber Creek and Approximately 0.0032 Hectare (0.008 Acre) of Oak Woodland***

The proposed action would permanently affect 0.0016 hectare (0.004 acre) of Weber Creek with the placement of 2 new bridge piers within the creek and 0.0032 hectare (0.008 acre) of oak woodland with the placement of 4 new bridge piers in the oak woodland area.

Although this permanent loss is minor, this impact is considered adverse since piers will be placed in Weber Creek; therefore, the project could result in the long-term degradation and loss of a sensitive plant community and associated wildlife habitat, and have a substantial adverse effect, either directly or through habitat modification, on special-status wildlife species. (The project area provides habitat for CRLF, foothill yellow-legged frog, and northwestern pond turtle.) See also the corresponding temporary impact discussion under Impact BR3.

To reduce this impact, the County will implement Mitigation Measures BR3a–k described under the corresponding permanent impact (see Impact BR3). These measures will also ensure that the project will not reduce the number or restrict the range of the CRLF, a federally-threatened species. Mitigation Measure BR4d requires that preconstruction surveys be conducted for the CRLF and that, if frogs are found, construction cease until the frogs are moved upstream of the project area; this measure will ensure that frogs are not harmed during construction. Mitigation Measure BR3k calls for implementation of a riparian restoration plan that would ensure that the aquatic and upland habitat impacted by the project would be restored at a minimum of a 1:1 ratio (1 acre planted for every 1 acre removed) through the planting of native species; this measure ensures that the project will not result in the destruction or adverse modification of California red-legged frog habitat.

#### ***Mitigation Measure***

See Mitigation Measures BR3a–k.



**Impact BR2: Potential Loss of 0.019 Hectare (0.045 Acre) of Jurisdictional Seasonal Wetlands and of 0.0055 Hectare (0.01 Acre) of Non-Jurisdictional Seasonal Wetlands**

The proposed action could result in the complete filling of 1 jurisdictional seasonal wetland (Seasonal Wetland 1) and no more than 50% of 1 jurisdictional seasonal drainage (Seasonal Drainage 2), resulting in the loss of up to 0.019 hectare (0.045 acre) of habitat. The project could also result in the complete filling of 1 non-jurisdictional seasonal wetland (Seasonal Wetland 3), totaling 0.0055 hectare (0.01 acre). (Seasonal Drainage 1 would not be filled with project construction.). These features are small, artificial features that were created from highway construction activities and have been disturbed by human activities. They do not provide important, irreplaceable habitat functions and values.

The federal government supports a policy of minimizing “the destruction, loss, or degradation of wetlands” (EO 11990, May 24, 1977). In addition, DFG has adopted a no-net-loss policy for wetlands (California Fish and Game Commission 1987), as has the State of California (the Governor’s California Wetlands Conservation Policy, August 23, 1993).

Impacts on these jurisdictional wetlands are considered adverse since the project would affect federally-protected wetlands through filling. See also the corresponding temporary impact under Impact BR4.

To reduce this impact, the County will implement Mitigation Measures BR3a and BR3f–i described under the corresponding permanent impact (see Impact BR4).

**Mitigation Measure**

See Mitigation Measures BR3c and BR3f–i.

**Temporary Impacts: 4-Lane Tight Diamond Interchange**

**Impact BR3: Disturbance to Approximately 0.1 Hectare (0.25 Acre) of Weber Creek and Approximately 0.29 Hectare (0.71 Acre) of White Alder Riparian Forest Vegetation**

The proposed action would result in the loss of or disturbance to approximately 0.1 hectare (0.25 acre) of Weber Creek and approximately 0.29 hectare (0.71 acre) of white alder riparian forest vegetation adjacent to Weber Creek (acreage estimates include permanent loss described above under Impact BR1) during construction of the Weber bridges improvements. The creek flows would be diverted to facilitate

construction if necessary. Construction equipment would not be operated within the “live” creek channel. See also the corresponding permanent impact discussion under Impact BR1.

Construction activities associated with the construction of 6 new piers and related activities at Weber Creek would contribute to the deterioration of existing fish and wildlife habitat along the creek through the following types of impacts:

- removal of riparian vegetation that provides shade, cover, and bank stabilization along the creek;
- short-term increase in suspended sediment concentrations and turbidity resulting from channel disturbance that could result in a reduction of feeding opportunities for sight-feeding fish, sedimentation of spawning habitat, and suffocation of eggs (fish and amphibian), as well as cause clogging and abrasion of gill filaments;
- short-term degradation of food-producing habitat downstream of the bridge;
- potential for short-term degradation of water quality if hazardous material spills of substances, such as gasoline and diesel fuels, engine oil, and hydraulic fluids, occur, thereby potentially contaminating the creek and affecting aquatic species;
- temporary increase in ambient noise levels associated with construction equipment (drilling, grading, potential need for blasting) in and around Weber Creek;
- short-term disturbance of habitat for CRLF; and
- short-term disturbance of habitat and potential for mortality of CRLF, foothill yellow-legged frog, and northwestern pond turtle.

Temporary project-related impacts on CRLF, foothill yellow-legged frog, northwestern pond turtle, and their habitats are considered adverse, based on the following:

- These species have experienced dramatic population declines throughout their ranges in California.
- Localities at which these species are extant on the western slope of the northern Sierra Nevada appear to be patchy and widely scattered (Jennings and Hayes 1994).
- Project-related impacts could result in a reduction in local population size attributable to direct mortality or habitat loss, lowered reproductive success, or habitat fragmentation.

Project construction could result in extended periods of localized, high suspended sediment concentrations and turbidity resulting from channel disturbance, which could also result in an adverse impact on common fish species, including reduction of feeding opportunities for sight-feeding fish, sedimentation of spawning habitat and suffocation of eggs, and clogging and abrasion of gill filaments. It could also result in the degradation of food-producing habitat downstream of the project area.

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. In addition, 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 streams. The proposed bridge improvements at Weber Creek would include such activities and therefore would require a streambed alteration agreement with DFG under Section 1601 of the California Fish and Game Code.

This impact is considered adverse since the project could result in the long-term degradation and loss of a sensitive plant community and associated wildlife habitat; could have a substantial adverse effect, either directly or through habitat modification, on special-status wildlife species (habitat for CRLF, foothill yellow-legged frog, and northwestern pond turtle); and could reduce the number or restrict the range of an endangered, rare, or threatened species.

The County will avoid, minimize, and compensate for impacts on Weber Creek and on riparian habitat by implementing the mitigation measures described below. Mitigation Measures BR3a–c are general measures to protect sensitive biological resources; BRd–e call for preconstruction surveys within the aquatic and riparian habitat at Weber Creek; BRf–i are intended to protect the water quality of Weber Creek; and BRj–k address impacts to the riparian habitat at Weber Creek.

These measures will ensure that the project will not result in the long-term degradation of wildlife habitat; substantially adversely affect special-status wildlife species; or reduce the number or restrict the range of the CRLF, a federally-threatened species, as described above under Impact BR1.

***Mitigation Measure BR3a: Install Construction Barrier Fencing around the Construction Area to Protect Sensitive Biological Resources That Will Be Avoided***

The County or its contractors will ensure that the removal or disturbance of sensitive biological resources adjacent to the construction area are avoided by installing orange construction barrier fencing (and sedimentation fencing in some cases) around the construction areas. The area that would generally be required for construction, including staging and access, is shown in Figure 3.8-1 (labeled “project area”); pockets within this area that can be avoided during construction should be fenced off to avoid disturbance in these areas. Sensitive resources that occur within and adjacent to the construction area (“project area”) include the riparian forest along Weber Creek, blue oak woodland, individual native oaks greater than 15.2 centimeters (6 inches) in diameter at breast height (dbh), and the identified valley elderberry shrub located immediately outside the construction area.

Prior to construction, the construction contractor will work with the project engineer and a resource specialist to identify the location for the barrier fencing and will place stakes around the sensitive resource sites to indicate the location for fencing. The protected area will be designated as an “environmentally sensitive area” (ESA) and clearly identified on the construction specifications. The fencing will be installed prior to the initiation of construction activities and will be maintained throughout the construction period. The following paragraphs will be provided in the construction specifications for ESAs:

The Contractor’s attention is directed to the areas designated as “Environmentally Sensitive Areas” and to state and federal regulations that may pertain to such areas. These areas are protected and no entry by the Contractor for any purpose will be allowed unless specifically authorized in writing by the County. The Contractor shall take measures to ensure that the Contractor’s forces do not enter or disturb these areas, including giving written notice to his employees and subcontractors.

Temporary fences around the “Environmentally Sensitive Areas” shall be installed as the first order of work. Temporary fences shall be furnished and constructed,

maintained, and later removed as shown on the plans, as specified in the special provisions, and as directed by the project Engineer. The fencing shall be commercial quality woven polypropylene, orange in color, and a minimum of 1.2 meters (4 feet) high (Tensor Polygrid or equivalent). The fencing will be tightly strung on posts with a maximum 3-meter (10-foot) spacing.

***Mitigation Measure BR3b: Conduct a Biological Resources Education Program for Construction Crews and Enforce Construction Restrictions***

The County or its contractors will conduct environmental awareness training for construction crews before project implementation. The education program will include a brief review of the special-status species that could potentially occur in the project area (including their life history, habitat requirements, and pictures of the species), the portions of the project area in which they may occur, and their legal status and protection under the ESA of 1973 (16 USC 1536). The program will also cover the restrictions and guidelines that must be followed by all construction personnel to reduce or avoid effects on these species during project implementation. The crew foreman will be responsible for ensuring that crew members adhere to the guidelines and restrictions. Education programs will be conducted for appropriate new personnel as they are brought on the job during the construction period. Restrictions and guidelines that must be followed by construction personnel are:

- Project-related vehicles will observe the posted speed limit on hard-surfaced roads and a 16.1-kilometer-per-hour (10-miles-per-hour) speed limit on unpaved roads during travel in the project area.
- Project-related vehicles and construction equipment will restrict off-road travel to the designated construction area.
- Nighttime construction adjacent to Weber Creek will be minimized.
- All food-related trash will be disposed of in closed containers and removed from the project area at least once a week during the construction period. Construction personnel will not feed or otherwise attract wildlife to the project area.
- No pets or firearms will be allowed in the project area.
- No rodenticides or herbicides will be applied in the project area during construction activities (Ludwig pers. comm.).
- To prevent possible resource damage from hazardous materials such as motor oil or gasoline, construction personnel will not service vehicles or construction equipment outside of designated staging areas.
- Any worker who inadvertently injures or kills a special-status species or finds one dead, injured, or entrapped, will immediately report the incident to the biological

monitor. The monitor will immediately notify the County, who will provide verbal notification to the USFWS Endangered Species Office in Sacramento, California, and to the local DFG warden or biologist within 3 working days. The County will follow up with written notification to USFWS and DFG within 5 working days.

***Mitigation Measure BR3c: Retain a Biologist to Monitor Construction Activities within Weber Creek***

A qualified biologist will monitor all construction activities occurring in water within Weber Creek for compliance with the project’s mitigation measures. For construction activities occurring outside of the water, a qualified biologist will be available during the construction period and will make weekly monitoring visits to the Weber Creek construction area. The biological monitor will assist the construction personnel, as needed, to comply with all project implementation restrictions and guidelines. Furthermore, the biological monitor will be responsible for ensuring that the contractor maintains the staked and flagged perimeters of the construction area and staging areas adjacent to sensitive biological resources.

***Mitigation Measure BR3d: Conduct Preconstruction Surveys and Minimize Mortality to CRLF and Foothill Yellow-Legged Frog***

- To minimize impacts on CRLF and foothill yellow-legged frog (Although the foothill yellow-legged frog is not fully protected under the federal ESA, this species meets the CEQA “rare” definition, and therefore, this measure is intended to mitigate this impact to below this CEQA significance threshold.), the County or its contractors will implement the following avoidance and minimization measures:
- A preconstruction survey by a qualified biologist for CRLFs and foothill yellow-legged frogs will be conducted within 48 hours prior to the start of construction activities within the riparian or aquatic habitat at Weber Creek. If a CRLF or foothill yellow-legged frog is located within the construction area, the frog will be relocated out of the construction area and exclusion fence will be installed to prevent the movement of frogs back into the construction area.
- A biological monitor will be on site during construction activities within Weber Creek, as described under Mitigation Measure BR3c. The monitor will survey the construction area for CRLFs and foothill yellow-legged frogs.
- If a CRLF or yellow-legged frog becomes trapped during construction activities within the creek, activities will cease until the biological monitor is contacted and the frog is relocated upstream from the construction area and exclusion fence is installed to prevent the movement of the frogs back into the construction area.
- Relocation of CRLFs will only take place by an individual permitted by USFWS to handle this species.

- Any incidental take of CRLFs will be reported to USFWS immediately as described under Mitigation Measure BR3b.

***Mitigation Measure BR3e: Conduct Preconstruction Surveys to Minimize Mortality to Northwestern Pond Turtles***

To minimize impacts on northwestern pond turtles and their habitat (Although the northwestern pond turtle is not fully protected under the federal ESA, this species meets the CEQA “rare” definition, and therefore, this measure is intended to mitigate this impact to below this CEQA significance threshold.), the County or its contractors will implement the following avoidance and minimization measures:

- A preconstruction survey by a qualified biologist for northwestern pond turtles will be conducted within 48 hours prior to the start of construction activities at Weber Creek. If a northwestern pond turtle is located within the construction area, the turtle will be relocated out of the construction area and exclusion fence will be installed to prevent the movement of turtles back into the construction area.
- If a turtle becomes trapped during construction activities within the waterway, activities will cease until the turtle is removed and placed upstream from the construction area and exclusion fence is installed to prevent the movement of turtles back into the construction area.

***Mitigation Measure BR3f: Limit In-Water Construction Activities to the Summer Low- or No-Flow Period***

To reduce the potential for impacts on amphibians, reptiles, and fishery resources associated with construction-related activities, the County or its contractors will limit in-water construction activities to the summer low- or no-flow period (generally between May 1 and October 15 or before the onset of the rainy season, whichever occurs first. The rainy season is defined as a frontal system that results in depositing 0.25 inches or more of precipitation in one event in the area.). By keeping the construction period within low-precipitation months, the risk of bank erosion is also decreased. Stream banks and adjacent areas disturbed by construction activities should be stabilized to avoid increased erosion during subsequent storms and runoff.

***Mitigation Measure BR3g: Ensure That Turbidity Increases Do Not Exceed Central Valley Regional Water Quality Control Board Standards***

To meet the CVRWQCB requirements (Palisoc pers. comm.), the County or its contractors will use a turbidity meter to monitor immediately upstream and 91 meters (300 feet) downstream of the construction area every 4 hours during construction in Weber Creek if construction activities create a visible plume in surface waters.

Construction activities shall not cause turbidity increases in surface waters to exceed the following:

- Where natural turbidity is between 0 and 5 Nephelometric Turbidity Units (NTUs), increases shall not exceed 1 NTU;
- Where natural turbidity is between 5 and 50 NTUs, increases shall not exceed 20%;
- Where natural turbidity is between 50 and 100 NTUs, increases shall not exceed 10 NTUs;
- Where natural turbidity is greater than 100 NTUs, increases shall not exceed 10%.

If the turbidity increases exceed these standards, mitigation measures shall be implemented immediately to meet these standards. Potential mitigation measures include:

- minimizing disturbance of soils and stream bed gravels, and
- constructing a silt barrier immediately downstream of the construction area.

***Mitigation Measure BR3h: Develop and Implement a Toxic Materials Control and Spill-Response Plan***

The County or its contractors will develop and implement a toxic materials control and spill-response plan. The plan will include measures to:

- prevent raw cement, concrete or concrete washings, asphalt, paint or other coating material, oil or other petroleum products, or any other substances that could be hazardous to aquatic life from contaminating the soil or entering watercourses;
- establish a spill-prevention and countermeasure plan before project construction that includes strict on-site handling rules to keep construction and maintenance materials out of drainages and waterways;
- immediately clean up all spills according to the spill-prevention and countermeasure plan and immediately notify DFG of any spills and cleanup procedures;
- provide staging and storage areas located outside the creek's normal high-water area for equipment, materials, fuels, lubricants, solvents, and other possible contaminants; and
- remove vehicles from the normal high-water area of the channel before refueling and lubricating.



***Mitigation Measure BR3i: Store Hazardous Materials at an Approved Storage Facility***

The County or its contractors will store hazardous substances at approved staging facilities located at least 30.5 meters (100 feet) from any surface waters. Refueling and vehicle maintenance will be performed at least 30.5 meters (100 feet) from these receiving waters. Sedimentation fences, certified weed-free hay bales, sandbags, water bars, and baffles will be used as additional sources of protection for waters, ditches, and wetlands.

***Mitigation Measure BR3j: Minimize Long-Term Impacts on Woody Riparian Vegetation and Associated Habitat***

The County or its contractors will minimize long-term impacts on woody riparian vegetation by trimming trees and shrubs rather than removing the entire woody species, where feasible, within the bridge construction area. Where possible, shrubs and trees should be cut 0.9 to 1.5 meters (3 to 5 feet) above ground level to leave the root systems intact and allow for more rapid regeneration following construction.

***Mitigation Measure BR3k: Enhance Riparian Habitat by Developing and Implementing a Riparian Restoration Plan***

The County will prepare a riparian restoration plan to compensate for the temporary, unavoidable loss of riparian vegetation along Weber Creek. The County proposes to restore woody riparian that will be removed during construction at a minimum of a 1:1 ratio (1 acre planted for every 1 acre cleared). To further compensate for riparian impacts, as well as permanent impacts to aquatic habitat, indirect impacts, and the temporal loss of riparian habitat, the County will contribute to the Spivey Pond fund established by the American River Conservancy (or another party mutually agreed upon between the County and USFWS) for the purposes of enhancing or constructing California red-legged frog habitat in the vicinity of Spivey Pond.

The riparian restoration plan will be developed through coordination with representatives from Caltrans, DFG, and USFWS. It will include design specifications, an implementation plan, maintenance requirements, and a monitoring program. Monitoring for a minimum of 5 years will be conducted to document the degree of success in achieving the success criteria and to identify remedial actions that may be needed. The mitigation will be considered successful once the following criteria have been met:

- The riparian habitat is composed of a mix of native species similar to that removed during construction of the Weber Creek bridges improvements.
- At least 75% total cover of native riparian vegetation is established at the mitigation site.
- The riparian species that dominate the mitigation site rate good or excellent vigor and growth. This assessment should be based on a qualitative comparison of leaf turgor, stem caliber, leaf color, and foliage density in the planted sites with individuals of the same species in the adjacent riparian areas.
- Less than 5% of total cover on each site will be composed of weedy annual or perennial species.
- Plantings are self-sustaining without human support (e.g., weed control, rodent control, or irrigation).

Annual monitoring reports will be submitted to Caltrans, DFG, and USFWS (and the Corps, if required as part of the Section 404 permit) during the 5-year monitoring period. The report will summarize the data collected during monitoring periods, describe how the riparian habitat is progressing in terms of the success criteria, and discuss any remedial actions performed.

***Impact BR4: Potential Disturbance to 0.044 Hectare (0.12 Acre) of Jurisdictional Seasonal Wetlands/Drainages***

In addition to the permanent fill described under Impact BR2, the proposed action could result in the indirect disturbance of 1 jurisdictional seasonal drainage (Seasonal Drainage 1) (No fill of this drainage is anticipated.). The project could also indirectly affect all of Seasonal Drainage 2 (0.0055 hectare or 0.01 acre) (Up to 50% of this drainage will be filled.) (Figure 3.8-1). These wetlands/drainages could be indirectly affected if project-related sedimentation drains to Weber Creek, especially during the wet season. See also the corresponding permanent impact discussion under Impact BR2.

These features are small, artificial features that were created from highway construction activities and have been disturbed by human activities. They do not provide important, irreplaceable habitat functions and values. However, impacts on these jurisdictional wetlands are considered adverse since the project could affect federally-protected wetlands through sedimentation.

To reduce this impact, the County will implement the mitigation measures described below. Mitigation Measure BR3c is a general measure aimed at protecting sensitive

biological resources. Mitigation Measures BR3f-i are intended to protect water quality.

- *Mitigation Measure BR3c: Install Construction Barrier Fencing around the Construction Area to Protect Sensitive Biological Resources That Will Be Avoided.* See Impact BR3 for a description of this measure.
- *Mitigation Measure BR3f: Limit In-Water Construction Activities to the Summer Low- or No-Flow Period.* See Impact BR3 for a description of this measure.
- *Mitigation Measure BR3g: Ensure That Turbidity Increases Do Not Exceed Central Valley Regional Water Quality Control Board Standards.* See Impact BR3 for a description of this measure.
- *Mitigation Measure BR3h: Develop and Implement a Toxic Materials Control and Spill-Response Plan.* See Impact BR3 for a description of this measure.
- *Mitigation measure BR3i: Store Hazardous Materials at an Approved Storage Facility.* See Impact BR3 for a description of this measure.

***Impact BR5: Removal of and Disturbance to Up to 8–12 Hectares (20–30 Acres) of Blue Oak Woodland and an Undetermined Number of Native Trees***

The proposed action would result in the removal of or disturbance to up to 8–12 hectares (20–30 acres) of blue oak woodland, including several native blue oaks, foothill pines, and interior live oaks outside the blue oak woodland habitat. Senate Concurrent Resolution 17 states that state agencies should make every effort to avoid impacts on oak woodlands. The removal of blue oak woodland is considered an adverse impact because the project would result in the degradation and loss of a sensitive plant community and associated wildlife habitat.

The County will reduce long-term impacts on the blue oak woodland and native oak trees by implementing the following mitigation measures. Mitigation Measure BR3c is a general measure to protect sensitive biological resources. Mitigation Measure BR5a specifically addresses impacts to oak woodland.

In the short-term, impacts to oak woodland habitat will remain adverse until the replanted oaks reach maturity. FHWA does not consider this one discrete adverse impact as significant under NEPA given its context and intensity (Ketchum pers.

comm.). Therefore, the project, as a whole, is not expected to result in a significant effect on the human environment.

- **Mitigation Measure BR3c: Install Construction Barrier Fencing around the Construction Area to Protect Sensitive Biological Resources That Will Be Avoided.** See Impact BR3 for a description of this measure.

**Mitigation Measure BR5a: Minimize and Compensate for Impacts on Blue Oak Woodlands and Individual Native Oak Trees by Replanting Oaks**

To minimize long-term impacts on the blue oak woodland and compensate for direct and indirect impacts on native oaks and woodland habitat on the project site, the County or its contractors will implement the following:

- Retain an arborist to identify the species and numbers of native trees that will be removed and indirectly affected within the construction zone.
- Protect oaks not to be removed but that are within 61 meters (200 feet) of the grading activity by fencing them 1.5 meters (5 feet) beyond the dripline and root zone (as determined by a certified arborist). This fence, intended to prevent activities that result in soil compaction beneath the canopy or over the root zone, will be maintained until all construction activities are complete. No grading, trenching, or movement of construction equipment will be allowed to occur within fenced areas. Protection for oak trees on slopes will include installation of a silt fence. A silt fence will be installed at the upslope base of the protective fence to prevent any soil drifting down over the root zone.
- Replace native oak trees removed during construction, at a ratio of 3:1 for trees (Burmester pers. comm.) measuring greater than 15.2 centimeters (6 inches) in dbh. Plantings of acorns or one-gallon container stock will occur within the construction area or on other publicly-owned land that can be protected in perpetuity, such as publicly-owned parks and road right-of-ways.
- Plantings shall be monitored annually by a qualified biologist for 5 years after construction is complete. Results of the monitoring shall be submitted to the appropriate agencies. Success will be achieved if there is a minimum of 80% survival by the end of the fifth year and a stable viable population for the duration of the monitoring period. If the performance standards are not met, remedial measures such as replanting will be implemented. During monitoring, the following information will be evaluated: average tree height, percent of tree cover, tree density, percent of woody shrub cover, seedling recruitment, and invasion by non-native species. During the revegetation process, tree survival will be maximized by using deer screens or other maintenance measures as recommended by a certified arborist.

- Require the Contractor to perform any necessary pruning, including pruning for utility line clearance, using the “Pruning Guidelines” adopted by the California Department of Forestry and Fire Protection pruning standards.
- Inspect the areas that have vegetative pruning and tree removal immediately prior to construction, following construction, and 1 year following construction to determine the amount of existing vegetative cover, cover that is removed, and cover that resprouts. If these areas have not sufficiently resprouted in order to return the cover to the level of cover existing prior to project construction, those areas will be replanted with the same species to reestablish the cover to the pre-project condition.

***Impact BR6: No Impact on Special-Status Plant Species***

No special-status plant species were found in the project area. Therefore, the proposed action would not impact special-status plant species.

***Mitigation Measure***

None proposed.

***Impact BR7: Introduction of New Noxious Weeds or Spread of Existing Noxious Weed Species***

The proposed action could result in the introduction or spread of noxious weed species that could displace native species, changing the diversity of species or number of any species of plants. Soil-disturbing activities during construction and maintenance of the proposed action could promote the introduction of plant species not currently found in the project area, including exotic pest plant species. Exotic pest plants include noxious weeds designated as federal noxious weeds by the U.S. Department of Agriculture and listed by the CDFA, as well as other exotic pest plants designated by the CalEPPC (California Exotic Pest Plant Council 2000) and the County. Roads, highways, and related construction projects are some of the principal dispersal vectors for exotic pest plants. The introduction and spread of exotic pest plants adversely affect natural plant communities by displacing native plant species that provide shelter and forage for wildlife species. This impact is considered adverse since the spread of invasive species could result in the substantial reduction or elimination of native species diversity or abundance.

***Mitigation Measure BR7a: Avoid the Introduction of New Noxious Weeds or the Spread of Existing Noxious Weeds***

Based on the “Weeds of Interest in El Dorado County” list, the County has completed the “Weed Survey Form” for weeds found in the project area (see Table 3.8-3) and

provided these forms to the El Dorado County Department of Agriculture. In addition, to avoid the introduction or spread of noxious weeds into previously uninfested areas, the County or its contractors will implement the following measures:

- Educate construction supervisors and managers on weed identification and the importance of controlling and preventing the spread of noxious weed infestations.
- Clean construction equipment at designated wash stations before entering the construction area.
- Seed all disturbed areas with certified weed-free native mixes. Use only certified weed-free straw or rice mulch in uplands only.
- Conduct a follow-up inventory of the construction area to verify that construction activities have not resulted in the introduction of new noxious weed infestations.
- If new noxious weed infestations are located during the follow-up inventory, the appropriate resource agency will be contacted to determine the appropriate species-specific treatment methods.

***Impact BR8: Potential Disturbance of 1 Blue Elderberry Shrub—Valley Elderberry Longhorn Beetle Habitat***

The proposed action would not directly or indirectly affect one blue elderberry shrub—host plant for VELB. A shrub was identified approximately 9 meters (30 feet) outside of the project area adjacent to Helmrich Lane (Figure 3.8-1), during the field surveys, this road would be used by construction personnel and equipment for access to work and staging areas; however, the shrub would not be exposed to increased levels of dust since the road is paved. The shrub consisted of several 1-inch-diameter stems growing near the base of a larger dead elderberry shrub that had at least 3 branch breaks, possibly from passing vehicles. Under Section 7 of the federal Endangered Species Act, the proposed action will have no effect on VELB since the 1 isolated blue elderberry shrub identified as potential VELB habitat is located outside of the construction zone and would be avoided; no VELB occurrences exist within 24 kilometers (15 miles) of the project area; there is no evidence of VELB occupancy in the shrub; and the project area is located on the eastern edge of the species range. Fencing will be placed so as to protect the shrub from construction vehicles (see Mitigation Measure BR8a).

***Mitigation Measure BR8a: Avoid Disturbance of Valley Elderberry Longhorn Beetle Habitat***

The County or its contractors will implement the following avoidance measure:

Fencing will be placed at the edge of the existing road adjacent to the elderberry bush, for 30.5 meters (100 feet) along the road on both sides of the bush, for a total of 61 meters (200 feet) (per the USFWS' 1996 "Revised Mitigation Guidelines for the Valley Elderberry Longhorn Beetle"), to protect it from construction vehicles. This buffer zone will be marked with fencing or flagging, and a sign will be erected at the edge of this buffer zone. The sign shall have the following information: "This bush is potential habitat of the valley elderberry longhorn beetle, a threatened species, and must not be disturbed. This species is protected by the Endangered Species Act of 1973, as amended. Violators are subject to prosecution, fines, and imprisonment."

- *Mitigation Measure BR3a: Conduct a Biological Resources Education Program for Construction Crews and Enforce Construction Restrictions.* See Impact BR3 for a description of this measure.
- *Mitigation Measure BR3b: Retain a Biologist to Monitor Construction Activities.* See Impact BR3 for a description of this measure.

***Impact BR9: Potential Disturbance of Non-Special-Status Nesting Raptors***

The proposed action could result in the disturbance of non-special status nesting raptors or the removal of occupied nests if construction occurs during the breeding season (generally between February 1 and August 15). This disturbance could cause nest abandonment and death of young or loss of reproductive potential at active nests located at or near the project site. No breeding activity was observed during the breeding surveys conducted in April and May 2002. A single adult female red-tailed hawk was observed circling within 152.4 meters (500 feet) of the Weber Creek bridges in April 2002, but it was not associated with a nest site. Based on the relatively small amount of nesting habitat impacted by project construction and the territorial range of these species (ranging from 7.7–8.0 hectares [19–20 acres]), it is unlikely that more than one active nest would be disturbed by the project. These species are also locally or regionally abundant.

Effects on non-special-status nesting raptors would not be considered adverse since the project would not substantially disturb non-special status species raptors.

***Mitigation Measure***

None proposed.

**Impact BR10: Loss of Raptor Foraging Habitat**

Implementation of the proposed action would result in the temporary disturbance of 0.29 hectare (0.71 acre) of riparian habitat and loss of less than 1 acre of annual grasslands that are considered potential foraging habitat for non-special-status raptors. Red-tailed hawks were observed soaring over the project area; however, there is a moderate potential for any of these species to forage in the project site. Based on the regional abundance of these habitat types in the project vicinity, the project is not considered to have an adverse effect since the loss of a small area of foraging habitat would not substantially reduce the local population size of foraging raptors.

**Mitigation Measure**

None proposed.

**Impact BR11: Disturbance of Nesting Swallows**

The proposed action could result in the disturbance of nesting swallows. Approximately 20 active swallow nests and remnants of other swallow nests were observed on the underside of the existing Missouri Flat Road interchange structure over U.S. 50 during the June 2001 field surveys. Potential nesting habitat was also identified under the U.S.50 bridge structures over Weber Creek and the abandoned U.S. 50 bridge structure over Weber Creek. Swallows are not considered special-status species, but their occupied nests and eggs are protected by both federal and state laws, including the federal MBTA and the California Fish and Game Code, Section 3503, 3513 and 3800(50 CFR 10 and 21).

Effects on nesting swallows would be considered adverse if the project results in a substantial reduction in local population size attributable to direct mortality or habitat loss, lowered reproductive success, or habitat fragmentation. Based on the colonial nesting habits of swallows and nest site fidelity, a large colony of swallows could be disturbed by project-related construction activities at the Missouri Flat Road interchange overcrossing; therefore, this impact is considered adverse.

**Mitigation Measure BR 11a: Avoid Construction during Swallow Nesting Season or Remove Empty Nests and Prevent New Nesting**

If active nests are found, construction activities that could potentially disturb nesting swallows will be conducted outside the breeding season for these species. To avoid impacts on nesting swallows, the County or its contractors will implement the following avoidance and minimization measures:



- To the extent possible, construction activities that could potentially disturb nesting swallows will be conducted outside of the breeding season for these species (March 1 to August 1).
- If construction activities are to occur during the swallows' breeding season, the County shall hire a qualified biologist to inspect the interchange and bridge structures during the swallows' nonbreeding season. If nests are found and are abandoned, they may be removed. To avoid damaging active nests, nests must be removed before the breeding season occurs (March 1). A permit from DFG and USFWS is required if active nests are to be removed.
- After nests are removed, the underside of the bridge shall be covered with 0.5- to 0.75-inch mesh net, poultry wire, or other DFG-approved swallow exclusion device. All devices shall be installed before March 1. The device must be anchored so swallows cannot attach their nests to the bridge through gaps in the device. An alternative to netting is to continually hose down non-active nests until construction occurs.
- If netting of the interchange or bridge structures does not occur by March 1 and swallows colonize the bridge, modifications to these structures shall not begin before August 1 or until the young have fledged and all nest use has been completed.
- If steps are taken to prevent swallows from constructing new nests, work can proceed at any time of the year notwithstanding other restrictions specified in the mitigation measures identified above and in County ordinances.

***Impact BR12: Direct Mortality and Short-Term Disturbance of Common Slow-Moving and Ground-Dwelling Animals***

Grading, fill, soil compaction, and other construction activities associated with the proposed action could result in the direct mortality or short-term disturbance of slow-moving and ground-dwelling animals. This possible impact is not considered adverse because those animals that could be affected by construction activities are common species that are locally and regionally abundant and the project would not substantially disturb these animals.

***Mitigation Measure***

None proposed.

***Impact BR13: Short-Term Disturbance and Removal of Habitat Occupied by Common Wildlife Species***

The proposed action would result in a short-term disturbance and removal of habitat occupied by common wildlife species in the project area. This impact is not considered adverse because these species are locally and regionally abundant and

populations of these species and the project would not substantially disturb these species.

#### **Mitigation Measure**

None proposed.

#### **Impact BR14: Consistent with El Dorado County General Plan Policies**

The proposed action is consistent with the following relevant County policies governing impacts on biological resources. As is apparent from its language, which references “discretionary *permit* review,” Policy 7.4.4.4, which addresses tree canopy coverage standards, applies only to privately initiated projects, and thus is not applicable to public projects such as the proposed interchange. County staff has confirmed that this is the settled interpretation of the policy. (Payne pers. comm.)

*Policy 7.3.3.2. All feasible project modifications shall be considered to avoid wetland disturbance. Direct or indirect losses of wetlands and/or riparian vegetation associated with discretionary application approval shall be compensated by replacement, rehabilitation, or creation of a wetlands habitat on a no-net-loss basis. Compensation may result in provision of wetlands habitat on- or off-site at a minimum of 1:1 ratio as associated with the disturbed resource. A wetland study and mitigation monitoring program shall be submitted to the County and concerned State and Federal agencies for review prior to permit approval.*

As is apparent from its language, Policy 7.3.3.2 begins with broad language that is then followed by narrowing language limiting certain specific aspects of the policy to privately initiated projects only. The first sentence, which states that “all feasible project modification shall be considered to avoid wetland disturbance,” is a generic statement applicable to all classes of projects adversely affecting “wetlands,” as defined by the General Plan. This first statement thus requires that all County projects, as well as private projects, avoid “wetland” disturbance whenever feasible. The remainder of Policy 7.3.3.2 – and particularly the language creating a “no-net-loss” policy for wetlands impacts – applies only to “discretionary *application* approval[s].” As with Policy 7.4.4.2, which applies only to “discretionary permit review,” this language, referring to “application[s],” applies only to private projects, as the County need not file any “application” to pursue its own projects.

Notably, the County General Plan Glossary (El Dorado County 1996a) defines “wetlands” as being land that qualifies as jurisdictional wetlands according to the

definition employed by the Corps; this definition requires the presence of positive indicators for 3 parameters (hydroptic vegetation, hydric soils, and wetland hydrology) to be considered a wetland under federal jurisdiction. This definition is thus narrower than that employed by some other regulatory entities, such as, for example, the California Department of Fish and Game, which treats areas as wetlands if they contain only 1 of the 3 parameters that the Corps deems necessary for true “wetlands” to exist. In other words, DFG might treat an area as a “wetland”, because of the presence of 1 parameter, while the Corps might not treat the same area as a “wetland.”

Based on the definition of “wetlands” used by the Corps and the County, the proposed action could result in the complete filling of 1 jurisdictional seasonal wetland and no more than 50% of 1 jurisdictional seasonal drainage, totaling the potential loss of 0.019 hectare (0.045 acre) of jurisdictional wetlands (see Impact BR2). The project could also result in the potential indirect disturbance of 2 jurisdictional seasonal drainages (one of which could be filled up to 50%, as mentioned above), totaling the potential disturbance of 0.044 hectare (0.12 acre) of jurisdictional seasonal wetlands (see Impact BR4). These wetlands are small, artificial features that were created by highway construction activities and have been disturbed by human activities. They do not provide important, irreplaceable habitat functions and values. Loss of these wetlands cannot be avoided with project implementation since they are located adjacent to the existing interchange and mainline facilities (see Figure 3.8-1) where the new westbound on-ramp and auxiliary lanes are proposed and where construction access would be required. Therefore, project modifications to avoid these wetlands is infeasible. As a result, the proposed action does not violate, and indeed is fully consistent with those portions of General Plan Policy 7.3.3.2 that apply to public projects. As noted above, that policy does not require the achievement of a “no net loss” mitigation performance standard for a public project such as the proposed interchange.

*Policy 7.4.1.5. Species, habitat, and natural community preservation/conservation strategies shall be prepared to protect special status plant and animal species and natural communities and habitats when discretionary development is proposed on lands with such resources unless it is determined that those resources exist, and either are or can be protected, on public lands or private Natural Resource lands.*

Mitigation Measures BR3d (Conduct preconstruction surveys and minimize mortality to CRLF and foothill yellow-legged frog) and BR3e (Conduct preconstruction surveys and minimize mortality to northwestern pond turtles) protect special-status animal species. Mitigation Measures BR3j (Minimize long-term impacts to woody riparian vegetation and associated habitat), BR3k (Enhance riparian habitat by developing and implementing a riparian restoration plan), and BR5a (Minimize and compensate for impacts on blue oak woodlands and individual native oak trees by replanting oaks) protect the habitat of special-status wildlife species. The project area contains no special-status plant species.

*Policy 7.4.1.6. Where substantial modifications of natural communities and habitats of special status plants and animal species through grading or other disturbances occur in anticipation of or prior to either the submittal and/or approval of a formal discretionary application, that application shall be accompanied with a comprehensive habitat restoration and/or off-site mitigation plan. The provisions of the plan shall be implemented as part of the project approval.*

See the discussion for Policy 7.4.1.5 above. Since this project is not a private project, it does not require formal discretionary application. The mitigation measures described under Policy 7.4.1.5 could be adopted by the County as conditions of approval. Implementation of these measures would render this project to be consistent with this policy.

Because the proposed action is consistent with adopted policies, this impact is not considered adverse.

#### *Mitigation Measure*

None proposed.

#### **Cumulative Impacts: 4-Lane Tight Diamond Interchange**

See Chapter 4 for a discussion of cumulative impacts.

#### **No-Action Alternative**

Under the No-Action Alternative, no impacts to biological resources would occur.

## 3.9 Historic and Archeological Preservation

The information below is summarized from the project historic property survey report (Jones & Stokes 2002j); this report is available for review at County offices (see the List of Technical Studies in the Introduction of this joint document for the address and phone number of County offices). This section addresses impacts to historical resources. The Regulatory Setting section addresses both CEQA (State Regulations) and NEPA (Federal Regulations) requirements. CEQA impacts are addressed in Chapter 5 of this joint document.

### 3.9.1 Affected Environment

The project area is located in El Dorado County. A Jones & Stokes architectural historian and archaeologist surveyed the project area of potential effects (APE) and identified a total of 27 buildings, 5 bridges, 2 irrigation ditches, and 1 highway segment in the APE. Twelve of the 27 buildings, 1 bridge (Old Weber Creek Bridge, No. 25-05), the 2 irrigation ditches (Missouri Flat and Farmer's Free Bridge) are 50 years old or older. No archaeological resources were found in or adjacent to the APE.

It was determined that none of the properties within the project APE meets the criteria to be a historic resource under CEQA (per Section 15064.5(a)(2–3) of the state CEQA Guidelines using the criteria outlined in Section 5024.1 of the Public Resources Code) or meets the criteria for listing in the National Register of Historic Places (NRHP). The SHPO concurred with these conclusions on April 10, 2002 (See Appendices B and C for a description of the consultation process and related correspondence). Chapter 6 describes the Native American consultation that was conducted. Because none of the above-mentioned properties meet the criteria for a historic resource under CEQA or are eligible for listing in the NRHP, it is anticipated that the project will not have an affect on the properties located in the APE.

### **Context**

The project area is located in El Dorado County, one of the original 27 counties created when California became a state in 1850. Originally, the county's boundaries included parts of present-day Amador, Alpine, and Placer Counties. By 1919, the state adopted the current boundary lines that are marked to the east by the state of Nevada, and to the west by the city of Sacramento and Placer County. The American and Cosumnes Rivers form the county's northern and southern boundaries. The

original county seat was the town of Coloma, but in 1857 it was moved to Placerville. (Coy 1973; Kyle 1990.)

Gold mining was the predominant industry in El Dorado County for many years. The county lies on a rich ore vein, which extends through several counties on the western slope of the Sierra Nevada Mountains. Other mineral products in the region include large deposits of slate, granite, lime, and asbestos as well as building stones (Phillips and Miller 1915). By the turn of the 20th century, lumbering, livestock raising and farming had joined mining as the principal industries of the county. Crops included pears, plums, apples, peaches, cherries, oranges, olives, walnuts, wheat, rye, corn, and acres of vineyards. Another industry that gained popularity in El Dorado County was tourism. In the 1910s and 1920s with the advent of the automobile, visitors increasingly traveled to the Sierra Nevada and Lake Tahoe (Phillips and Miller 1915). At present, the county's economy is based mainly on lumber, mining, agriculture, livestock, manufacturing, and tourism.

By the 1820s, Anglo-American fur trappers began to explore present-day El Dorado County, although the region remained outside the mainstream of both Mexican and American settlement until the California Gold Rush of 1848. John Sutter, a Sacramento Valley landowner, established a sawmill in Coloma (located approximately 8 miles northwest of present-day Placerville), which was the site of the initial gold discovery. Shortly thereafter, Charles M. Weber (founder of Tuleburg, which was renamed Stockton) began working the placer deposits of the creek (which now bears his name) in the vicinity of the project area. Weber and his partner William Daylor, who employed local Native Americans in their operations, are believed to have recovered \$50,000 in gold within a short time. The current project area lies at the edge of the Placerville Gold District, whose deposits yielded approximately \$25 million in the precious metal (Wilson & Towne 1978; Gudde 1975).

As the easily reached placer gold deposits of the area began to play out, the regional economy began to diversify. Although some supporting infrastructure sprang up around the mining boom, it was this post-Gold Rush era that set the region on its economic foundation. As shipping and manufacturing operations bypassed the area in favor of other regions, important local operations such as lumber mills, livestock ranching, and orchards quickly established themselves. A number of small lumber mills, usually small partnerships or family-run businesses, sprang up in the area; these include the California Door Company (Caldor), which operated out of nearby

Diamond Springs from the turn of the century until the 1950s when it had grown to be one of the largest lumber operations in the region (Starns 1992). Early settlers planted an increasing number of orchards and vineyards throughout the foothills region causing the area to become an important fruit growing and processing hub, with Placerville serving as the center of the El Dorado County fruit packing industry.

### **Placerville**

The city of Placerville is located along the banks of Hangtown Creek at the intersection of U.S. 50 and SR 49. The town, which derives its name from the placer deposits found in a nearby riverbed, was originally known as Old Dry Diggins and then for a short while as Hangtown. Upon the discovery of gold in 1848, the mining settlement grew swiftly as gold seekers poured into the region. At one point in 1850, Placerville (along with San Francisco and Sacramento) was one of the most populous cities in the state with 40,000 inhabitants. Chaos and lawlessness marked the early years of the region's premier mining camp, but by 1854, the town of Placerville incorporated and assumed some semblance of order. Churches, hotels, and theaters were built, fraternal and civic societies were founded, and a prosperous commercial life developed (Kyle 1990; Ripley 1947). In 1857, Placerville became the county seat (Ripley 1947).

By 1862, the towns population had dropped to 5,000 inhabitants (Kyle 1990; Thomas Fitch and Co. 1862). As a direct route between Carson City and Virginia City to the east, and Sacramento and San Francisco to the west, Placerville served as an important last outpost before crossing the Sierra Nevada, and the town prospered as a result. In 1888, the Central Pacific Railroad was completed to Placerville and was followed thirty years later by the construction of the state highway through the area. (Ripley 1947; Starns 1992.)

### **Missouri Flat**

The project area is located near a former mining community known as Missouri Flat. Missouri Flat was established as early as 1856 and thrived for a number of years as a mining camp. When placer mining began to decline by the late 1800s, the settlement quickly became part of the great fruit-producing region in El Dorado County. By the turn of the 20th century, several fruit processing companies had established themselves in the vicinity of the old mining camp, including the Placerville Fruit Growers Association, the Earl Fruit Company, and the Pacific Fruit Exchange. In addition, the Diamond Springs Lime Plant, Caldor, Seth G. Beech Box and Lumber Company, J. B. Blair Lumber Company, several small mills, mining operations, and

numerous cattle and sheep ranches were located nearby (Starns 1992, Sioli 1998). The fruit, lumber, and lime industries provided employment for local inhabitants for decades, resulting in a gradual increase in settlement and development to the region. Ongoing improvements in the local water supply in the form of ditch construction and the formation of water companies also helped assure the establishment of a permanent community.

In the early part of the 20th century, the Missouri Flat area was made up of large land parcels primarily containing orchards and ranches. The region retained this character until the post-World War II period when many parcels, including those located in the project area, were subdivided as a result of improved transportation and increased development of the greater Placerville area. During this period, the county, with assistance from the Soil Conservation Corps, reconstructed a large reservoir (El Dorado Reservoir) in the area to augment the agricultural water supply. This large reservoir, along with a smaller one constructed in 1939–1940 allowed the agriculture and manufacturing industries to continue to flourish (Starns 1992). In the 1950s and 1960s, El Dorado County enjoyed a steady increase in population growth, mostly as a result of ongoing transportation upgrades. In addition to improvements made to U.S. 50, Missouri Flat Road was straightened to allow higher speed travel in 1944. Originally located further southeast of U.S. 50, a new alignment for Missouri Flat Road was constructed in 1969 between SR 49 at Diamond Springs and Green Valley Road (Starns 1992). That same year, the Missouri Flat and fairgrounds overcrosses were constructed over U.S. 50. These road improvements coincided with increased settlement in the area.

### **Early Road Construction 1850–1865**

The increase in mining activity in the Sierra Nevada foothills, combined with the influx of emigrants into California resulted in a network of roads and trails fanning out from Sacramento. By the early 1850s, the Gold Rush and the advent of statehood provided an impetus for the development of new and improved roads throughout the foothills region (Howard 1998).

Two early transportation corridors, including Missouri Flat Road and U.S. 50, bisect the project area. The former route connected Diamond Springs to Missouri Flat while the latter route gradually evolved from the old Carson Emigrant Trail to its current use as a trans-Sierran artery of the state highway system. This highway (which was the primary route to the gold fields by 1849) was California's first state-sanctioned wagon road. It was incorporated into the state (and later the national) highway



network when it became part of the Interstate Highway System, which linked the east coast of the United States to the west (Supernowicz 1993).

Missouri Flat Road is said to have been a public road as early as June of 1854, running from Diamond Springs northwesterly through Gold Flat to Cold Springs (Starns 1992). The map of the General Land Office (GLO) survey of 1870 appears to show at least part of the alignment from Missouri Flat at El Dorado Road, a short distance northwest of the current project. A 1950 Placerville topographic map shows the current alignment. An example of the earlier (pre-1950) alignment may be seen on County Road 2233 from the southern end of Perks Court. The existing roadway was reconstructed in 1969 from SR 49 at Diamond Springs north to a new intersection at Green Valley Road (Starns 1992).

### **Modern Highways 1895–1959**

The impetus for a modern highway system in California began during the last decade of the nineteenth century, when development and maintenance of good roads became a popular cause throughout the state. Many county-owned roads were in extremely poor condition and had deteriorated to the point that they were barely passable during the winter. By the mid-1890s, public clamor for improved roads became so strident that the state felt compelled to act. In 1895, the California State Legislature created the Bureau of Highways to develop a plan for a new state highway system. The new plan committed the State of California (for the first time in the state's history) to the public ownership and operation of a highway when it took control of the Lake Tahoe Wagon Road (Boudier 1966).

During the early decades of the 20th century, the shift from county to state control of highways was fueled by the growing popularity of automobiles and the demand by motorists for better roads (Blow 1920). In 1913, the Lincoln Memorial Highway was developed as the nation's first transcontinental thoroughfare. The route consisted of various roads that extended from New York to San Francisco. Conceived by inventor Carl G. Fisher, the Lincoln Highway was a novel concept, not only because of its length, but because it was the first concrete, interstate-road system in America (Lincoln Highway Association 1935; Hokanson 1985). One segment of the Lincoln Highway (present-day U.S. 50) was constructed between Sacramento and Placerville between 1913 and 1915. It ran east from the city of Folsom in the vicinity of Missouri Flat to Placerville (Derr 1996; State of California, Department of Public Works 1938).

In the 1920s, the newly formed California Highway Commission designated 64 routes as state highways, including present-day U.S. 50 (Boudier 1966). In 1921, Congress passed the Federal Highway Act, which provided \$75 million in federal funds for projects that would “expedite the completion of an adequate and connected system of highways, interstate in character.” (Hokanson 1988). The legislation also paved the way for a road-marking system in which interstate roads would be designated “U.S. Highway[s]” and uniformly marked with federal route numbers (Lincoln Highway Association 1935). Consequently, by 1925, the Lincoln Highway in the east and midwest became U.S. 30. The section from Wendover, Utah, to San Francisco eventually became known as U.S. 50. Initially, two routes of the Lincoln Highway spanned through northern California. The southern route, which passed through Placerville, became U.S. 50. The northern portion of the Lincoln Highway, which traveled through Auburn, became U.S. 40. This northern route became part of the “Victory Highway,” which commemorated the veterans of World War I. As a result, U.S. 50 emerged as the sole Lincoln Highway route in California. (Kilcline 1952; Lincoln Highway Association 1920.)

Highways constructed in the early part of the 20th century were designed for automobiles traveling at slow speeds and were often narrow curvy corridors with short radii, many of them 100 feet or less. Beginning in the 1930s, the advent of automobiles with increased speeds created the need for safer and better-engineered roads. Over the following decades, improvements such as resurfacing existing roadways and constructing new and improved alignments were completed on highways throughout the United States including U.S. 50 (Derr 1996; State of California, Department of Public Works Division of Highways 1937).

The portion of present-day U.S. 50 running from Folsom to Placerville was constructed as an upgrade improvement in 1937–1938. Sections of this stretch of highway were realigned and straightened to eliminate numerous prior curves. In addition, a new bridge (Weber Creek bridge) was constructed over Weber Creek near Missouri Flat. The construction work for the bridge and roadway began in 1937 and was completed in 1938 (State of California Department of Public Works 1938). Further highway improvements involving alignment changes and the construction of two new bridges over Weber Creek were completed in the early 1960s.

Enhancements to the transportation infrastructure allowed for greater ease of interstate commerce and mountain settlement. Modern U.S. 50 continues to serve as

an important transportation route through the northeastern portion of California over the Sierra Nevada.

### **Water Conveyance Systems**

As early as the 1850s, ditches were constructed in El Dorado County to assist miners in their gold digging efforts. Early gold mining involved panning and sluicing on the riverbeds. As the easy-to-collect gold in the rivers was quickly depleted, more intense mining methods such as hydraulic mining were introduced. A key ingredient to hydraulic mining was water. Groups of miners formed corporations to construct water conveyance systems comprised of ditches and reservoirs to supply water to the areas that needed it, typically in dryer and lower elevations (Starns 1992). As all mining declined in the 1860s, greater emphasis was placed on ranching and growing crops. To suit their agricultural needs, farmers in the Placerville area expanded the existing hydraulic system. By 1909, 31% of the farms in El Dorado County were irrigated. Ten years later, that number had risen to 54% (Derr 1996).

These early mining and agricultural ditches were typically constructed with rough earthen linings and conveyed water over relatively short distances. Water was diverted into the ditches by temporary brush dams constructed across the lower courses of tributaries in the foothills of El Dorado County.

In 1852, the earliest system in the region was developed by the South Fork Canal Company, which incorporated in July of that year. Engineers John Kirk and Francis A. Bishop organized the company to supply water to mines in the vicinity of Placerville (JRP Historical Consulting Services and California Department of Transportation 2000). Kirk was a pioneer in the area of water system development and was associated with major engineering works, especially in the city of Sacramento where he was involved with the city's first municipal water works and planking of its major commercial streets (JRP Historical Consulting Services and California Department of Transportation 2000). The irrigation system he and Bishop developed with the South Fork Canal Company diverted water from the American River South Fork to the Placerville and Coon Hollow mines. Between 1865 and the early 1870s, numerous ditches were surveyed and water rights secured from creeks throughout the county.

In 1873, the title to South Fork Canal Company's ditch system was transferred to the El Dorado Water and Deep Gravel Mining Company, a San Francisco-based corporation comprised of prominent investors (including Bishop) (JRP Historical

Consulting Services and California Department of Transportation 2000). Between 1873 and 1876, the El Dorado Water and Deep Gravel Mining Company constructed the El Dorado Main Canal to divert water from the American River South Fork below the Silver Fork Confluence (Derr 1996). The South Fork Canal and its extensions totaled approximately 200 miles and conveyed water from the river to Placerville and the Coon Hollow mines (Starns 1992). More than 1,000 laborers, including Chinese gangs, were involved in the effort which required the expertise of wall surveyors, blasters and tunnelers, stone masons, and quarry men. Upon its completion in 1876, the South Fork Canal was the most expensive ditch constructed mile for mile in California during the hydraulic mining era. (JRP Historical Consulting Services and California Department of Transportation 2000.) Most likely at some point between 1873 and 1880, the El Dorado Water and Deep Gravel Mining Company constructed the Missouri Flat Ditch as part of the South Fork Extension. Sources at the time describe the Missouri Flat Ditch as running from the Coon Hollow Reservoir through Chili Ravine, across Weber Creek to Missouri Flat, and to the El Dorado Reservoir (Derr 1996).

The Placerville Gold Mining Company assumed ownership of the water system by 1916. Later that year, the title to the system was transferred to the Western States Gas Electric Company (predecessor of Pacific Gas and Electric Company). Western States Gas and Electric Company made several improvements to the system, including enlarging a portion of the ditch known as Fourteen Mile Tunnel, constructing a forebay, and diverting water to its El Dorado Power Plant. These changes in part decreased the amount of water available for the Camino and Placerville area (Starns 1992).

During this period, it became increasingly evident that an irrigation district needed to be formed in the county to meet water needs using the Cosumnes River as the main water supply. In response, the El Dorado Water Company was formed out of the Water Users Association in 1919. This water company assumed control of segments of the El Dorado Canal required for irrigation as well as rights to purchased water from Western States Gas and Electric Company (Starns 1992).

By the 1920s, the water irrigation system in the Placerville region consisted of the El Dorado Canal, Iowa, Webber, Reservoir Hill, Missouri Flat, and Gold Hill ditches. Included in this water system was the Farmer's Free Ditch, constructed in the vicinity of Missouri Flat in the mid-1920s by a group of farmers for agricultural purposes. The Farmer's Free Ditch, also known at one point as the Missouri Flat Farmer's

Extension Line, was fed by Weber Creek and parallels part of the Missouri Flat Ditch. The ditch ran from Weber Creek near present day U.S. 50 and traveled along the south bank to the vicinity of Missouri Flat and finally northwest to present-day Greenstone Country, a rural subdivision. It was constructed with the provision that the water would be delivered free for the farmers' maintenance and presumably was created solely for the purpose of irrigating the vicinity of present-day Greenstone Country (Starns 1992; Derr 1996).

During this time, the El Dorado Irrigation District was formed and initially covered an area of roughly 40,000 acres. In 1927, the El Dorado Irrigation District purchased the Missouri Flat Ditch as part of the South Fork Extension Ditch System. By 1930, the El Dorado Irrigation District had also assumed control of the Farmer's Free Ditch. The Missouri Flat Ditch was connected to the Diamond Ditch that created a flexible irrigation system that could supply additional water for irrigation, mining, or milling (Starns 1992; Derr 1996). Changes were also made to allow the Missouri Flat Ditch to supply the Farmer's Free Ditch when Weber Creek levels were too low to supply the latter ditch. One method involved dropping water from a Missouri Flat Ditch turnout located upstream from Missouri Flat and El Dorado Roads into the Farmer's Free Ditch (Starns 1992). In 1937, the El Dorado Irrigation District purchased the El Dorado Water Corporation. Over the following years, the irrigation system underwent several more improvements to supply additional water to businesses in the area.

In 1962, the Bureau of Reclamation constructed the Diamond Springs Main system (DSM), which slowly replaced the ditch system as a means to convey water to the Placerville and Diamond Springs area. Between 1965 and 1968, the system was abandoned (Starns 1992).

## **Regulatory Setting**

### ***State Regulations***

CEQA requires public or private projects financed or approved by public agencies to assess the effects of the project on cultural resources that might qualify as being "historical," as that term is defined by statute. (See Public Resources Code, Section 21084.1.) Potentially "historical" resources could include buildings, sites, structures, or objects, each of which may have historical, architectural, cultural, or scientific importance.

CEQA requires that alternative plans or mitigation measures must be considered if a project results in an effect that may cause a substantial adverse change in the significance of an historical resource. Prior to the assessment of effects or the development of mitigation measures, it must first be determined whether a particular resource is “historical”. The steps that are taken in a cultural resources investigation for CEQA compliance are as follows:

- Identify potential historical resources
- Evaluate whether potentially historical resources are in fact historical
- Evaluate the effects of a project on all historical resources

CEQA guidelines define three ways that a property can qualify as a significant historical resource for the purposes of CEQA review: 1) if the resource is listed in or determined eligible for listing in the California Register of Historical Resources (CRHR), 2) if the resource is included in a local register of historical resources, as defined in section 5020.1(k) of the Public Resources Code or identified as significant in an historical resource survey meeting the requirements of section 5024.1(g) of the Public Resources Code unless the preponderance of evidence demonstrates that it is not historically or culturally significant, or 3) the lead agency determines the resource to be historically significant or significant in the architectural, educational, social, political, military, or cultural annals of California, as supported by substantial evidence in light of the whole record (California Code of Regulations, Title 14, Division 6, Chapter 3, section 15064.5).

The CRHR was created by the State Legislature in 1992 and is intended to serve as an authoritative listing of historical and archaeological resources in California. Additionally, the eligibility criteria for the CRHR are intended to serve as the definitive criteria for assessing the significance of potential “historical resources” for purposes of CEQA. In this way establishing a consistent set of criteria to the evaluation process for all public agencies statewide.

For a potential historical resource to be eligible for listing in the CRHR, it must be significant at the local, state, or national level under one or more of the following four criteria:

- it is associated with events that have made a significant contribution to the broad patterns of California’s history and cultural heritage;
- it is associated with lives of persons important in our past;

- it embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual or possesses high artistic values; or
- it has yielded, or may be likely to yield, information important in prehistory or history.

Historical resources automatically listed in the CRHR include those historic properties listed in, or formally determined eligible for listing in, the NRHP.

#### *Unique Archaeological Resource*

CEQA (Public Resources Code, Division 13, Section 21083.2) states that a *unique archaeological resource* is an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

- contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information;
- has a special and particular quality such as being the oldest of its type or the best available example of its type; or
- is directly associated with a scientifically recognized important prehistoric or historic event or person.

#### *Criteria for Determining Impact Significance under California Law*

According to the State CEQA Guidelines, a project with an effect that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant impact on the environment (CEQA Guidelines rev. 1998, Section 15064.5[b]). The State CEQA Guidelines further state that a substantial adverse change in the significance of an historical resource means the physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired. Actions that would materially impair the significance of an historic resource are those that would demolish or adversely alter those physical characteristics that convey its historical significance and qualify it for inclusion in the CRHR or in a local register or survey that meet the requirements of sections 5020.1(k) and 5024.1(g) of the Public Resources Code. See section 5.3.9, “Cultural Resources”, for a discussion of CEQA impacts.

### **Federal Regulations**

The project requires compliance with Section 106 of the National Historic Preservation Act (NHPA). Section 106 requires that before beginning any undertaking, a federal agency must take into account the effects of the undertaking on historic properties and afford the Advisory Council on Historic Preservation (ACHP) an opportunity to comment on these actions. This project is considered a federal undertaking because of the County's potential application for federal funding.

The Section 106 review process involves six steps:

- initiating consultation and public involvement,
- identifying and evaluating historic properties,
- assessing the effects of the undertaking on properties that are eligible for listing in the NRHP,
- consulting with the State Historic Preservation Officer (SHPO) and other agencies for the development of a memorandum of agreement (MOA) that addresses the treatment of historic properties if such properties would be adversely affected,
- receiving ACHP comments on the MOA or results of the consultation, and
- implementing the project according to the conditions of the MOA.

For this project, not all six steps will need to be implemented because this project will not result in an adverse effect on historic properties.

Because the proposed action must comply with Section 106 of the NHPA, federal significance criteria are also applied in the following analysis. For federal projects, cultural resource significance is evaluated in terms of eligibility for listing in the NRHP. NRHP criteria for eligibility are defined as follows:

The quality of significance in American history, architecture, archeology, and culture is present in districts, sites, buildings, structures, and objects of state and local importance that possess integrity of location, design, setting, materials, workmanship, feeling and association, and that:

- are associated with events that have made a contribution to the broad pattern of our history;
- are associated with the lives of people significant in our past;
- embody the distinct characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that



- represent a significant and distinguishable entity whose components may lack individual distinction; or
- have yielded, or are likely to yield, information important in prehistory or history (36 CFR 60.4).

To comply with Section 106 of the NHPA, the cultural resources studies completed for this project were prepared in accordance with Caltrans and FHWA guidance. A summary of Section 106 compliance process for this project is contained in section 3.9.1, “Affected Environment” for historic and archeological preservation and in Appendix B of this joint document.

#### *Criteria for Determining Impact Significance under Federal Law*

Under federal regulations, a project has an effect on a historic property when the project could alter the characteristics of the property that may qualify the property for inclusion in the NRHP, including alteration of location, setting, or use. A project may be considered to have an adverse effect on a historic property when the effect may diminish the integrity of the property’s location, design, setting, materials, workmanship, feeling, or association. Adverse effects on historic properties include, but are not limited to,

- physical destruction or alteration of all or part of the property;
- isolation of the property from, or alteration of, the property’s setting when that character contributes to the property’s qualifications for listing in the NRHP;
- introduction of visual, audible, or atmospheric elements that are out of character with the property or that alter its setting;
- neglect of a property resulting in its deterioration or destruction; or
- transfer, lease, or sale of the property (36 CFR 800.9).

### **3.9.2 Environmental Consequences**

#### **Methods**

A record search for the APE and a 0.50-mile radius was conducted at the North Central Information Center at California State University, Sacramento. Sources consulted included listings for the NRHP, the California Inventory of Historic Places, California Points of Historic Interest, and California State Landmarks. Historic property directories for the project area were also consulted. In addition, in June 2001, letters were sent to the Heritage Association of El Dorado County and El Dorado County Historical Museum requesting input or comments on the potential for

the proposed action to affect cultural resources (see project HPSR [Jones & Stokes 2002j]). No comments were received from these organizations.

Research was conducted at the various repositories in the local area, including the El Dorado County Assessor's Office, El Dorado County Recorder's Office, El Dorado County Library, the California Room of the California State Library, and the Caltrans Transportation Library History Center, where local histories, newspaper indices, maps, and city directories were consulted. These references were used to build a context and themes within which architectural resources could be evaluated for significance.

An APE was defined for the project. ACHP regulations define the APE as a "geographic area or areas within which an undertaking may cause changes in the character or use of historic properties (36 CFR 800.2[c]). The APE for this project is based on the proposed action footprint and the total right-of-way width (existing and required) throughout the study area. The archaeological APE includes all areas where project-related ground disturbance would occur, including full fee title right-of-way acquisition for roadway widening, fill, and excavation, and for construction easements, staging areas, and access. The architectural APE includes those parcels containing structures, in their entirety, where a partial or full acquisition is needed for roadway right-of-way. The draft APE was prepared by El Dorado County and submitted to Caltrans and FHWA for review and approval. FHWA approved the draft APE map on April 23, 2001 and an amendment to the APE map on May 14, 2001. FHWA approved a final amendment on November 26, 2001. A copy of the approved map is contained in the project HPSR (Jones & Stokes 2002j).

In June 1996 and June and November 2001, Jones & Stokes conducted a pedestrian archeological survey using intensive survey techniques (less than 15 meters (49 feet) between survey transects). All of the archaeological APE was inspected excluding any obvious exceptions (such as paved surfaces and rock faces of steep road cuts). In the ravine near Weber Creek, where blackberry thickets exist, the area was inspected with approximately 5-7 meters (16-23 feet) between transects, and a machete was used to clear vegetation. Where moderately heavy grasses occurred, footwear was used to occasionally scrape the surface. Where highway construction has created massive disturbance (road cuts and fills), the survey focused on native surfaces.

On June 5 and June 12, 2001, a Jones & Stokes historian conducted an intensive architectural survey of the architectural APE. The Jones & Stokes historian has a

Masters of Art in history, 5 years of experience conducting architectural surveys and historical research for cultural resource projects in California, and meets the Secretary of the Interior’s professional qualification standards for historians and architectural historians.

During the field survey, 27 properties were identified and recorded. Of these 27 properties, 12 were constructed in or before 1956. The 12 properties in the APE were fully evaluated and documented on DPR 523 forms, in keeping with the standards of the DPR Office of Historic Preservation. In addition, building construction dates were confirmed through the county assessor’s office.

Eight engineering structures were also identified and recorded. Four of these engineering structures (Old Weber Creek Bridge, Old Highway 50 segment, Missouri Flat Ditch, and Farmer’s Free Ditch) were constructed in or before 1956. These pre-1957 structures were previously recorded and evaluated. To determine the current validity of the previous recordation, Jones & Stokes revisited the sites, photographed the resources, and provided any updated information on the appropriate DPR forms in keeping with the standards of the DPR Office of Historic Preservation.

Under CEQA, no “unique archaeological resources” (Public Resources Code, Division 13, Section 21083.2) are located in the project area. Furthermore, no archaeological resources are located in the project area.

### **Permanent Impacts: 4-Lane Tight Diamond Interchange**

#### ***Impact CR1: Potential Damage to Currently Unknown Cultural Resources***

The proposed action may result in the destruction of unknown cultural features located within the project area. Field surveys can locate only those cultural resources with an above ground component. Cultural resources may be buried under alluvial sediments and may not be locatable by surface inspection alone. Additionally, surface visibility limitations may prevent the discovery of some cultural resources. It is possible that construction or operation activities will uncover previously unknown cultural resources. This impact is considered to be adverse.

#### ***Mitigation Measure CR1a: Implement Procedures for the Unanticipated Discovery of Cultural Resources***

If historical or unique archaeological resources are accidentally discovered during construction, the County shall take steps to provide for an immediate evaluation of the find by a qualified archaeologist. If the find is determined to be an historical or

unique archaeological resource, the County shall make available contingency funding and a time allotment sufficient to allow for implementation of avoidance measures or appropriate mitigation. Work may continue on other parts of the building site while historical or unique archaeological resources mitigation takes place (CEQA Guidelines rev. 1998, Section 15064.5[f]).

If human bone is found as a result of any construction or operational activity, the County's contractor will be required to stop all disturbance activities and notify the El Dorado County Coroner within 48 hours in compliance with California Public Resource Code 5079.94 and 5097.98. If the coroner determines that the remains are Native American, the California Native American Heritage Commission will be notified by the County.

The lead agency shall work with the appropriate Native Americans as identified by the Native American Heritage Commission as provided in Public Resources Code 5097.98. The applicant may develop an agreement for treating or disposing of, with appropriate dignity, the human remains and any items associated with Native American burials with the appropriate Native Americans as identified by the Native American Heritage Commission (CEQA Guidelines rev. 1998, Section 15064.5[d]).

Implementation of Mitigation Measure CR1a would reduce this impact as it would provide a means for data recovery.

**Temporary Impacts: 4-Lane Tight Diamond Interchange**

The proposed action would not result in any temporary impacts.

**Cumulative Impacts: 4-Lane Tight Diamond Interchange**

See Chapter 4 for a discussion of cumulative impacts related to cultural resources.

**No-Action Alternative**

Because no project-related grading would occur, there would be no potential for damage to currently unknown cultural resources.

## **3.10 Earth Resources and Hazardous Materials**

The information below is summarized from the project earth resources report (Jones & Stokes 2002d); the seismic assessment conducted for this project (Quincy Engineering, Inc. 2001), the project's geologic/geotechnical review (Taber Consultants 2001a), and the project's initial site assessments (Taber Consultants 2001b and 2003); these reports are available for review at County offices (see the List of Technical Studies in the Introduction of this joint document for the address and phone number of County offices). This section addresses geologic, seismic, and hazardous materials issues.

### **3.10.1 Affected Environment**

#### **Geology**

##### ***Regional Geology***

The project area is in the Sierra Nevada geomorphic province, which extends approximately 644 kilometers (400 miles) from Lassen Peak in the north to the Mojave Desert in the south. Much of the Sierra Nevada batholith is composed of Mesozoic plutonic and volcanic rocks. A metamorphic belt, characterized by extremely folded and faulted Paleozoic to Mesozoic metavolcanic and metasedimentary rocks, lies along the western edge of the batholith.

##### ***Project Area Geology***

The project area lies within the metamorphic belt along the western edge of the Sierra Nevada batholith. Bedrock in the project area consists of weathered metavolcanic rock and metasedimentary deposits. A description of the geology of the project area follows.

##### ***Mariposa Formation***

The Mariposa Formation, comprised of Mesozoic slate in uniformly thick and nearly vertical beds, is found in the southern central portion of the project area. The Mariposa slate contains the vein system that constitutes the Mother Lode and was formed from fissures that developed in a zone of reverse faulting. Traces of the Foothill Fault System, including the Melones Fault running through the city of Placerville and the Bear Mountain Fault running adjacent to Folsom Lake, are also contained within the Mariposa Formation, but not within the project area.

### ***Logtown Ridge Formation***

The Mesozoic Logtown Ridge Formation underlies the southwestern portion of the project area and is dominated by thick piles of basaltic and andesitic pyroclastic deposits. It consists of severely weathered metavolcanic rocks (metamorphosed mafic breccias, flows, pyroclastic and volcanoclastic rocks).

### ***Mesozoic Granitic Rocks***

Mesozoic granitic rocks—predominantly granite and granodiorite—underlie approximately 90% of the project area and comprise much of the Sierra Nevada batholith.

### ***Topography***

The topography at the site is a combination of natural landscapes that gently slope into steep hills with associated drainages and artificial road fill. The fill is built up to create provide a foundation for the current interchange system.

The proposed action is located in a dissected, westward-sloping upland area. Natural slopes in the project area range from gentle to steep. No evidence of slope instability, either on natural slopes or existing road cuts and fills, was observed during a reconnaissance visit to the project area. Natural waterways, including Indian Creek, Mound Springs Creek, and Weber Creek cut channels that cross and run parallel to the project site.

### **Seismicity**

The project area lies between 2 seismically active zones: the San Francisco Bay area to the southwest and the Basin and Range area to the northeast. As a result, earthquakes have occurred in the regions surrounding the project area. Injury to people and damage to structures during earthquakes can be caused by actual surface rupture along an active fault or by ground shaking from a nearby or distant fault. A description of these hazards and their potential effect on the project area follows.

### ***Surface Rupture and Faulting***

Taber Consultants (2001a) conducted a Geologic/Geotechnical Review of the project area. The report concludes that no faults are indicated to pass through either Missouri Flat Road or the Weber Creek bridges and that the nearest active fault is the Gills Mountain Fault, located approximately 3.2 kilometers (2.0 miles) east of the Missouri Flat Road interchange and 3.0 kilometers (1.9 miles) east of the Weber Creek bridges. Furthermore, the report identifies the potential for seismically induced hazards (such

as soils liquefaction, lateral spreading, and densification), with the possible exception of any uncontrolled/loose approach embankment at the Weber Creek bridges, to be low.

The California Division of Mines and Geology has not designated any Alquist-Priolo Special Studies Zones (California Division of Mines and Geology 1995) in the project area. The Alquist-Priolo Act of 1971 requires that special geologic studies be conducted prior to development to locate and assess any active fault traces in areas around known active faults. The law's intention is to minimize damage from fault rupture by prohibiting construction across an active fault. Specifically, the law requires that buildings be set back at least 15 meters (50 feet) from any active fault traces found during the investigation.

### **Ground Shaking**

Although the hazard of surface rupture is generally limited to the narrow strip of land immediately adjacent to an active fault, earthquake-induced ground shaking poses a more serious threat to people and structures in the project area because even distant earthquakes can greatly affect the project area. Ground shaking at a particular location depends on several factors:

- earthquake magnitude (i.e., a measure of total energy released by the fault rupture),
- epicentral distance (i.e., the distance from the center of the fault rupture to the location of interest), and
- subsurface conditions of the geologic and soil units at the location of interest.

According to the Uniform Building Code's map United States seismic risk zones, the project area is located in Seismic Risk Zone 3, where the severity and probable damage from nearby earthquakes is moderate (International Conference of Building Officials 1995). Seismic Risk Zone 3 corresponds to intensity VII or higher of the Modified Mercalli Scale and a Richter Scale magnitude of 5.0 to 5.9.

### **Other Geologic Conditions**

Taber Consultants (2001a) concludes that no overriding geologic hazards have been identified within the project limits and foundation support is considered available for the proposed Missouri Flat Road interchange improvements and bridge widening. Their report indicates that no landslides are shown on published mapping within the project interval, and that none were observed at the time of site reconnaissance. Furthermore, no evidence of other geologic hazards such as settlement, very soft

soils, and severe erosion were observed. Taber Consultants conclude that the potential for erosion due to surface runoff is primarily limited to embankment slopes and areas disrupted by grading during construction of the proposed action. Construction term erosion control is expected to be available by means of typical good construction practices. Long-term erosion control, particularly for embankment slopes, is anticipated to be available by means of establishing vegetation and controlling surface water. (Taber Consultants 2001a)

### **Occurrence of Asbestos**

Taber Consultants (2001a) indicates that published mapping shows an isolated band of exposed ultramafic rocks occurs approximately 2.8 kilometers (1.7 miles) east of the Missouri Flat Road Interchange and 2.2 kilometers (1.4 miles) east of the Weber Creek bridge. Ultramafic rocks occurring locally consist of serpentinite, which can, but do not always, contain naturally occurring asbestos. In the County, chrysotile is the most common naturally occurring asbestos, and actinolite and tremolite are also known to be present. However, such materials are not located within the limits of the project area (Taber Consultants 2001a).

### **Weber Creek Bridge Seismic Stability**

A Seismic Assessment Report for the Weber Creek Bridge No. 25-0005R/L (at U.S. 50) was prepared by Quincy Engineering, Inc. (2001). The report concludes that the four-span, composite steel girder bridge is in an overall good condition. However, in the event of a significant seismic event, the bridge superstructure could collapse under several different mechanisms, including the following:

- the bearing anchor bolts and/or pin caps could fail and allow the superstructure to become unseated at the piers and abutments; and
- the cross bracing at each support could buckle under the transverse seismic loads resulting in the lateral distortion of the girder webs and loss of girder stability. (Quincy Engineering, Inc. 2001).

The report recommends that the bridge be seismically retrofitted either as independent project or as part of a proposed bridge widening project. The project analyzed in this report includes seismically retrofitting this bridge, in accordance with the recommendations of the Quincy Engineering, Inc. report.

### **Hazardous Waste Evaluation**

Taber Consultants prepared an Initial Site Assessment (2001) for the project. The following tasks were performed for this assessment:



- a search of federal, state, and local regulatory agency databases;
- a review of available literature on regional and/or local physical setting;
- identification of past uses of the project area and adjacent properties;
- interviews with County Environmental Management Department personnel and other knowledgeable persons;
- a review of aerial photography covering the project site; and
- a limited site reconnaissance of the project site and adjacent properties.

The conclusions of the ISA indicate that the project site has historically, over the last 60 years or more, exhibited primarily undeveloped, pastureland, and rural residential uses. Commercial development appeared since construction of existing U.S. 50. Previous reports indicate the use of a former residence at 3943 Missouri Flat Road as a gasoline station beginning around the 1960's; the use of a vacant lot north of Missouri Flat Road and west of U.S. 50 for equipment storage and possibly maintenance in the early 1970s; and the possible use of a residence located at 6880 Perks Court for commercial automobile maintenance in the early 1970s. Additionally, vacant parcels north of Missouri Flat Road and west of U.S. 50 were used for explosives detonation in the past. No other evidence indicating the presence of likely presence of hazardous substances or petroleum products exist within the project area.

The ISA concludes that the potential for project construction workers to encounter significant hazardous materials or petroleum product contamination within the project corridor is generally low. However, information obtained during the study of the project area indicates that additional investigation should be conducted for the properties described below. If hazardous materials or petroleum product contamination is found, the ISA concludes that such conditions can be mitigated by typical engineering practice (see Mitigation Measure ER7a below):

- parcels north of Missouri Flat Road and west of U.S. 50 (potential for hazardous materials from use for explosive detonation);
- 3943 Missouri Flat Road (potential for soil or groundwater contamination from leaking underground storage tank);
- 4415 Missouri Flat Road (potential for soil or groundwater contamination from leaking underground storage tank, currently under oversight by the Central Valley Regional Water Quality Control Board [RWQCB]);

- 281 Industrial (potential for soil or groundwater contamination from leaking underground storage tank, currently under oversight by the RWQCB);
- 6848 Perks Court (potential for soil or groundwater contamination from leaking aboveground storage tank and pipe that could be a past underground storage tank pipe, and potential for asbestos contamination due to age existing structures on the property);
- 6868 Perks Court (potential for soil or groundwater contamination from past use as a commercial automobile maintenance area);
- 6880 Perks Court (potential for soil or groundwater contamination from propane filling station use of aboveground storage tanks for propane and kerosene);
- parcel 327-130-19 (potential for asbestos contamination due to age existing structures on the property); and
- previously existing service station (potential for soil or groundwater contamination from past construction of the Missouri Flat Road interchange, in the event one of the structures demolished for the interchange was used as a service station) (Taber Consultants 2001b).

A supplemental site assessment (Taber Consultants 2003) for APN 327-130-20 was performed in summer 2003. APN 327-130-20 is occupied by the residence at 6868 Perks Court and H&S Gas Mart at 6880 Perks Court. The purpose of this supplemental assessment was to identify evidence of the presence or likely presence of hazardous substances or petroleum products on the property that could affect purchase of the property or the feasibility or cost of the proposed interchange project. This study indicated the potential presence of contaminated soils on-site. Although the existence and extent of the contamination, if any, will need to be established with further study, it is expected that such contamination can be mitigated with typical engineering practices.

### **Regulatory Overview**

The following local policies and ordinances are in place to protect people and property from geologic hazards.

### ***Grading, Erosion, and Sediment Control Ordinance***

The County grading, erosion, and sediment control ordinance regulates the grading within the unincorporated areas of the county to safeguard life, limb, health, property, and public welfare; to avoid pollution of water courses with nutrients, sediments or other earthen materials generated or caused by surface runoff on or across the permit area; and to ensure that the intended use of a graded site is consistent with the County General Plan, any Specific Plans, and any applicable ordinances including the Zoning

Ordinance and the Uniform Building Code (El Dorado County 1991). However, grading done by or under the supervision or construction control of a public agency that assumes full responsibility for the work to the extent required by law is exempt from the ordinance (Section 15.14.060 B).

Caltrans' statewide Stormwater Management Plan (SWMP) describes the minimum procedures and practices needed to reduce the discharge of pollutants into storm drainage systems owned and protected by Caltrans. The SWMP is a required element of Caltrans' statewide National Pollutant Discharge Elimination System (NPDES) Stormwater Permit and is consistent with California's NPDES General Permit for Stormwater Discharges Associated with Construction Activity for construction projects that disturb more than 2 hectares (5 acres) of total land area or are not a part of a larger common development. Caltrans' SWMP includes a series of available Best Management Practices (BMPs) that can be used for control of construction-related pollution, including soil stabilization procedures, sediment control practices, and wind erosion control measures. In practice, the construction contractors for each project are responsible for implementing the prescribed BMPs and ensuring that they are inspected and maintained throughout the life of the construction activities.

### ***Asbestos Control***

In April 1998, the County Board of Supervisors adopted an interim ordinance to ensure that construction activities (including County public works projects) in the county are done in a manner that minimizes the release of asbestos fibers into the air. The ordinance requires builders in serpentine areas to:

- pre-wet work areas;
- limit vehicle access and speed;
- cover areas exposed to vehicle travel with non-asbestos material;
- maintain high moisture conditions or apply a “binder” to seal fibers of disturbed surfaces or stockpiles; and
- provide employee notification of potential exposures and risk.

On February 3, 2000, the County enacted the Naturally Occurring Asbestos and Dust Protection Ordinance. This new ordinance is stronger than the 1998 interim ordinance by requiring preparation of “Asbestos Hazard Dust Mitigation Plans” that must be reviewed and approved by the County Air Pollution Control District before ground disturbance or grading activities can begin. These plans must contain specific

information not required by the 1998 ordinance, including air monitoring and specific measures to prevent the release of asbestos-laden dust.

### **3.10.2 Environmental Consequences**

#### **Methods**

Evaluation of the impacts in this section was based on professional standards and the results of technical reports prepared for the project. This impact analysis assumes that the project proponent (the County) will conform to County building standards, grading permit requirements, and erosion control requirements. This impact analysis also assumes that all disclosed project effects apply to both construction at the interchange and bridge sites unless otherwise indicated.

#### **Permanent Impacts: 4-Lane Tight Diamond Interchange**

##### ***Impact ER1: Change in Topography from Grading Activities during Construction***

Implementation of the proposed action would result in the construction of new ramps and embankments requiring the excavation of roadbed and/or ground surface material and the replacement of equivalent amounts of fill material. Grading that would occur during project construction would primarily disturb areas that already have been graded for prior road construction, and the increased disturbance would be minimal. This impact is considered to be adverse since soil erosion could occur if standard grading permit requirements are not followed.

##### ***Mitigation Measure ER1a: Approve Grading Design Plans Consistent with County and Caltrans Grading Requirements***

The County or its contractor will comply with County grading requirements, found principally in the County of El Dorado Design and Improvements Standards Manual, Volumes IV and V, and Caltrans' standard specifications for earthwork. Prior to the issuance of grading permits, grading design plans will incorporate the findings of detailed geologic and geotechnical investigations. Erosion-control plans, specifications, and an estimate will also be included in the project construction documents, which require that all soil directly or indirectly disturbed during construction be treated and stabilized with erosion control measures.

Implementation of this measure will reduce this impact since compliance with County and Caltrans' earthwork requirements will ensure that soil erosion will be controlled.

***Impact ER2: Potential for Unstable Slope Conditions from Grading Activities during Construction of Embankments and Cut Slopes***

Implementation of the proposed action would result in construction activities involving excavations into steep slopes to construct embankments and permanent cut slopes. Excavating into existing steep slopes could lead to unstable ground surfaces, inducing ground failure. This impact is considered adverse since unstable soil conditions could occur if standard specifications for earthwork are not followed.

***Mitigation Measure ER2a: Approve Grading Design Plans Consistent with County and Caltrans' Standard Earthwork Specifications***

The County or its contractor will implement construction standards for embankment and permanent cut slopes to maintain slope stability and minimize the potential for slope failure during construction, based on the County's standard specifications for earth work (found principally in the County of El Dorado Design and Improvements Standards Manual, Volume IV and V). Requirements for the embankment slope and actual dimensions of structures will be incorporated in the final design plans before County and Caltrans approval. Erosion-control plans, specifications, and estimates will also be included in the project construction documents, which require that all soil directly or indirectly disturbed during construction be treated and stabilized with erosion-control measures.

Implementation of this measure will reduce this impact because slope stabilization and erosion-control measures will be implemented to ensure that ground failure does not occur.

***Impact ER3: Potential for Structural Damage from Development in Seismic Risk Zone 3***

The project site is not located in an Alquist-Priolo Special Studies Zone or a known active fault zone, but implementing the project would result in continued development in Uniform Building Codes Seismic Risk Zone 3, where earthquake severity and probable structural damage from nearby earthquakes would be moderate (United States Geological Survey 1984). Structures not built according to seismic safety standards are more susceptible to damage (and, subsequently, to increased risk of injury to persons) than structures built in accordance with those codes. At the Weber Creek bridges site, existing foundation stability/capacity with respect to seismic loading will be addressed as part of the seismic retrofit for the bridges (Taber Consultants 2001b). This impact is considered adverse because given the

unpredictability of the occurrence of a seismic event, the project could expose people or structures to seismic groundshaking.

***Mitigation Measure ER3a: Approve Final Design Plans That Are Consistent with Caltrans and Uniform Building Code Seismic Safety Standards***

The County or its contractor will construct all proposed structures so that they conform to the latest Caltrans and Uniform Building Code standards that establish requirements for seismic safety.

Implementation of this measure would reduce this impact since conformance with Caltrans and Uniform Building Code standards will ensure that the project is constructed to resist stresses developed by earthquakes.

***Impact ER4: Potential for Structural Damage from Development on Materials Subject to Liquefaction***

Moderate to strong ground shaking in the project area could be caused by a large earthquake on nearby faults, resulting in subsequent liquefaction in clay-free soils. This impact is considered adverse because the project could expose people and structures to seismic-related ground failure, including liquefaction, if seismic safety requirements are not followed.

***Mitigation Measure ER3a: Approve Final Design Plans That Are Consistent with Caltrans and Uniform Building Code Seismic Safety Standards***

The County or its contractor will construct all proposed structures so that they conform to the latest Caltrans and Uniform Building Code standards that establish requirements for seismic safety.

Implementation of this measure would reduce this impact since conformance with Caltrans and Uniform Building Code standards will ensure that the project is constructed to resist stresses developed caused by liquefaction.

**Temporary Impacts: 4-Lane Tight Diamond Interchange**

***Impact ER5: Potential for Increased Short-Term and Long-Term Erosion Rates from Grading Activities***

Implementation of the proposed action would result in construction activities involving ground breaking and removal of vegetative cover, which would lead to increased wind and water erosion rates. Additionally, construction activities may compact the soil, increasing runoff and decreasing the revegetation potential. This impact is considered adverse since construction and grading activities could

accelerate the natural ongoing soil erosion process, and grading operations for the project could lead to a substantial change in short-term and long-term erosion because the project is located in relatively steep terrain and will entail removal of vegetation on uplands and along stream corridors.

- **Mitigation Measure ER1a: Approve Grading Design Plans Consistent with County and Caltrans Grading Requirements.** See Impact ER1 for a description of this measure.

Implementation of this measure would reduce this impact since compliance with grading requirements will ensure that all soil directly or indirectly disturbed during construction be treated and stabilized with erosion-control measures.

***Impact ER6: Potential for Exposure of People to Asbestos***

As described in the setting section above, published mapping shows that no asbestos-containing material is contained within the limits of the project area. However, the potential exists for unknown deposits of asbestos to be disturbed by grading and vehicle traffic, which could affect construction workers and nearby land uses. Therefore, this impact is considered adverse since the proposed action could create a hazard to the public or the environment involving the accidental release of hazardous materials.

***Mitigation Measure ER6a: If Unknown Deposits of Asbestos Are Found During Construction, Comply with El Dorado County's Asbestos Ordinance***

If unknown deposits of asbestos are found during construction, the County's contractors will be required to comply with El Dorado County's Naturally Occurring Asbestos & Dust Protection Ordinance and associated control measures in force in El Dorado County at the time the project undergoes construction. The ordinance requires that the project proponent (DOT) prepare an Asbestos Hazard Dust Mitigation Plan (HDMP) to protect the public's health by minimizing the potential for release of asbestos dust emissions during and after construction activities. The HDMP includes Best Management Practices for management of asbestiform material including the following: watering/maintaining wet surfaces at all times during potential disturbance periods; conducting air quality monitoring pursuant to guidelines set forth in the ordinance; avoiding serpentine materials to the extent feasible and covering disturbed serpentine areas; and limiting speeds to 10 miles per hour or less at the construction site.

Implementation of this measure will reduce this impact since, if asbestos deposits are found during construction, measures will be taken to minimize the potential for release of asbestos dust emissions.

***Impact ER7: Potential for Exposure of Previously Unknown Hazardous Wastes to Construction Workers and/or Nearby Land Uses***

The ISA concludes that the potential for project construction workers to encounter significant hazardous materials or petroleum product contamination within the project corridor is generally low. However, information obtained during the study of the project area indicates that additional investigation should be conducted for a number of properties described in the “Setting” section. In addition, the ISA recommends that measures be taken to ensure that hazardous levels of lead and/or asbestos do not occur on or under the Weber Creek bridges and on the highway and roadways. Therefore, this impact is considered adverse since the project could create a hazard to the public or the environment involving the accidental release of hazardous materials.

***Mitigation Measure ER7a: Implement Recommendations Related to Hazardous Materials Contained in the Project Initial Site Assessment (Additional Sampling Investigations at Selected Sites and Surveys to Determine the Occurrence of Lead-Based Paint and Asbestos at the Weber Creek Bridges and on the Roadways)***

The County or its contractor will conduct additional sampling investigation of the properties identified in the project ISAs (Taber Consultants 2001b and 2003) prior to any acquisition of the properties for project implementation where hazardous material or petroleum product contamination could occur. The sampling investigation will be conducted to characterize the type and nature of the potential contaminated materials on site. If the sampling investigation identifies that 1 or more of the properties contains contaminated materials or petroleum products at a hazardous level, the County, in coordination with Caltrans and FHWA, will follow local, state, and federal regulations (such as the National Emissions Standards for Hazardous Air Pollutants [NESHAP]; California Health and Safety Code Division 20, Chapter 6.5; California Water Code Section 13304; California Code of Regulations Title 8 1532.1, and other applicable regulations) in establishing the appropriate clean-up measures. These measures may include, but are not limited to, identifying the parties responsible for cleanup and identifying the type of clean-up activity (such as movement of materials off-site, in-place remediation, project redesign to avoid hazardous materials).

The County or its contractor will also implement other recommendations contained in the ISA related to the potential for asbestos and lead-based paint to occur on the



Weber Creek bridges, hazardous levels of chromium and lead in yellow traffic stripes to be removed, and aerial deposited lead along the highway. If lead-based paint and asbestos surveys indicate the presence of asbestos exceeding threshold quantities, measures consistent with federal regulations will be implemented. Yellow pavement markings to be removed will be disposed of in accordance with the Standard Special Provisions for removal of yellow strips and pavement markings.

Implementation of this measure will reduce this impact since, if unknown hazardous materials are found, clean-up measures will be taken prior to construction so as to avoid the accidental release of hazardous materials.

#### **Cumulative Impacts: 4-Lane Tight Diamond Interchange**

See Chapter 4 for a discussion of cumulative impacts related to earth resources and hazardous materials.

#### **No-Action Alternative**

Under the No-Action Alternative, no interchange and intersection improvements would be constructed along Missouri Flat Road. Additionally, the improvements to the Weber Creek bridge would also not occur. There would be no impacts on geology and soils or hazardous materials. As a part of this project, the Weber Creek bridges would not be seismically retrofitted. Seismic retrofitting of the bridges could occur as part of another project in the future. Until such time, the following impact could occur.

#### ***Impact ER8: Potential for Structural Damage of the Weber Creek Bridges during a Seismic Event***

Preliminary analysis indicates that the bridges are vulnerable to failure during the maximum credible earthquake; the bridges are located in Seismic Zone 3, where earthquake severity and probable structural damage from nearby earthquakes is moderate. This impact is considered adverse under the No-Action Alternative.

#### ***Mitigation Measure ER-8a: Construct the 4-Lane Tight Diamond Interchange***

The 4-Lane Tight Diamond Interchange entails seismically retrofitting the Weber Creek bridges. If the County decides to adopt this alternative rather than the No-Action Alternative, this impact would be reduced.

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## 3.11 Visual

The information below is summarized from the project visual resources report (Jones & Stokes 2002i); this report is available for review at County offices (see the List of Technical Studies in the Introduction of this joint document for the address and phone number of County offices). This section addresses impacts to visual resources.

### 3.11.1 Affected Environment

#### Terminology and Approach

Aesthetics has been defined as the study or theory of beauty and the psychological responses to it. The evaluation of existing conditions of aesthetic resources in the landscape requires the application of a process that objectively identifies the visual features or resources of the landscape; assesses the character and quality of those resources relative to overall regional visual character; and identifies the importance of or sensitivity to views of visual resources in the landscape.

With this preliminary establishment of the baseline (existing) conditions, a proposed action or another change to the landscape can be systematically evaluated for its degree of impact. The degree of impact depends on both the magnitude of change in the visual resource (i.e., visual character and quality) and viewers' responses to and concern for those changes. This general process is similar for all established federal procedures for visual assessment (Smardon et al. 1986) and represents a suitable methodology for visual assessment for other projects and areas.

The approach for the visual assessment for the proposed action is adapted from FHWA's visual impact assessment system (Federal Highway Administration 1983) in combination with other established visual assessment systems. The visual impact assessment process involves identification of the following:

- relevant policies and concerns for protection of visual resources;
- visual resources (i.e., visual character and quality) of the region, the immediate project area, and the project site;
- important viewing locations and the general visibility of the project area and site using descriptions and photographs;
- viewer groups and their sensitivity; and
- potential impacts.

### **Criteria for Visual Assessment**

The visual character and quality of the region and the project site were evaluated using well-established FHWA criteria for visual landscape relationships. These criteria form the foundation of an objective methodology that is commonly used to establish the visual characteristics and quality of landscapes and to assess impacts on scenic vistas and scenic resources under NEPA and CEQA (see Chapter 5 for a discussion of CEQA impacts).

The FHWA criteria are vividness, intactness, and unity. They are defined as follows:

- Vividness is the visual power or memorableness of landscape components as they combine in striking or distinctive visual patterns.
- Intactness is the visual integrity of the natural and human-built landscape and its freedom from encroaching elements; this factor can be present in well-kept urban and rural landscapes, as well as natural settings.
- Unity is the visual coherence and compositional harmony of the landscape considered as a whole; it frequently attests to the careful design of individual components in the artificial landscape (Federal Highway Administration 1983).

The appearance of the landscape is described below using these criteria and descriptions of the dominance of elements of form, line, color, and texture. These elements are the basic components used to describe visual character and quality for most visual assessments (U.S. Forest Service 1974, Federal Highway Administration 1983).

Viewer sensitivity or concern is based on the visibility of resources in the landscape, the proximity of viewers to the visual resource, the relative elevation of viewers to the visual resource, the frequency and duration of views, the number of viewers, and the types and expectations of individuals and viewer groups.

The criteria for identifying the importance of views are related in part on the position of the viewer relative to the resource. An area of the landscape that is visible from a particular location (e.g., an overlook) or series of points (e.g., a road or trail) is defined as a viewshed. To identify the importance of views of a resource, a viewshed may be broken into distance zones of foreground, middleground, and background. Generally, the closer a resource is to the viewer, the more dominant it is and the greater is its importance to the viewer. Although distance zones in viewsheds may vary among different geographic regions or types of terrain, a commonly used set of criteria identifies the foreground distance zones as 0.4–0.8 kilometer (0.25–0.5 mile)

from the viewer, the middleground zone as extending from the foreground zone to 4.8–8 kilometers (3–5 miles) from the viewer, and the background zone as extending from the middleground zone to infinity (U.S. Forest Service 1974).

Visual sensitivity also depends on the number and type of viewers and the frequency and duration of views. Generally, visual sensitivity increases with an increase in total number of viewers, frequency of viewing (e.g., daily or seasonally), and duration of views (i.e., how long a scene is viewed). Also, visual sensitivity is higher for views seen by people driving for pleasure; people engaging in recreational activities such as hiking, biking, or camping; and homeowners, and tends to be lower for views seen by people driving to and from work or as part of their work (U.S. Forest Service 1974, Federal Highway Administration 1983, U.S. Soil Conservation Service 1978). Views from recreation trails and areas, scenic highways, and scenic overlooks are generally assessed as having high visual sensitivity.

### **Regional Vicinity Visual Character**

The proposed action is located in the County along U.S. 50. The surrounding area is characterized by rolling hills and a mix of vacant, rural, residential, commercial, and some light industrial and quasi-public uses. Areas near the U.S. 50/Missouri Flat Road interchange are intensively developed with urban uses, with development intensity generally declining away from the highway and major roadways. Fairly dense trees and other vegetation provide a scenic element and backdrop to urban and rural uses in the vicinity and also obscure some views of property or open land from major roadways.

### **Project Vicinity Visual Character**

The existing Missouri Flat Road overcrossing is a 3-lane overpass surrounded by varying degrees of urban development. The Missouri Flat Road interchange was constructed as part of U.S. 50 in 1963.

Areas adjacent to the interchange include: commercial uses to the northwest (Prospector's Plaza); vacant land approved for commercial development (El Dorado Villages Shopping Center), a fast food restaurant, and a gas station to the northeast; a state-owned park-and-ride lot, a hotel (Best Western Placerville Inn), and a restaurant (Eppie's Lounge) to the southwest; and a propane retailer/RV parts/repair facility and residential uses to the southeast.

The most accessible areas from which to view the project area are along existing roadways, from parking areas, or from the interiors of public buildings such as businesses within Prospector's Plaza or the Best Western Placerville Inn. Much of the remaining land is privately held and would not be generally accessible to the public. Views from the roadways are seen in passing, in that viewers travel in automobiles at speeds ranging from a temporary stop at controlled intersections to 65 miles per hour on U.S. 50. While views to other areas, such as the distant hills, open land, and other uses in the interchange vicinity are observable, the complexity of traffic controls and automobile activity generally dominates the drivers' attention. Extended views would occur from parking areas or the interiors of public buildings/uses along the project corridor.

This portion of U.S. 50 also includes the twin 1,677.6-meter (550-foot)-long Weber Creek bridges with 30.5-meter (100-foot)-high east side abutment fills and 12.2-meter (40-foot)-high west side abutment fills. The area to the north and south of the Weber Creek bridge area is densely vegetated and contains a few residential uses. Distant views of the Weber Creek bridges are visible from the Missouri Flat Road overcrossing and from uses along U.S. 50 and adjacent areas. The area to the east of the bridges, near the Forni Road/Placerville Drive interchange, is highly urbanized.

Roadway travelers along U.S. 50 generally view the change in topography near the project site, including the intensity and clustering of development in the vicinity of the Missouri Flat Road and Forni Road/Placerville Drive interchanges and the presence of a heavily vegetated area near the Weber Creek bridges.

### **Study Area Landscape Units and Key Viewpoints**

Ground-level field surveys were conducted in the vicinity of the U.S 50/Missouri Flat Road interchange and the Weber Creek bridges during May, June, and July 2001 by a Jones & Stokes visual resource analyst to assess the visual resources of the project area and identify key viewpoints and viewsheds. Photographs were also taken. Weather on the days that photographs were taken was calm and sunny with high visibility. Figure 3.11-1 shows the location and orientation of the photographs included in this joint document. This visual resource evaluation focuses on views of the project site from these viewpoints.

**Landscape Unit 1: Views of Weber Creek Bridge and Eastbound U.S. 50 Looking North Towards Forni Road/Placerville Drive Interchange**

The viewshed from this vantage point includes distant views of the Weber Creek bridges, commercial development off of the Forni Road/Placerville Drive interchange, the westbound on-ramp at the U.S. 50/Forni Road/Placerville interchange, and the eastbound on-ramp at the U.S. 50/Missouri Flat Road interchange. Natural features adjacent to U.S. 50, including scattered vegetation such as trees, shrubs, and grassland, are visible in the foreground, and distant rolling hills can be seen in the background (Figure 3.11-2).

**Landscape Unit 2: Views of Weber Creek Bridges and Missouri Flat Road Overcrossing Looking Southwest**

The viewshed from this vantage point includes views of the Weber Creek bridges and distant views of the Missouri Flat Road overcrossing. Natural features adjacent to U.S. 50, including dense vegetation such as trees, shrubs, and grassland, are clearly visible in the foreground (Figure 3.11-3).

**Landscape Units 3a and 3b: Views of Southbound Missouri Flat Road**

This viewshed includes 2 key vantage points: (1) from the intersection of Missouri Flat Road/Prospector's Plaza Drive and (2) from the Missouri Flat Road overcrossing. The viewshed from landscape unit 3a includes views of the Missouri Flat Road/Prospector's Plaza Drive intersection in the foreground and views of the Missouri Flat Road overcrossing in the middleground and background. There are also views of tree clusters in the middleground adjacent to the overcrossing (Figure 3.11-4a). Roadway travelers on this portion of Missouri Flat Road are likely to focus on the traffic and have only fleeting views of the roadside vegetation.

The viewshed from landscape unit 3b includes views of southbound Missouri Flat Road and portions of the Missouri Flat Road/Mother Lode Drive intersection. Access to Perks Court is also visible. There are views of tree and shrub clusters located in the foreground and middleground, and sparse annual grassland located in the foreground (Figure 3.11-4b).

**Landscape Unit 4: Views of Northbound Missouri Flat Road and the Missouri Flat Road/Mother Lode Drive Intersection**

The viewshed from this vantage point includes the Missouri Flat Road/Mother Lode Drive intersection, the eastbound on-ramp at the U.S 50/Missouri Flat Road interchange, the eastbound off-ramp to Missouri Flat Road, and the gradual rise to the

Missouri Flat Road overcrossing. Views of sparse grassland and tree clusters are in the foreground (Figure 3.11-5).

#### ***Landscape Units 5a, 5b, 5c, and 5d: Views of Adjacent Areas South of U.S. 50/Missouri Flat Road Interchange***

The viewshed from this vantage point includes three main adjacent land uses, a park-and-ride lot in the southwest quadrant of the interchange (Figure 3.11-6a), a propane facility (Figure 3.11-6b) and residential uses along Perks Court (Figure 3.11-6c), and a berm and trees along the west side of Missouri Flat Road, across from Perks Court, that provide shielding for the Best Western Placerville Inn (Figure 3.11-6d).

#### ***Landscape Units 6a and 6b: Views of Adjacent Areas North of U.S. 50 from the Missouri Flat Road Overcrossing***

The viewshed from this vantage point includes 2 main adjacent land uses: Prospector's Plaza to the west (Figure 3.11-7a) and the site of the approved El Dorado Village Shopping Center to the east (Figure 3.11-7b).

#### **Overall Visual Quality of the Key Viewpoints**

Overall, views associated with the project site lack vividness because they are relatively common and typical of major arterials and highway areas in the County. Also, views are less than moderately intact because the existing properties and paved roads are somewhat obtrusive to the natural topography and vegetative habitat. Finally, views are moderately unified because existing development is fairly harmonious in terms of scale and form.

#### **Viewer Groups and Responses**

Views of the project site are seen by passing roadway travelers in automobiles, from a temporary stop to speeds approaching 65 miles per hour. They are also seen from neighboring residences and commercial development by roadway neighbors. These 2 viewer groups and their significance to the visual impact assessment are described below.

#### ***Roadway Travelers***

Viewer groups consisting of roadway travelers (such as local commuters traveling to and from work, shoppers, and vacation travelers) and are considered to have low visual sensitivity. These groups are generally focused on traffic rather than on surrounding scenery and tend to have fleeting views of an area.



### **Roadway Neighbors**

Viewer groups consisting of roadway neighbors generally view for an extended period and are more affected by changes in the views from their homes. A couple of residences located adjacent to the project site, near the Missouri Flat Road/Perks Court intersection, have potential views of the Missouri Flat Road overcrossing (views of the overcrossing from residences along Perks Court to the north and south of this intersection are blocked by the grade of Missouri Flat Road and vegetation). Views from the home above Eppie's Lounge are also largely blocked by vegetation. Roadway neighbors that frequent the adjacent development (such as users of the park-and-ride lot, Prospector's Plaza shopping center, Best Western Placerville Inn, Eppie's Lounge, and the 7th-Day Adventist Church on the hill behind Eppie's Lounge) also have varying degrees of visibility of the overcrossing. Views of the interchange from the church parking lot are blocked by vegetation along the property line. These groups of roadway neighbors are generally considered to have low visual sensitivity, as their views of the overcrossing are intermittent and blocked by vegetation and/or other development.

### **Regulatory Setting and Relevant Public Policies**

The County General Plan, adopted in 1996, includes goals, objectives, and policies specific to visual resources, with an emphasis on maintaining natural landscape features and enhancing community identity. The general plan further offers guidelines concerning scenic corridors and lighting and signage. No roadways within the project corridor are designated as "scenic" in the County or as part of Caltrans' state scenic highway designations (EDAW 1998).

### **Existing Sources of Light and Glare**

The primary existing sources of light and glare in the project area consist of vehicle headlamps during the evening hours on U.S. 50, Missouri Flat Road, and other local roadways; roadway, interchange, freeway, and parking lot lighting; commercial building signage or exterior security lighting; and residential lighting.

## **3.11.2 Environmental Consequences**

### **Methods**

As noted earlier, ground-level field surveys and interpretation of general site photographs were used to evaluate the visual character of the proposed action and assess changes to visual resources.

## **Permanent Impacts**

### ***Impact VR1: Changes in Regional Visual Character***

The proposed action would result in a larger U.S. 50/Missouri Flat Road interchange and wider freeway between this interchange and the Forni Road/Placerville Drive interchange to the east (see Impact VR3 for more details on changes in views to the interchange and adjacent freeway). This impact is not considered to be adverse since the proposed action would not substantially degrade the existing visual character or quality of the site or its surroundings; the proposed improvements would be constructed at the same location as the existing interchange and in an area that is already developed with roadway infrastructure and urban uses.

### ***Mitigation Measure***

None proposed.

### ***Impact VR2: Changes in Views of Landscape Units 1 and 2***

Characteristics of the proposed action that could potentially change the viewsheds in these landscape units include providing new auxiliary/ramp lanes on U.S. 50 from the Missouri Flat Road to the Forni Road/Placerville Drive interchanges, including widening of the Weber Creek bridges and providing standard shoulders and standard bridge railings on the bridges. The substructures of the bridges would be improved and the bridge decks would be widened. Vegetation along the creek would be removed to accommodate this improvement; however, the area of vegetation removal would only be visible at creek level and would not be seen by motorists on U.S. 50 (The “Wildlife and Botanical Resources, Threatened and Endangered Species, and Wetlands and Waters of the U.S.” section discusses vegetation removal.)

The existing 0.9-meter (36-inch) high solid bridge rail, with handrail, would be replaced with a 0.8-meter (32-inch) high solid bridge rail. The new girders, span configuration, concrete columns, and abutments for the bridge widenings would match the clean, simple, rectilinear shape of the existing bridges. The color of the new girders would match the green coloration of the existing girders.

The effect of the widened highway on key viewers is not considered to be adverse because (1) viewer sensitivities are low and travelers’ views at highway speeds are fleeting and of short duration; (2) it would not represent a substantial change in the existing viewshed as the proposed improvements are generally in the same footprint as the existing bridges; (3) the prominent vertical elements in the foreground of roadway travelers on U.S. 50 would be improved with the installation of lowered

rails; (4) viewers are familiar with the existing roadway infrastructure; and (5) the proposed improvements would not limit or alter the vividness, intactness, or unity of existing views from these corridors as the viewshed of this location was changed dramatically by the construction of U.S. 50 in 1963.

The draft program EIR for the MC&FP (EDAW 1998) evaluated the impacts of adding auxiliary lanes to the Weber Creek bridges at a general, conceptual level. That program EIR identified the visual impacts of widening the Weber Creek bridges (Impact 4.3-7) as significant and unavoidable under CEQA since the widening would result in a substantial increase in paved area as viewed by travelers along U.S. 50. At the time that the MC&FP EIR was prepared, no preliminary engineering on the bridge retrofit or widening had been completed. Given the specifics of the proposed interchange design that are now available, this impact is not considered to be adverse since the project would not substantially degrade the existing visual character of these landscape units for the five reasons identified above.

#### *Mitigation Measure*

None proposed.

#### ***Impact VR3: Changes in Views of Landscape Units 3, 4, 5, and 6***

Characteristics of the proposed action that could potentially change the viewsheds in these landscape units includes:

- Under the proposed action, the existing modified L-8 interchange would be replaced with a tight diamond configuration.
- widening the U.S. 50/Missouri Flat Road interchange ramps and ramp intersections;
- reconstructing Perks Court;
- widening Mother Lode Drive and its intersections with Missouri Flat Road and Greenleaf Drive; and
- widening the Missouri Flat Road/Prospectors Plaza Drive intersection .

Implementation of the proposed action would, in general, enlarge the existing Missouri Flat Road interchange and roadway, in their same general location, within an existing commercial area. Vegetation along the west and east sides of Missouri Flat Road, just north of the interchange to Prospector's Plaza Drive, would be removed to accommodate the roadway widening, and utilities along Missouri Flat Road between Prospector's Plaza Drive and Perks Court would be installed

underground. A retaining wall would be constructed along Missouri Flat Road to retain the trees that front the west side of the road adjacent to the Best Western Placerville Inn (Figure 3.11-6d). The County would landscape the new interchange to reduce the mass and visually screen the proposed interchange improvements. The replanting of vegetation within the U.S. 50/Missouri Flat Road interchange would be consistent with provisions of Caltrans' existing viewshed enhancement projects along U.S. 50. This vegetative buffer would be designed to include the following:

- The species composition would consist of plants that are native and indigenous to the project area. The species would be mixed to include trees, shrubs, and an herbaceous understory of varying heights, as well as evergreen and deciduous types. Species variety would increase the effectiveness of the screening by providing multiple layers, seasonality, visual diversity, and reduced susceptibility to disease. Recommended tree species could include, but are not limited to, valley oak (*Quercus lobata*), western redbud (*Cercis occidentalis*), and California buckeye (*Aesculus californica*). Recommended shrub and herbaceous species could include, but are not limited to, toyon (*Heteromeles arbutifolia*), coffee berry (*Rhamnus californica*), elderberry (*Sambucus mexicana*), coyote bush (*Baccharis pilularis*), wild lilac (*Ceanothus* spp.), and manzanita (*Arctostaphylos* spp.). The understory would be broadcast seeded with native perennial grasses and forbs.
- A zone of a minimum of 1.8 meters (6 feet) in diameter would be mulched around each plant.
- The planting design would be randomized to mimic natural patterns.
- The landscaping plan would be implemented during construction. An irrigation and maintenance program would be implemented during the establishment period.
- Plant species would be selected that maximize the screening of the interchange without compromising the traffic safety of the interchange.
- Plantings would be monitored for 5 years after the landscaping plan is implemented. Success will be achieved if there is a minimum of 80% survival by the end of the 5<sup>th</sup> year. Remedial measures, such as replanting, would be implemented if this standard is not met.

Views of the interchange from the home above Eppie's Lounge would continue to be largely shielded by vegetation along the access road leading to the house. Much of the vegetation that shields views of the interchange from the 7th-Day Adventist Church parking lot (located along the church's property line near the eastbound off-ramp) would be removed during construction. This vegetation would be replaced as part of the interchange landscaping plan described above.

The widening and reconfiguration of this interchange in its current location and widening of Missouri Flat Road is not considered adverse since (1) it would not represent a substantial change in the existing viewshed because the improvements are proposed for the same general footprint as the existing interchange within a commercial area; (2) vegetation removal would be minimal and the interchange would be landscaped; (3) viewers of this change are accustomed to seeing existing roadway infrastructure; and (4) the proposed improvements would not limit or alter the vividness, intactness, or unity of existing urbanized views in this corridor.

The draft program EIR for the MC&FP (EDAW 1998) evaluated the impacts of replacing the existing Missouri Flat Road interchange with a 4-Lane Tight Diamond Interchange, at a general, conceptual level. This program EIR judged the visual impacts of improving the Missouri Flat Road interchange and widening the overpass (Impact 4.3-7) to be significant and unavoidable, under CEQA, since the improvements would result in more paved area and would be visually different. At the time that the MC&FP EIR was prepared, no preliminary engineering on the interchange design had been completed and the interchange landscaping plan had not been developed. Given the specifics of the proposed interchange design that are now available, this impact is not judged to be adverse since the project would not substantially degrade the existing visual character of these landscape units for the four reasons identified above

#### *Mitigation Measure*

None proposed.

#### ***Impact VR4: Imperceptible Changes in Light and Glare with 11 New Fixtures at the Interchange, 9 of Which Would Be Pedestrian-Level on the Overcrossing***

The existing condition of nighttime lighting in the project area includes roadway lights, vehicle lights, and lighting from adjacent development. Seven overhead light fixtures are associated with the Missouri Flat Road overcrossing; others occur at the gore points and along U.S. 50. Sources of daytime glare include reflective surfaces, such as cars and glass and metal on nearby structures. The roadway features themselves do not substantially contribute to daytime glare. The proposed action would eliminate, replace, or relocate many of the existing light fixtures at the interchange. Existing light fixtures would be replaced with 11 lights at the interchange, 9 of which would be pedestrian-level fixtures on the Missouri Flat Road overcrossing railing (which are on shorter standards than roadway lighting) (Tatman

pers. comm.). All fixtures would meet Caltrans standard specifications, and would be box-style, downcast, cut-off type fixtures directed at the roadway to minimize backscatter and fugitive light (Tatman pers. comm.).

As proposed, the changes in nighttime light relative to the current amount of light in the project area, would be imperceptible. Further, the proposed action would not introduce new substantial sources of daytime glare as all metal roadway features would be galvanized steel, which would oxidize within a few seasons and not contribute to daytime glare. This impact is not considered to be adverse since the proposed action would not create a new source of substantial light or glare which would adversely affect day or nighttime views.

#### *Mitigation Measure*

None proposed.

### **Temporary Impacts: 4-Lane Tight Diamond Interchange**

#### ***Impact VR5: Short-Term Visual Changes in Views from Construction Activities***

The improvements to the U.S. 50/Missouri Flat Road interchange would include widening of the overcrossing, ramps and ramp intersections, and the Weber Creek bridges by constructing continuous auxiliary/ramp lanes to the Forni Road/Placerville Drive interchange. These improvements would generally occur in the location of the existing interchange, but would require a greater footprint to accommodate the proposed widenings (approximately 2.8–3.2 hectares [7–8 acres] of additional paved area [Tatman pers. comm.]). Construction activities to improve the interchange and widen the Weber Creek bridges would be visible to travelers in both directions along U.S. 50 and Missouri Flat Road. Travelers and surrounding land uses would be subjected to visual changes associated with new activities and facilities such as vegetation removal and clearing, grading, paving, and temporary signage.

As the project site is located in a developed setting where additional development is approved (such as El Dorado Villages Shopping Center) and future planned development could occur, construction activities and equipment are not new or uncommon components of views in this area. This visual quality impact would not be considered adverse for the following reasons: (1) the short-term nature of construction activities; (2) overall low vividness, intactness, and unity of project site views; (3) viewers' relative familiarity with construction equipment and activities;

and (4) a landscaping plan would be implemented (this plan is described under Impact VR3).

The draft program EIR for the Missouri Flat Area MC&FP (EDAW 1998) evaluated short-term visual changes related to construction of the interchange at a general, conceptual level. That program EIR identified short-term visual changes as significant and unavoidable. At the time that the MC&FP was prepared, the interchange landscaping plan had not been developed. Given the reasons listed above, this visual quality impact is not considered adverse.

Light and glare impacts from any nighttime construction of the eastbound U.S. 50/Missouri Flat Road on-ramp are not expected to substantially affect residences on Perks Court. According to a County study conducted for the Green Valley Road widening project (Hust pers. comm.), glare from light towers used for construction would have minimal impacts to residents that are over 15.2 meters (50 feet) from the nighttime construction. The closest residence that would be affected on Perks Court (under the Perks Court realignment option) is over 30.4 meters (100 feet) from the edge of pavement of the eastbound on-ramp. Due to the potential for short-term light and glare impacts, light and glare impacts are considered adverse.

***Mitigation Measure VR5a: Implement Measures to Minimize Short-term Light and Glare on Nearby Residents from Nighttime Construction***

The County or its contractors will implement the following measures to minimize short-term light and glare impacts:

- Direct lighting onto the immediate area under construction to avoid shining lights toward residences;
- Angle the light tower floodlights to no more than 45 degrees to avoid shining lights toward residences;
- Raise the light tower no more than 20 feet when construction is adjacent to residences; and
- Use light shields to reflect the glare back onto the construction area (Hust pers. comm.).

**Cumulative Impacts: 4-Lane Tight Diamond Interchange**

See Chapter 4 for a discussion of cumulative impacts related to visual resources.

### **No-Action Alternative**

Under the No-Action Alternative, no interchange and intersection improvements would be constructed along Missouri Flat Road. Additionally, the improvements to the Weber Creek bridge would not occur. Therefore, there would be no changes to existing visual resources as a result of implementation of this alternative.



## **3.12 Utilities/Emergency Services**

The information below is summarized from the project community impact assessment report (Jones & Stokes 2002c); this report is available for review at County offices (see the List of Technical Studies in the Introduction of this joint document for the address and phone number of County offices). This section addresses impacts to water and wastewater services; law enforcement, fire protection, and emergency medical services; and solid waste.

### **3.12.1 Affected Environment**

#### **Utilities**

The El Dorado Irrigation District (EID) provides both water and wastewater services to the Missouri Flat area. EID has wastewater infrastructure in place throughout the Missouri Flat area and water lines located in roadways in the Missouri Flat area, including 6-inch to 10-inch lines in Missouri Flat Road and 10-inch to 12-inch lines in El Dorado Road. Distribution lines branch off of these mains to adjacent roadways and properties. Sewer force mains are located in portions of Missouri Flat Road, Forni Road, and El Dorado Road. Sewer lines branch off of these mains to adjacent roadways and properties. (EDAW 1998)

Electrical services to the Missouri Flat area are provided by Pacific Gas & Electric Company (PG&E). Overhead electrical lines are located along Missouri Flat Road, north of U.S. 50 (EDAW 1998).

#### **Law Enforcement, Fire Protection, and Emergency Medical Services**

Law enforcement in the project area is provided by the El Dorado County Sheriff-Coroner's Department (Sheriff's department). The Sheriff's department building is located in the City of Placerville at 300 Fair Lane, approximately 1.5 miles northeast of the project area (EDAW 1998).

Fire protection and ambulance/paramedic services for the project area are provided by the Diamond Springs-El Dorado Fire Protection District (Fire District). Station 48 is located approximately 1 mile north of the project area at 3840 Missouri Flat Road (EDAW 1998).

## **Solid Waste**

El Dorado Disposal provides solid waste collection to the Missouri Flat area. Solid waste from El Dorado Disposal's service area is disposed of primarily at Lockwood Landfill in Nevada, where capacity is expected to be available for 60 years (EDAW 1998). A material recovery facility is located in Diamond Springs for the disposal of domestic solid waste and hazardous materials, such as oil, paint, and chemicals.

### **3.12.2 Environmental Consequences**

#### **Methods**

Information for this section is based on information from the project engineer (Tatman pers. comm.).

#### **Permanent and Temporary Impacts: 4-Lane Tight Diamond Interchange**

##### ***Impact U1: No Long-Term Disruption of Services***

Project construction could affect EID water and wastewater lines located in the project area. PG&E lines along Missouri Flat Road would be relocated underground. Relocation costs would be funded and would occur before project construction to accommodate construction activities and preserve continuity of service. If services were stopped at any time, the service providers would provide advance notice to users. No new utilities would be installed as a result of the project. This impact is not considered to be adverse.

##### ***Mitigation Measure***

None proposed.

##### ***Impact U2: Temporary Interference to Law Enforcement, Fire Protection, and Emergency Medical Services***

During project construction, travel on Missouri Flat Road and U.S. 50 could be temporarily disrupted, including increased congestion on affected roadways and disrupted access to businesses along Missouri Flat Road and homes along Perks Court. Access to residential properties along Helmrich Lane would also be temporarily affected during construction of the Weber Creek bridges auxiliary lanes; construction in the Weber Creek canyon is estimated to last approximately 9 months. Construction periods on Missouri Flat Road and U.S. 50 would last approximately 18 months. This impact considered adverse because project construction has the potential to affect response times by law enforcement, fire protection, and emergency medical service personnel.

- **Mitigation Measure LU6a: Implement a Traffic Management Plan.** See Impact LU6 for a description of this measure.

***Impact U3: Generation of Construction-Related Solid Waste***

Construction of the Missouri Flat Road overcrossing would generate 720 cubic meters of concrete to be removed from the existing overcrossing. Approximately 120 cubic meters of concrete would be removed during construction of the Weber Creek bridge improvements. This concrete would become the property of the construction contractor who would be responsible for disposing of the construction waste at the appropriate landfill or at a facility that recycles concrete into aggregate base or other products. This impact is not considered to be adverse.

***Mitigation Measure***

None proposed.

**Cumulative Impacts: 4-Lane Tight Diamond Interchange**

See Chapter 4 for a discussion of cumulative impacts related to utilities and emergency services.

**No-Action Alternative**

No construction would occur under this alternative. Therefore, no permanent or temporary impacts to utilities or emergency services would occur.

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