Summary

S.1 Purpose of and Need for the Project

The California Department of Transportation (Caltrans), *assigned by* the Federal Highway Administration (FHWA) and *in cooperation with* the Sonoma County Transportation Authority (SCTA), proposes to widen Highway 101 in Sonoma County between Steele Lane in the City of Santa Rosa and Windsor River Road in the Town of Windsor, a distance of 12.3 kilometers (km) (7.6 miles [mi]). *The proposed project is a joint project by Caltrans and FHWA and is subject to state and federal environmental review requirements. Project documentation, therefore, has been prepared in compliance with both the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). Caltrans is the lead agency under CEQA, in addition, FHWA's responsibility for environmental review, consultation, and any other action required in accordance with applicable federal laws for this project is being or has been carried out by Caltrans under its assumption of responsibility pursuant to 23 U.S.C. 327.*

The purpose of the Highway 101 High Occupancy Vehicle (HOV) Lane Widening Project: Steele Lane in Santa Rosa to Windsor River Road in Windsor is threefold:

- *Address existing and future capacity constraints and increasing travel demand*;
- Reduce *travel times* for *users of the Highway 101 corridor*; and
- *Improve mainline traffic operations and on and off movements*.

Caltrans and SCTA develop*ed* the *proposed* project in response to current and future needs. Meeting the project purpose described above would address the following related needs in the transportation corridor:

- *Roadway is unable to accommodate current demand; and*
- *O*perational *ine*fficiencies *in roadway design are contributing to congestion*.

The project location and vicinity are shown in Figures 1.1-1 and 1.1-2.

S.2 Project Alternatives

S.2.1 Alternatives Development and Screening

Alternatives developed and considered during the alternatives development and screening process included a new mixed-flow alternative, a transit/transportation systems management (TSM) alternative, and several variations of the HOV lane widening and improvements alternative. The mixed-flow alternative was withdrawn from further consideration because it was inconsistent with the MTC objective to complete the HOV Lane Master Plan system and encourage carpooling and transit use. The transit/TSM alternative was withdrawn because increased bus service and ridership would be viable only if HOV lanes were available to provide a high level of traffic service. The variations on the HOV lane widening alternative that were withdrawn from further consideration generally had engineering constraints or operational deficiencies in comparison to the Build Alternative. The alternatives development and screening process is described in Section 2.1, Alternatives Development Process.

Alternatives and variations considered and withdrawn from further consideration and the reasons why they were withdrawn are described in Section 2.3, Alternatives Considered and Withdrawn.

The two alternatives that emerged from the alternatives development and screening process are described in the following paragraphs.

S.2.*1.1* No-Build Alternative

The No-Build Alternative offers a basis of comparison with the Build Alternative in the opening year of 2010 and the future analysis year of 2030. This alternative would provide the same lane configuration as currently exists between Steele Lane and Windsor River Road. The No-Build Alternative consists of currently planned and/or programmed improvements to the highway. This includes four other Highway 101 HOV lane widening projects in Sonoma County as follows:

- Highway 12 to Steele Lane and Steele Lane Interchange Improvements (Fully Funded)
- Rohnert Park Expressway to Santa Rosa Avenue, including the Wilfred Avenue Interchange
- Old Redwood Highway to Rohnert Park Expressway
- Marin-Sonoma Narrows[1]

These projects are described in Section S.3, Other Proposed Actions in Project Vicinity, and depicted in Figure 1.1-3.

S.2.*1.2* Build Alternative

This alternative has been identified as preferred. The proposed Highway 101 HOV Lane Widening Project would construct the following improvements within the project limits:

- One HOV lane in each direction in the median with standard 3.0-m (10-ft) inside shoulders and concrete median barrier, widening the freeway from four to six lanes;
- Standard 3.0-m outside shoulders by widening along the outside edges of the traveled way;
- Auxiliary lanes to facilitate weaving traffic movements at the Hopper Avenue and Mendocino Avenue southbound on-ramps, and to extend the auxiliary lanes from north of Steele Lane to Bicentennial Way;
- Fulton Road/Airport Boulevard interchange complex modifications to eliminate the short weave condition and to rectify non-standard deceleration length for the Fulton Road northbound off-ramp. *Northbound Option B and Southbound Option A have been identified as elements of the Preferred Alternative;*
- Bridge widening at Mark West Creek, Pool Creek and Pruitt Creek to accommodate the highway improvements; and
- On-ramp improvements throughout the project to accommodate future ramp metering, provide California Highway Patrol (CHP) enforcement areas, and provide for HOV preferential lanes where feasible.

[1] Note: The Marin-Sonoma Narrows Project is not anticipated to start construction until 2010; therefore, it is not included in the No-Build conditions in the opening year proposed project comparison. The Marin-Sonoma Narrows Project is included in the No-Build conditions in the future analysis year (2030) proposed project comparison.

Although the project would place infrastructure to provide for future ramp metering and HOV preferential treatments at interchange on-ramps, the decision to implement ramp metering and HOV preferential treatments will be made separately and not as part of this project. Ramp metering capabilities would be constructed as part of the current project to minimize disruption to the motoring public and facilitate future implementation.

S.3 Identification of the Preferred Alternative

The No-Build Alternative would not meet the project purpose and need. Without capacity and operational improvements, traffic congestion and travel delay would continue to worsen over time. The Build Alternative would fulfill the project purpose and need by greatly reducing traffic congestion for motorists and transit riders using the HOV lanes. Additionally, the Build Alternative would reduce travel times through the corridor, address highway capacity constraints and increasing travel demand, and improve mainline traffic operations and on and off movements, needs that would not be meet by the No-Build Alternative. On the basis of the traffic operations results and other environmental impact findings presented in the Draft Environmental Document and in consideration of all the public and agency comments received, the Build Alternative has been identified as the preferred alternative for the Highway 101 HOV Lane Widening and Improvements Project. A more detailed description of the proposed project is presented in Section 2.2.3, Proposed Project (Build Alternative) *(Preferred Alternative).*

*The t*otal cost estimated for the project *is $38,200,000* in 200*7* dollars. The secured funding sources for this project are from the State Transportation Improvement Plan (STIP), a federal earmark authorized under SAFETEA-LU, *Corridor Mobility Improvement Account (CMIA) funding available through Proposition 1B, approved by the voters in November 2006,* and the Sonoma County sales tax measure, Measure M, a 20-year, quarter-cent sales tax dedicated to transportation which was passed in November 2004. The SCTA may also seek to advance funding through Grant Anticipation Revenue Vehicle (GARVEE) Bonds and/or the State Infrastructure Bond (Proposition 1B) passed by the voters of the State of California on November 7, 2006.

S.4 Other Proposed Actions in Project Vicinity

S.*4*.1 Highway 101 Widening and Improvements Projects

The proposed project is one of five Highway 101 HOV Lane projects that are currently proposed or under construction in Sonoma County. Together, these projects complete the Sonoma County portion of continuous Highway 101 HOV lanes from Mill Valley in Marin County to Windsor in Sonoma County. (See Figure 1.1-3, Highway 101 Widening and Improvements Projects.) The Marin County portion of this HOV system is complete from Mill Valley to SR 37 in Novato, with the exception of the Marin 101 HOV Gap Closure Project that is currently under construction. Part of the Sonoma County portion of the HOV system, from Wilfred Avenue to Highway 12, has also been completed. The other four projects for Sonoma County are the following:

Highway 12 to Steele Lane and Steele Lane Interchange Improvements

This project will add HOV lanes, ramp improvements, and auxiliary lanes on Highway 101 between Highway 12 and Steele Lane. Further improvements include new structures, replacement and improvement of existing structures, soundwall construction and relocation, and modifications to the surrounding local street network to improve local circulation and access. The Final EA/EIS for this project was approved in December 2003. The mainline and interchange improvements are currently under construction. Project completion is estimated to occur in Fall 2008.

Rohnert Park Expressway to Santa Rosa Avenue, including the Wilfred Avenue Interchange

This HOV lane project would provide auxiliary lanes between the Rohnert Park Expressway and Wilfred Avenue Interchanges and include constructing ramp improvements. Local street networks would also be modified to improve access and circulation. Environmental approval for this project *occurred on November 6,* 2006, with construction *beginning* in 2008.

Old Redwood Highway to Rohnert Park Expressway

This HOV lane project would include construction of HOV lanes and auxiliary lanes, ramp improvements, and modifications at the Highway 101/State Route 116 interchange. Environmental *was obtained in August* 2007, with construction beginning in 2009.

Marin-Sonoma Narrows

This HOV lane project would also upgrade the "Novato Narrows" section of Highway 101 to freeway status, provide interchanges and frontage roads to replace at-grade intersections and driveways, and make ramp improvements. Environmental approval is anticipated in 2008; phased construction would begin in 2011.

S.*4*.2 Sonoma-Marin Area Rail Transit (SMART)

This commuter-rail project would develop an existing publicly-owned rail corridor along the 101 corridor from Cloverdale to San Rafael, a distance of approximately 70 miles. The project would also include 14 rail stations—nine in Sonoma County and five in Marin County. It is sponsored by the Sonoma-Marin Area Rail Transit (SMART) District. The district board is composed of two supervisors and three city council members from Sonoma and Marin counties and two representatives from the Golden Gate Bridge, Highway and Transportation District (GGBHTD). The environmental process for the SMART project began in November 2002*; t*he environmental document was released in November 2005 *and approved on July 19, 2006; and r*ail service is scheduled to begin by 2009.

S.5 Environmental Consequences and Mitigation Measures

Table S-1 summarizes the environmental impacts of the Build Alternative and identifies the proposed avoidance, minimization and/or mitigation measures for each impact. A detailed description of the impacts and mitigation measures for each impact category is presented in Chapter 3, Affected Environment, Environmental Consequences, and Avoidance, Minimization, and/or Mitigation Measures. Construction phase impacts are described in Section 3.16. Potentially significant impacts and level of significance after mitigation is applied are presented in Table 5.3-1.

Table S-1: Summary of Build Alternative *(Preferred Alternative)* Impacts and Proposed Mitigation Measures		
Impact Category	**Build Alternative *(Preferred Alternative)* Impacts**	**Proposed Avoidance, Compensation and Minimization Measures**
Long-Term Impacts		
Traffic	Reduction of peak-hour congestion with potential travel time savings of 2 percent to 70 percent over No-Build. Delay reduction of 14 to 97 percent. HOV lanes would operate at speeds varying mostly between 92 kph (57 mph) and 100 kph (62 mph).	None proposed.
Transit Services	Improved conditions for local and regional express bus service on Highway 101. Bus services would operate at free-flow speeds in the HOV lanes through project area. Reduced transit travel time and improved transit schedule reliability.	None proposed.
Pedestrian and Bicycle	Maintained safety and accessibility for both bicycle and pedestrians. Improved (ADA-compliant) pedestrian facilities at Airport Blvd.	None proposed.
Parking	No impacts.	None proposed.
Land Use Changes	Conversion of 1.11 ha (2.74 ac) of agricultural and vacant land to transportation uses.	None proposed.
Displacements/ Relocations	No displacements or relocations.	None proposed.
Consistency with Plans	Build Alternative is consistent with local plans, goals and policies.	None proposed.
Growth Inducement	Project would not induce unplanned growth.	None proposed.
Agricultural/ Farmland Impacts	Conversion of 1.11 ha (2.74 ac) of farmland to transportation uses. Farmland includes 0.75 ha (1.87 ac) under Williamson Act status.	None proposed.
Utilities	A joint-use pole carrying a PG&E electric line and an AT&T telephone line will require relocation. Nineteen existing longitudinal utility encroachments would not be affected.	Caltrans would coordinate with the utility providers to ensure that work is in accordance with appropriate requirements and to avoid disruptions in service.
Emergency Services	Improvements in traffic operations would facilitate emergency services delivery.	None proposed.

Table S-1: Summary of Build Alternative *(Preferred Alternative)* Impacts and Proposed Mitigation Measures		
Impact Category	**Build Alternative *(Preferred Alternative)* Impacts**	**Proposed Avoidance, Compensation and Minimization Measures**
Visual/Aesthetics	Visual changes from roadway widening and alignment shifts, construction of auxiliary lanes, reconstruction of structures and crossing roadways, changes in interchange configurations, retaining walls and soundwalls. *Between 228 and 526* mature trees would be removed−*between 171 and 390* of these would be redwoods. These redwood trees are considered aesthetic resources because they are outside of their biological range. (See also Trees and Other Mature Vegetation in Table S-1.)	Planting concepts and hardscape aesthetic design treatments consistent with Caltrans landscaping requirements would mitigate adverse impacts on overall visual quality. Replacement planting at interchange locations, and along linear portions of the corridor (where feasible) would reduce project effects on the removal of mature trees and landscaping. SCTA and Caltrans would coordinate with the City of Santa Rosa, Town of Windsor, and Sonoma County to develop a planting plan, including the types of trees and other plants to be installed. *All disturbed areas will be re-vegetated to Caltrans standards.* A three-year plant establishment period would be implemented. Important groups of trees would be protected with metal-beam guard rails, where feasible, to help maintain the corridor's identity as the "Redwood Highway," especially at entry points to municipalities. Redwood tree clusters *and other mature vegetation will* be reestablished where feasible *within the project limits and right of way.* *Avoidance and minimization approaches as identified in sections 3.6.5 and 3.15.4.4 will be incorporated during final design to reduce tree loss below the upper end of the reported ranges.*
Archaeological Resources	No sites eligible for National Register of Historic Places (NRHP). Project impact area is not sensitive for buried archaeological resources.	None proposed.

Table S-1: Summary of Build Alternative *(Preferred Alternative)* Impacts and Proposed Mitigation Measures

Impact Category	Build Alternative *(Preferred Alternative)* Impacts	Proposed Avoidance, Compensation and Minimization Measures
Historic Architectural Resources	No structures eligible for NRHP.	None proposed.
Hydrology/ Floodplains	Project in 100-year flood hazard area; no adverse impact is anticipated. Slight decreases in water surface elevations (0.06 to 0.18 m (0.2 to 0.6 ft) at Pool, Pruitt, and Mark West Creeks as a result of improved hydraulic conditions.	Roadside and cross-drainage would need to be provided or upgraded with widening. Scour protection on channel banks would improve existing conditions.
Water Quality/ Stormwater Runoff	Increases in impervious surface. Potential pollutants from area surface runoff, particularly from "first flush" runoff. *"First flush" refers to stormwater runoff at the start of the rain season where heavy concentrations of pollutants are most likely to be collected.*	Best *m*anagement *p*ractices (BMPs) *for treatment will include biofiltration strips and will be refined during final design.*
Geology/Soils	Geologic hazards that may affect the project include landsliding, expansive surficial soils, ground shaking, liquefaction-induced settlement, fault rupture, lateral spreading, and flooding.	Site specific investigations, seismic hazard engineering analysis, and engineering recommendations for retaining walls, expansive soil treatment, cuts and fills, and bridge foundation elements would be conducted during final design using Guidelines for Caltrans Geotechnical Foundation Investigations and Reports. Specifications for construction would conform to the Caltrans Standard Specifications.
Hazardous Waste/Materials	Low risk from hazardous waste sites in the corridor, which are currently undergoing monitoring or remediation. Four bridges and overcrossings with the potential to contain lead based paint and/or asbestos Potential for encounter with soil contaminated by aerially deposited lead.	BMPs would avoid impacts to surface waters or from unanticipated encounters with contaminated groundwater or other hazardous waste. Special precautions would be followed during renovation/demolition if sampling activities identify lead or asbestos in structures. Surface soils would be sampled for aerially-deposited lead and petroleum hydrocarbons; BMPs would avoid impacts from contaminated soils. A sampling and testing program would be conducted and a detailed treatment plan would be prepared in accordance with Caltrans guidelines during the final design phase of the project.

Table S-1: Summary of Build Alternative *(Preferred Alternative)* Impacts and Proposed Mitigation Measures

Impact Category	Build Alternative *(Preferred Alternative)* Impacts	Proposed Avoidance, Compensation and Minimization Measures
Air Quality	No increase in emissions from vehicle operations. No carbon monoxide exceedences at intersection hot-spots. *Increase* of Mobile Source Air Toxic Emissions *along highway, and decrease along parallel routes*. Complies with federal transportation conformity criteria (40 CFR Part 93).	None proposed.
Noise	Increase in ambient noise levels in the project vicinity.	*Four soundwalls would be constructed because they were determined to be reasonable and feasible. There are 33 receptor locations in which a soundwall would exceed reasonable allowance and 38 receptor locations where noise abatement is not warranted or feasible. Final decisions regarding soundwall placement will be made upon completion of the project design and public involvement process.*
Energy	Reduced vehicle energy use.	None proposed.
Wetlands and Other Waters of U.S.	*0.086 ha (0.212 ac)* of wetlands and other waters of the U.S. would be permanently affected *by the proposed project*.	Mitigation banking *at a USACE-approved mitigation bank* would ensure no net loss of wetlands and compensate for impacts to other waters.
Trees and Other Mature Vegetation	*Up to* 26 mature *v*alley oaks, and *between* 11 *and 30* mature *c*oast live oaks would be removed for the project (see Visual/Aesthetics in Table S-1 for impacts to redwood trees and other ornamental vegetation).	Mature oak trees *are proposed to* be replaced at a *1:1* ratio *where feasible within the project limits and right of way*. Compliance with Sonoma County Tree Protection Ordinances prior to removal of any tree in county jurisdiction. *Avoidance and minimization approaches as identified in sections 3.6.5 and 3.15.4.4 will be incorporated during final design to reduce tree loss between the upper end of the reported ranges.*

Table S-1: Summary of Build Alternative *(Preferred Alternative)* Impacts and Proposed Mitigation Measures

Impact Category	Build Alternative *(Preferred Alternative)* Impacts	Proposed Avoidance, Compensation and Minimization Measures
Threatened and Endangered Species	*Impacts to habitat for special status and vernal pool plants were evaluated in accordance with the Santa Rosa Plain Conservation Strategy (December 2005) and the 1998 Plant Programmatic Opinion.*	*Caltrans/SCTA will compensate for the loss of listed plant habitat with the acquisition and preservation of 4.38 ha (10.83 ac) of vernal pool plant habitat. Given the negative findings of the 2006 and 2007 surveys, consultation may be re-opened and this compensation acreage may be reduced.* Plant surveys are recommended during the bloom period prior to construction to ensure no harm to special-status plants.
	0.00*63* ha (0.00*16* ac) of aquatic habitat at Mark West*, Pruitt, and Pool Creeks* that provide suitable habitat for coho salmon, steelhead, and chinook salmon *will be permanently affected*. *0.005 ha (0.012 ac) of aquatic habitat at Mark West Creek and Pool Creek that provides suitable habitat for Russian River tule perch would be permanently affected.* *Additionally, 0.0137 ha (0.034 ac) of aquatic habitat at Piner Creek, Paulin Creek, and Mark West Creek for the Western pond turtle would be permanently affected.* The proposed project would permanently affect 0.0032 ha (0.008 ac) of aquatic habitat at Mark West Creek for northern red-legged frog, foothill yellow-legged frog and northwestern pond turtle.	*Measures will be incorporated in the project to ensure that threatened and endangered fishes, their habitat (including critical habitat) and designated Essential Fish Habitat (EFH) in project area streams are not likely to be adversely affected. Project design will be consistent with the California Salmonid Stream Habitat Restoration Manual (CDFG 2003), which provides measures to ensure fish passage and to enhance or restore riparian habitat; the Recovery Strategy for Coho Salmon (CDFG 2004); Guidelines for Salmonid Passage at Stream Crossings (NMFS 2001); and with the NMFS Southwest Region's Habitat Protection Policy (NMFS 1991). Measures described in the Biological Opinion issued by NOAA Fisheries (October 2007) will be followed.* Riparian habitat will be restored at a mitigation ratio established in consultation with NOAA Fisheries, USFWS, and CDFG. Preconstruction surveys would be conducted so that in the unlikely event any northern red-legged frogs, foothill yellow-legged frogs, western or northwestern pond turtles were present, they could be relocated prior to construction.

Table S-1: Summary of Build Alternative *(Preferred Alternative)* Impacts and Proposed Mitigation Measures

Impact Category	Build Alternative *(Preferred Alternative)* Impacts	Proposed Avoidance, Compensation and Minimization Measures
	Impacts to California Tiger Salamander habitat were evaluated in accordance with the December 2005 Santa Rosa Plain Conservation Strategy. According to the Strategy, the project would permanently affect 6.36 ha (15.72 ac) of CTS habitat. Presence/absence surveys were conducted during 2006 pursuant to the USACE HQE process with negative findings for CTS.	*Caltrans/SCTA will compensate for the loss of 6.36 ha (15.72 ac) of California tiger salamander (CTS) habitat with the acquisition and preservation of 1.27 ha (3.14 ac) of habitat for the CTS. Compensation will be achieved by the purchase of credits in a conservation bank approved by USFWS to see CTS credits in Sonoma County.*
Invasive Species	*Invasive species* can be inadvertently introduced into the corridor during construction.	The following avoidance and minimization measures would be incorporated into the construction specifications: Using high pressure water blasting or steam cleaning, clean all earthmoving equipment before entering project area; avoid unnecessary disturbance of areas infested with noxious weeds; minimize soil disturbance; and if soil disturbance outside slope stake limits is necessary, keep disturbed area to a minimum, monitor and control disturbed areas and topsoil stockpiles for growth of weed species, and revegetate when disturbance is no longer necessary; control weeds with pre-emergent, selective and nonselective herbicides; inspect and monitor erosion control and other disturbed soils throughout construction; inspect and monitor landscaping/seeding during the vegetation re-establishment period; include payment for equipment cleaning under bid item for mobilization; and construction contractor shall comply with federal, State, and Sonoma County quarantine regulations related to Sudden Oak Death (SOD) and the disposal and transport of vegetation debris.

Table S-1: Summary of Build Alternative *(Preferred Alternative)* Impacts and Proposed Mitigation Measures		
Impact Category	**Build Alternative *(Preferred Alternative)* Impacts**	**Proposed Avoidance, Compensation and Minimization Measures**
		To prevent or minimize any introduction or spread of invasive animal species in the project area, the construction specifications will require that the contractor adopt sanitation and exclusion methods for preventing spread of invasive species, such as restricting use of contaminated soils and fills; requiring pest-free forage and mulch and weed-free sod; and washing construction equipment.
Construction Phase Impacts		
Transportation and Traffic	Possible disruptions to traffic by construction equipment and vehicles. Temporary night-time freeway lane, ramp, and local road closures or detours. Minor detours on the ramps and connecting streets during short-term closures for construction or safety reasons. No substantial parking impacts.	A Transportation Management Plan (TMP) would be developed to provide advance notice and minimize inconvenience and delay to motorists and transportation and emergency service providers of construction activities and durations, detours, and access issues.
Utility Relocations	Short-term, limited interruptions of service could be required for utility relocations or if unexpected utilities are encountered.	Plans would be developed to schedule any required service interruptions in advance and to address unanticipated service interruptions.
Visual/Aesthetics	*Construction activities would involve the use of a variety of construction equipment, stockpiling of soils and materials, and other visual signs of construction.*	*Construction contractor would be responsible to clear the work site of any trash or debris created by construction and to maintain the site in an orderly manner.* *In area where maximum protection of vegetation is desirable, clearing and grubbing would occur only within excavation and embankment slope limits. Existing vegetation outside of clearing and grubbing limits shall be protected from the contractor's operations, equipment and materials storage.* *Tree trimming by the contractor shall be limited to that required in order to provide a clear work area.*

Table S-1: Summary of Build Alternative *(Preferred Alternative)* Impacts and Proposed Mitigation Measures

Impact Category	Build Alternative *(Preferred Alternative)* Impacts	Proposed Avoidance, Compensation and Minimization Measures
		High visibility protective fencing shall be placed around trees prior to the commencement of roadway construction. Existing trees to be removed shall be field marked by the Engineer and approved by the Engineer prior to removal. Wherever feasible, slope lines will be adjusted to avoid tree removal.
Farmlands	No temporary effects to farmlands.	None proposed.
Emergency Services	Temporary road closures or detours could lead to emergency service delays.	Coordination with emergency service providers and public information program, would avoid emergency service delays by ensuring that all providers are aware, well in advance, of road closures or detours.
Community Impacts	Temporary construction easements would be required during construction of noise walls.	No mitigation proposed beyond *b*est *m*anagement *p*ractices *(BMPs)*.
Hydrology and Floodplain	Construction associated with waterway crossings could cause temporary changes in water volume or flow and increased siltation, sedimentation, erosion and water turbidity from bank-side activities and construction access.	A Storm *W*ater Pollution Prevention Plan (SWPPP) would be prepared and will identify construction *site* BMPs to reduce impacts to surface waterways.
Water Quality	Construction activities could pollute surface water bodies or cause bank-side erosion.	SWPPP would identify construction *site* BMPs to avoid impacts to surface waters.
Hazardous Waste/Materials	Potential exists for the release of hazardous materials used for construction operations and for the release of lead and asbestos during construction due to disturbance of the adjacent soil and demolition of structures.	An approved Worker Health and Safety Plan (WH&SP) would address any hazardous materials handling during construction activities. It would also address storage and disposal of any hazardous/materials used in construction operations.
Air Quality	Construction activities such as clearing, grubbing, grading and excavation would generate air pollutant emissions.	Construction Emissions Mitigation Plan would set forth construction control measures, such as site-sweeping, site-watering, and limiting travel speeds on unpaved roads would reduce impacts.
Noise	Temporary increase in ambient noise levels in the project vicinity.	Equipment noise control, administrative measures, and adherence to local noise ordinances would minimize effects.
Natural Communities	Willow riparian scrub and North Coast cottonwood riparian forest communities in the project area could be affected during construction.	Avoidance measures would include identifying, marking and protecting trees with orange fencing to avoid disturbance and accidental intrusion by workers or equipment.

Table S-1: Summary of Build Alternative *(Preferred Alternative)* Impacts and Proposed Mitigation Measures		
Impact Category	**Build Alternative *(Preferred Alternative)* Impacts**	**Proposed Avoidance, Compensation and Minimization Measures**
Wetlands and Other Waters	Temporarily affects *0.268 ha (0.661* ac) of total wetlands/waters.	Avoidance measures including work windows and protective fencing would be implemented to minimize effects on wetlands. Wetland habitats that are temporarily lost or disturbed would be restored, on-site, to pre-construction conditions.
Special-Status Species	Suitable habitat for coho salmon, steelhead, *and* chinook salmon *occurs in the project area at Mark West, Pruitt, and Pool Creeks. Suitable habitat for the* Russian River tule perch *occurs in the project area at Mark West and Pool Creeks. Suitable habitat for the western* pond turtle occurs in the project area at Mark West*, Piner, and Paulin Creeks*. Additionally, suitable habitat for northern red-legged frog, foothill yellow-legged frog and northwestern pond turtle occurs in the project area at Mark West Creek. *These* habitat *areas* could be disturbed during construction.	Buffer zones and work windows would minimize harm to fish species. Any listed fish in dewatered areas would be transported to *bedrock pools located 330 meters (1,000 ft) downstream from Highway 101*. Preconstruction surveys would be conducted for northern red-legged frog, foothill yellow-legged frog, western and northwestern pond turtle 24 hours prior to construction and repeated following any lapse in construction activities of two weeks or more. A worker awareness program would be conducted *by the contractor* to inform construction personnel regarding their responsibilities toward these species. In the event individuals are encountered, construction activities would cease until corrective measures could be taken.

Table S-1: Summary of Build Alternative *(Preferred Alternative)* Impacts and Proposed Mitigation Measures

Impact Category	Build Alternative *(Preferred Alternative)* Impacts	Proposed Avoidance, Compensation and Minimization Measures
Special-Status Species (continued)	Potential for construction phase effects to nesting raptors and other migratory birds.	Avoidance measures such as identification of active nesting stands, removal of nests during non-breeding season and avoidance of nest disturbance during construction through the use of buffer areas would reduce potential effects.
	Areas with potential to contain CTS occur in the project area. The effect analysis used for the Biological Opinion is based on the interim guidelines for the Conservation Strategy (Conservation Strategy Team 2005b). The interim guidelines do not differentiate between temporary and permanent effects.	All required BMPs will be in place during construction. Construction will be limited to the dry season (June 1–October 31) in aquatic habitat when drainages and wetlands would be either dry or at their lowest water level to minimize impacts to aquatic resources including the potential for take of breeding/migrating CTS. CTS habitat that can be avoided during construction will be flagged and designated as Environmentally Sensitive Area. All construction personnel will avoid these areas. *A qualified biologist(s) shall be onsite during all activities that may result in the take of CTS. The biologist shall have oversight over implementation of all the Terms and Conditions of the Biological Opinion, and shall have the authority to stop project activities, through communication with the resident engineer, if any of the requirements associated with these Terms and Conditions are not being fulfilled. The biologist(s) shall be given the authority to stop any work that may result in the take of this listed animal species. If the biologist(s) exercises this authority, USFWS and CDFG shall be notified by telephone and electronic mail within one working day.*

Table S-1: Summary of Build Alternative *(Preferred Alternative)* Impacts and Proposed Mitigation Measures

Impact Category	Build Alternative *(Preferred Alternative)* Impacts	Proposed Avoidance, Compensation and Minimization Measures
Special-Status Species (continued)		*Pre-construction surveys shall be conducted by a USFWS-approved biologist for CTS.* *The onsite biologist monitor will check for animals under any equipment before the start of work each morning.* *Only USFWS-approved biologist(s) familiar with the biology and ecology of CTS shall capture or handle this listed species.* *Biologists shall take precautions to prevent introduction of amphibian diseases to the action area by disinfecting equipment and clothing as directed in the October 2003 California tiger salamander protocol titled, Interim Guidance on Site Assessment and Field Surveys for Determining Presence or a Negative Finding of the California Tiger Salamander.* *To prevent inadvertent entrapment of CTS during construction, all excavated, steep-walled holes or trenches more than two feet (0.61 meters) deep shall be covered at the close of each working day by plywood or similar materials, or provided with one or more escape ramps constructed of earth fill or wooden planks. Before such holes or trenches are filled, they must be thoroughly inspected for trapped animals. If at any time a trapped listed animal is discovered, the on-site biologist should immediately place escape ramps or other appropriate structures to allow the animal to escape, or USFWS and/or CDFG shall be contacted by telephone for guidance. USFWS shall be notified of the incident by telephone or electronic mail within one working day.*

Table S-1: Summary of Build Alternative *(Preferred Alternative)* Impacts and Proposed Mitigation Measures

Impact Category	Build Alternative *(Preferred Alternative)* Impacts	Proposed Avoidance, Compensation and Minimization Measures
		No canine or feline pets shall be permitted in the action area. *No plastic mono-filament netting or similar material shall be used.* *Caltrans approved worker environmental awareness program covering the California tiger salamander must be conducted by the contractor before groundbreaking.*
	Preliminary surveys identified no special-status plants in the project area. Protocol-level presence/absence *plant* surveys *were conducted during 2006 and 2007 and corroborate negative findings.* *Habitat assessment and two years of protocol-level California red-legged frog (CRLF) surveys support the conclusion that CRLF are not present in the project vicinity.*	*An additional round of plant surveys would be conducted during the bloom period prior to construction.* *Construction limited to October and November after draining wetland areas with survey to confirm absence of California red-legged frog.* *Spill prevention and action plan and buffer distances to prevent contamination of surface waters.* *Vegetation removal limited to the minimum necessary.*

S.6 Areas of Potential Controversy and Issues to Be Resolved

There are currently no known controversies or outstanding issues to be resolved with regard to the proposed project.

S.7 Agency Permits and Approvals

Table S-2 lists the agency permits and approvals that are anticipated for the Highway 101 HOV Lane Widening Project: Santa Rosa to Windsor.

Table S-2: Anticipated Permits and Approvals Required

Agency	Approval or Permit
U.S. Army Corps of Engineers (USACE)	*A nationwide permit for impacts to jurisdictional wetlands and other waters of the U.S. under Section 404 of the Clean Water Act will be obtained.*
U.S. Fish and Wildlife Service (USFWS)	*No-jeopardy* Biological Opinion (BO) *with incidental take permit for special-status plant species and California tiger salamander issued October 18, 2006* pursuant to Section 7 of the *f*ederal Endangered Species Act (FESA). *See Appendix E, Agency Correspondence.*
National Marine Fisheries Service (NOAA Fisheries)	BO *with incidental take permit issued October 2007* for special-status fish species: coho salmon, steelhead and chinook salmon, pursuant to Section 7 of the FESA.
California Department of Fish and Game (CDFG)	Section 1602 Streambed Alteration Agreement for widening of the bridges at Mark West, Pruitt, and Pool creeks.
North Coast Regional Water Quality Control Board (RWQCB)	Water Quality Certification pursuant to Section 401 of the Clean Water Act; National Pollutant Discharge Elimination System or Countywide Non-point Source Permit for discharge of stormwater into surface waterways under the Clean Water Act; includes contractor's preparation of a Storm *W*ater Pollution Prevention Plan (SWPPP).
California Department of Toxic Substances Control (California Environmental Protection Agency) (CalEPA)	Approval of voluntary clean-up agreement, transportation plan, soil management plan, and health and safety plan for construction operations. May request application of aerially deposited lead variance, depending on soil tests to be performed prior to construction. May require DTSC approval for disposal of materials from old bridges and other highway or utility structures or buildings.
California Public Utilities Commission (CPUC)	Approval of Pacific Gas & Electric Company Notice of Construction for relocation of power lines pursuant to GO 131-D.
Sonoma County Permit and Resource Management Department	Encroachment permit for any widening on County lands. Grading permit for any widening on private lands. County 1108 permit for work within a streambed or waterway (to be obtained after 1602 is signed). The following County ordinances apply to trees in County jurisdiction: Ordinance No. 4044 requires replacement measures for removal of oaks, madrone, redwood, California bay and other designated trees having trunk diameter of nine inches or more measured 4.5 feet above grade. Ordinance No. 4991 defines valley oak sizes and mitigation options for removal of valley oaks; written notice must be filed at least five days prior to removal. Sonoma County Heritage Tree Ordinance No. 3651 requires approval and mitigation for removal of designated heritage trees.

S.8 Environmental Commitments

*Environmental c*ommitments for the proposed project are described in the Avoidance, Minimization, and/or Mitigation sections in their respective environmental categories in this EA/EIR. Table S-3 summarizes these environmental commitments and references them by *EA/FEIR* section.

Table S-3: Summary of Proposed Environmental Commitments

Environmental Category	EA/*F*EIR Section	Environmental Commitments
Utilities	3.5.3	Design, construction, and inspection of utilities that will need to be relocated for the project will be done in accordance with Caltrans requirements. Where feasible, relocations will be undertaken in advance of project construction. Caltrans will coordinate with the affected service provider in each instance to ensure that work is in accordance with the appropriate requirements and criteria. In addition, coordination with the utility providers will be initiated during the preliminary engineering phase of the project and will continue through final design and construction. Coordination efforts will plan utility re-routes, identify potential conflicts, ensure that construction of the proposed project minimizes disruption to utility operations, and formulate strategies for overcoming problems that may arise.
	3.16.5	If unexpected underground utilities are encountered during construction, the construction contractor will coordinate with the utility provider to develop plans to address the utility conflict, protect the utility if needed, and limit service interruptions. Any short-term, limited service interruptions of known utilities will be scheduled well in advance and appropriate notification provided to users.
Visual/Aesthetics	3.6.5	A landscaping replacement plan will be implemented and replacement trees planted. It is Caltrans policy to replace vegetation damaged or removed due to highway improvement projects. The landscape replacement plan will be developed by Caltrans with input from Sonoma County and the City of Santa Rosa and Town of Windsor to identify appropriate and feasible locations and species of trees for replacement within or near the project limits. Such replacement locations must meet safety requirements for sight distances, in addition to providing favorable conditions for tree establishment and survival. *Avoidance and minimization approaches as identified in Section 3.6.5 and 3.15.4.4 will be incorporated during final design to reduce tree loss below the upper end of the reported ranges.* The following mitigation measures are proposed to reduce visual effects of the Build Alternative. ▪ Mature trees will be replaced at a ratio of 1:1 *within the project limits and right of way where feasible*. ▪ Species, size, precise number, location, and spacing of replacement trees will ultimately be determined by Caltrans Office of Landscape Architecture at a future phase of the project. ▪ Landscape replacement will include landscaping, irrigation and design elements, such as aesthetic treatments on wall structures that will help to maintain the corridor's existing level of visual quality. Where feasible,

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		vines will be planted and allowed to grow on the soundwalls to help visually integrate them into the overall environment, to reduce glare and the incidence of graffiti. New retaining walls will also be given aesthetic treatment. ▪ A three-year plant establishment period will be implemented. ▪ All disturbed areas will be re-vegetated according to Caltrans standards. ▪ Black vinyl clad chain link fence shall be installed on top of the proposed concrete barrier left of ML Line Station 99+20 to 109+00. A 12-18-inch wide plantable area will be provided between the concrete barrier and the frontage road to plant vines along the frontage road side of the barrier. ▪ Design exceptions will be prepared to: o Reduce the width of the standard "catch line" to minimize the loss of existing desirable vegetation. o Install metal-beam guardrail around selected existing redwood tree groupings to retain the corridor image of being the "Redwood Highway," especially at entry points to municipalities. ▪ Provide slope rounding on cuts and fills for a more natural appearance. ▪ Provide aesthetic surface treatments to structures that are consistent with the corridor-wide master plan (to be developed). Sound and retaining walls would be aesthetically treated with color, texture, patterning and planted with vines (where feasible) to reduce glare and deter graffiti. ▪ Redwood tree clusters *and other mature vegetation will* be reestablished where feasible *within the project limits and right of way.*
	3.16.6	The construction contractor will be responsible to clear the work site of any trash or debris created by construction workers or activities and to maintain the site in an orderly manner. No substantial adverse impacts are anticipated, and therefore, no mitigation is necessary beyond best management practices.
Archaeological Resources	3.7.4.1 3.16.7.1	In the unlikely event that previously unidentified buried cultural materials are unearthed during construction of the proposed project, Caltrans and FHWA would comply with 36 CFR 800.13.
Hydrology/ Floodplains	3.8.4	Roadside drainage will be modified as necessary to accommodate a 25-year design flood, with the exception of areas where 100-year floodwaters currently have the potential to overtop the highway. These locations are from the Fulton Road Interchange to north of Pool Creek on the north side of the Shiloh Road Interchange and from approximately 700 m (2,300 ft) south of the Windsor River Road Overcrossing to beyond the northern project limit. Culverts will be repaired or upgraded as necessary, including the previously mentioned deficiencies, and the new drainage facilities will be coordinated with the stormwater *b*est *m*anagement *p*ractices (BMPs) to provide a consistent and effective drainage system. The BMPs that will become an integral component of the drainage system will include open swales off of the outside shoulders that would be modified to accommodate the widened roadway run-off and detention basins. Where auxiliary lanes and soundwalls are constructed, drainage facilities will be maintained or replaced with a closed drainage system. Channel banks will be armored for scour protection. If detailed study during final design determines that 100-year floodwaters will overtop Highway 101, the effects of widening into the Highway 101

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		median will be mitigated to maintain the existing roadway elevation. Areas with the potential for floodwaters to overtop the highway are between the Fulton Road Interchange and north of Pool Creek on the north side of the Shiloh Road Interchange, and from approximately 700 m (2,300 ft) south of the Windsor River Road Overcrossing to the northern project limit. At these locations, the guardrail barrier in the median would be relocated or replaced in-kind with the actual location and limits to be determined based upon detailed study during the design phase. These measures will allow the 100-year floodwaters to continue to overtop the highway in sheet flow towards the various creeks and channels that flow to the Russian River as they currently do under 100-year floods. Additionally, the cross slope of the median lanes will be adjusted to ensure that the height of the roadway is not increased, thereby avoiding the potential for an increase in the backwater elevation adjacent to the highway. Because this approach will not result in a changed condition, no additional mitigation will be required.
	3.16.8.2	A Storm *W*ater Pollution Prevention Plan (SWPPP) will be prepared and implemented, in accordance with Section 402 of the federal Clean Water Act, as amended. One purpose of the SWPPP is to identify areas of concern related to construction within or close to major waterways. As part of the requirements for the SWPPP, best management practices (BMPs) will be identified to be used during construction to minimize the effect of construction activities on waterways. Recommended construction-period BMPs include: 1. Scheduling construction during the non-rainy season. 2. Monitoring the forecast for rainfall; adjusting the construction schedule to allow implementation of soil stabilization and sediment treatment controls before the onset of rain. 3. Minimizing disturbance of stream crossings by selecting the narrowest crossing, avoiding steep and unstable banks or highly erodible soils, selecting equipment that reduces the amount of pressure exerted on the ground (e.g. using wide or high flotation tires, dual tires, tracked machines, etc), and using overhead or aerial access for transporting equipment across streams whenever possible. 4. Limiting temporary stream crossings to culverts or bridges if the stream crossing remains during the rainy season. 5. Continuously monitoring pumps and incorporating a standby pump for pumped diversion of in stream flows. Employing velocity dissipation at the outlet as necessary to control erosion. 6. Sizing diversion channels and/or culverts to accommodate a minimum 10-year storm event if placed within the channel during the rainy season. 7. Isolating work areas within the waterway from the flow using sheet piling, k-rails, rip rap berms, or other methods of isolation. 8. Keeping equipment used in a waterway leak-free. 9. Stabilizing waterway embankments where necessary using rock slope protection, netting, erosion control blankets, gravel bag berms, fiber rolls, etc. 10. Protecting all drainage systems (culvert entrances, inlets, etc) from

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		debris and sediment laden waters. 11. Washing the fines (using water from a water truck or hydrant) back into the interstitial spaces of the existing gravel and cobbles if in-channel disturbance of fines (sand and silt sized particles) occurs.
Water Quality/ Stormwater Runoff	3.9.4.1	As described in the Caltrans Storm Water Management Plan (SWMP), BMPs will be designed and implemented to reduce to the maximum extent practicable the discharge of pollutants from the storm drain system. Due to site constraints within the narrow Highway 101 project corridor, the drainage system will balance pollutant removal with economic factors related to maintenance, right of way, and construction costs. Treatment BMPs *will include biofiltration strips and will be refined during final design.* These proposed BMPs are included in the estimated project construction costs. The proposed BMPs are from an approved list of BMPs known to be effective at reducing sediments and pollutants from highway run-off and will adequately remove the increased amount of pollutants attributable to this project while also removing a substantial amount of pollutants associated with the existing facility. These BMPs combined with the on-site drainage system will result in a substantial reduction in trash, debris, absorbed hydrocarbons and metals, in the freeway run-off that enters streams and channels crossing the freeway. Other BMPs were investigated, but deemed inappropriate. Additionally, this project is located in a Municipal Separate Storm Sewer System (MS4); stenciling of drainage inlets will be required. Permanent erosion control measures will be used to address site soil stabilization and reduce deposition of sediments in adjacent surface waters. Typical measures that will be applied include the application of soil stabilizers such as hydroseeding, netting, erosion control mats, rock slope protection, velocity dissipation devices, flared-end sections for culverts, and others.
	3.16.9.2	The SWPPP will emphasize: 1) standard temporary erosion control measures to reduce sedimentation and turbidity of surface run-off from disturbed areas, 2) personnel training, 3) scheduling and implementation of BMPs throughout the various construction phases and during various seasons, 4) identification of BMPs for non-stormwater discharge such as fuel spills, and 5) mitigation and monitoring throughout the construction period. The plan will be submitted to Caltrans and the Regional Water Quality Control Board (RWQCB). During construction, erosion control procedures will be used such as the placement of mulch on all disturbed areas, fiber rolls along slopes, silt fences at the boundaries of the construction site, stabilized construction entrances and exits equipped with tire washing capability, and check dams placed strategically to reduce flow velocity and to filter flows in defined drainage-ways. Construction over and adjacent to waterways will include special construction BMPs to minimize the debris deposition into those waterways, as follows: ▪ Demolition and construction over and adjacent to waterways will be accomplished using non shattering methods that will not scatter debris (for

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		example, wrecking balls will not be acceptable). ▪ Platforms will be placed under/adjacent to bridges over waterways to collect debris. • Watertight curbs or toe-boards on bridges over waterways will be provided to contain spills and prevent materials, tools, and debris from falling from the bridge. ▪ Materials adjacent to waterways will be secured to prevent discharges via wind. ▪ Attachments will be placed on construction equipment such as backhoes to catch debris from small demolition operations. ▪ Accumulated debris and waste from demolition will be stockpiled away from the waterway. ▪ Work areas within the waterway will be isolated from the flow using sheet piling, k-rails, rip rap berms, or other methods. ▪ Drip pans will be used during equipment operation, maintenance, cleaning, fueling and storage for spill prevention. Drip pans will be placed under all vehicles and equipment placed on bridges when expected to be idle for more than 1 hour. ▪ Equipment will be kept in a leak-free waterway. ▪ Waterway embankments will be stabilized, using rock slope protection, netting, erosion control blankets, gravel bag berms, fiber rolls, and other stabilization methods, as necessary. ▪ All drainage systems (such as culvert entrances and inlets) will be protected from debris and sediment laden waters. ▪ All storm and spill events will be recorded in logs. Groundwater may be encountered during excavation work for the cross culvert extensions. Early discussions with permitting agencies such as the County and the RWQCB will be initiated during the final design phase to discuss requirements for handling and disposal of groundwater water during construction. The groundwater will be tested for potential contamination as a part of the Hazardous Waste Site Investigation to be conducted during the final design phase. Handling and disposal requirements of the groundwater will be based upon the level of contaminants reported in the Site Investigation Report.
Geology/Soils	3.10.3	Site specific investigations, seismic hazard engineering analysis, and engineering recommendations for retaining walls, expansive soil treatment, cuts and fills, and bridge foundation elements will be conducted during final design using Caltrans Guidelines for Geotechnical Foundation Investigations and Reports. Specifications for construction will conform to the Caltrans Standard Specifications. Expansive clays are prevalent in the upper soil zones in the study area. These types of soils require special treatment if exposed at roadway subgrade level and if used for compacted fills. To mitigate for potential settlement or damage from expansive soils, it is recommended that existing soils be over-excavated a minimum of 0.5 m (1.6 ft) below pavement subgrade and backfilled with select non-expansive fill. Lime treatment of expansive soil subgrade is an acceptable alternative. Fills should be placed in thin, loose

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		lifts and be well compacted. Several creek crossings are proposed for widening, including the Pruitt Creek, Pool Creek, and Mark West Creek bridges. Existing soil borings for these structures are available and indicate stiff clays and sandy silts over dense alluvial sands and gravels. Suitable abutment and intermediate pier foundations could be either deep spread footings, drilled piers, or driven piles. Implementation of these actions or a combination of these actions will be explored during the final design and construction process when site-specific subsurface investigations, borings, and field mapping will be performed. All project structures will be designed to meet maximum credible earthquake (MCE) standards, as established by the Caltrans Office of Earthquake Engineering. The MCE for this project is a magnitude 7.0 earthquake on the controlling Rodgers Creek/Healdsburg fault. To minimize potential liquefaction impacts associated with the proposed project, stone columns, sub-excavation, dynamic compaction, or de-watering methods will be implemented during construction. The most suitable method(s) will be selected based on site-specific subsurface investigations to identify the potential for liquefaction. The investigations are typically conducted during the final design phase of a project. Site specific engineering recommendations to minimize impacts from lateral spreading will be incorporated into the final design plans and construction contract documents. Angled piles may be needed to mitigate lateral pressures of creek banks to resist lateral spreading. Site specific seismic hazard engineering analysis will be conducted during the final design phase and construction process to minimize the impacts of fault rupture.
Hazardous Waste/Materials	3.11.3	The following general avoidance and prevention measures are based on information identified to date: ▪ Construction contractor(s) will be required to prepare and implement a Worker Health and Safety Plan (WH&SP) to be approved by Caltrans and the California Department of Toxic Substances Control [DTSC] prior to onset of construction activities. ▪ Construction contractor(s) will prepare a Storm *W*ater Pollution Prevention Plan (SWPPP) to be approved by Caltrans prior to the onset of construction activities. ▪ Any contaminated groundwater that is encountered during construction will be handled in accordance with the water quality provisions outlined in Section 3.9 of this document. ▪ In the event that a previously undocumented hazardous waste site or underground storage tank is uncovered during construction, Caltrans will consult with the appropriate federal and state regulatory agencies to determine what action, if any, is appropriate. ▪ Contract special provisions will be written and construction plans prepared so that any contaminated soil excavated during construction will

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Environmental Category	**EA/*F*EIR Section**	**Environmental Commitments**
		be handled and disposed of in accordance with applicable federal and state laws, regulations, rules, and policies. Sampling activities will be conducted in locations where lead-based paint (LBP) or asbestos-containing materials (ACM) are anticipated (including the Mendocino Avenue Overcrossing, Mark West Creek Bridge, Pruitt Creek Bridge, and Pool Creek Bridge) to identify whether potential hazards exist and whether special precautions are necessary during bridge/overcrossing renovation and or/demolition. During the course of demolition or renovation activities, construction contractors and/or Caltrans will follow regulations requiring the abatement of LBP and ACM to prevent exposure to nearby residents and workers. Prior to any demolition work or upgrading or reconstruction of existing overpasses, on- or off-ramps, an ACM survey will be conducted for these structures. In addition, any other structure (e.g., retaining or sound walls) requiring demolition will be tested for ACM prior to demolition. The ACM survey will be performed by an inspector who is Asbestos Hazardous Emergency Response Act (AHERA)-certified under Toxic Substances Control Act (TSCA) Title II and California Occupational Safety and Health Administration (Cal OSHA)-certified under Section 1529 of the California Code of Regulations. Prior to demolition, a notification along with the results of the ACM survey will be submitted to the Bay Area Air Quality Management District as part of the permitting process. Sampling activities in locations where elevated lead concentrations are anticipated or petroleum hydrocarbon-contaminated soil and groundwater could be encountered will be conducted to identify whether potential hazards exist and whether special handling of soil is required. Short-term impacts of soil excavation will be mitigated through implementation of BMPs, which may include preparation of a soils management plan (SMP) or section of the WH&SP to prevent exposure of workers to potentially hazardous excavated soils and to comply with applicable waste handling and disposal regulations if offsite disposal of soil/rock is necessary. If ADL or petroleum hydrocarbon-contaminated soil were present, a variance for re-use of soil could be obtained through the DTSC if contamination meets the extractable and total lead/petroleum hydrocarbon thresholds. The RWQCB will also need to be notified and provisions for the re-use and storage of ADL and petroleum hydrocarbon contaminated soil will need to be addressed in the SWPPP prepared by the contractor for the project. It is recommended that surface samples of soil be collected and analyzed for total lead. Any sample exceeding *400* milligrams/kilogram (mg/kg) should be tested for Toxicity Characteristic Leaching Procedure (TCLP). Any soil containing 5 milligrams per liter (mg/l) or more of lead is considered a Resource Conservation and Recovery Act (RCRA) hazardous waste and, therefore, will be subject to specific standards for transportation, treatment, storage, and disposal. The SCTA and Caltrans will consult with DTSC and the San Francisco RWQCB regarding the applicability of the ADL variance and management of lead-contaminated soil. A detailed work plan and a

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Environmental Category	**EA/*F*EIR Section**	**Environmental Commitments**
		sampling and testing program will be prepared in accordance with Caltrans guidelines during the design phase of the project.
	3.16.10.2	The WH&SP will establish measures to avoid or minimize potential worker and public exposure to airborne contaminant migration by incorporating dust suppression techniques in construction procedures. The plan also will address avoidance and minimization of worker and environmental exposure to contaminant migration via surface water run-off pathways by implementation of comprehensive measures to control drainage from excavations. In addition, the WH&SP will address handling, storage, and disposal of any hazardous materials used in the construction process. Since construction workers are in the closest proximity to potential hazards, a plan that avoids impacts to construction workers will provide adequate protection for surrounding residents, workers, and the traveling public.
Air Quality	3.16.11.2	Caltrans will develop a Construction Emissions Mitigation Plan that would include measures such as the following: • All active construction areas shall be watered at least twice daily. • All trucks hauling soil, sand, and other loose materials shall be covered and shall maintain at least two feet of freeboard. • All unpaved access roads, parking areas, and staging areas at the construction site shall be watered at least three times daily or shall be applied with non-toxic soil stabilizers. • All paved access roads, parking areas, and staging areas at the construction site shall be swept daily with water sweepers. • Streets shall be swept daily with water sweepers if visible soil material is carried onto adjacent public streets. • Non-toxic soil stabilizers shall be applied to inactive construction areas (previously graded areas that are inactive for ten days or more). • Exposed stockpiles of dirt, sand, or debris shall be enclosed, covered, watered at least twice daily, or applied with non-toxic soil binders. • Traffic speeds on unpaved roads shall be limited to 15 miles per hour. • Sandbags or other erosion control measures shall be installed to prevent silt runoff to public roadways. • Operations on any unpaved surfaces shall be suspended during "Spare the Air" days. • Vegetation in disturbed areas shall be replanted as quickly as possible. • Tires or tracks of all trucks and equipment leaving the site shall be washed. • Excavation and grading activities shall be suspended when winds exceed 25 miles per hour. • Construction equipment shall use cool exhaust recirculation.
Noise	3.13.4	Recommended barrier (soundwall) heights and locations for noise abatement are shown on Figure A (Sheets 1 through 15) in Appendix A and discussed in detail in Section 3.13.4. Final decisions concerning noise barriers will be made upon completion of the project design and public involvement processes.
	3.16.12.3	The following control measures will be implemented to minimize noise disturbances at sensitive receptors during construction:

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		Equipment Noise Control ▪ Ensure that all equipment items have the manufacturers' recommended noise abatement measures, such as mufflers, engine enclosures, and engine vibration isolators intact and operational. All construction equipment will be inspected at periodic intervals to ensure proper maintenance and presence of noise control devices (e.g., mufflers and shrouding, etc.) (Caltrans, 1999). ▪ Turn off idling equipment. Administrative Measures ▪ Implement a construction noise monitoring program to limit the impacts. ▪ Plan noisier operations during times of least sensitivity for receptors. ▪ Keep noise levels relatively uniform and avoid impulsive noises. ▪ Maintain good public relations with the community to minimize objections to unavoidable construction noise. Provide frequent activity updates of all construction activities.
Natural Communities	3.16.13.2	Avoidance measures to minimize construction-phase effects on willow riparian scrub and North Coast black cottonwood riparian forest will consist of identifying, marking, and protecting trees with protective orange fencing to avoid disturbance or accidental intrusion by workers or equipment.
Wetlands and Other Waters of U.S.	3.15.2.4	Side slopes steeper than standard will be constructed at several locations to minimize right-of-way takes and impacts to wetlands and other waters of the U.S. *Compensation* requirements for impacts to wetlands and other waters of the U.S. will be determined through consultation with the USACE and RWQCB, which will establish the *compensation* ratio and other measures to be implemented, based on *their* review of this Environmental Assessment/*Final* Environmental Impact Report, the Wetlands Delineation Report, and the *Natural Environment Study/*Biological Assessment. *Compensation* measures will be identified for both permanent and temporary (construction phase) impacts of the project to ensure no net loss of wetlands. *Caltrans/*SCTA *will* purchase wetland creation/enhancement credits at an USACE approved mitigation bank *to ensure no net loss*.
	3.16.13.2	The following avoidance measures will be included in the project specifications and special provisions to avoid or minimize effects on wetlands/other waters of the U.S during construction: ▪ Construction within wetlands and drainages shall be avoided during the rainy season to prevent excessive siltation and sedimentation; ▪ Materials and fluids generated by construction activities shall be placed at least 30 meters (100 feet) from wetland areas or drainages until they could be disposed of in accordance with applicable regulations; and ▪ All natural communities and wetland areas located outside of the construction zone that could be affected by construction activities shall be temporarily fenced off and designated as Environmentally Sensitive Areas (ESAs) to prevent accidental intrusion by workers and equipment. ▪ *Wetland habitats that are temporarily lost or disturbed due to project construction will be restored on-site to preconstruction conditions. Revegetation will be with native species such as cattails (Typha spp.), Juncus spp., or Cyperus spp. Any revegetation will be carried out by a contractor qualified in habitat restoration.*

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Threatened and Endangered Species	3.15.3.4	The following avoidance, minimization, and mitigation measures are proposed to address the special-status species impacts identified in the foregoing section. The final measures will be subject to concurrence by the USFWS, NOAA Fisheries, and CDFG. *Retaining walls and side slopes steeper than standard have been incorporated at several locations to minimize right of way takes and impacts to natural communities that provide habitat for special-status plant and wildlife species.* <u>Special-status Plant Species</u> Pre-construction surveys are recommended during the bloom period for special-status plants. *Protocol-level surveys for listed vernal pool plant species were conducted during 2006 and 2007 pursuant to the "1998 Programmatic Formal Consultation for U.S. Army Corps of Engineers 404 Permitted Projects that may Affect Four Endangered Plant Species of the Santa Rosa Plain, California" (1998 Plant Programmatic Opinion) (Service 1998) and the Santa Rosa Plain Conservation Strategy. These investigations indicated that vernal pool plant species do not exist within the immediate project area. Prior to completion of the survey, avoidance and mitigation measures were developed in consultation with USFWS pursuant to the 1998 Plant Programmatic Opinion. Compensation for the loss of listed plants for this project is 4.38 ha (10.83 ac). Presence/absence surveys were conducted during 2006 pursuant to the USACE HQE process with negative findings. Given the negative findings of these 2006/2007 surveys, this compensation may be reduced pending further consultation with USFWS.* <u>Russian River Tule Perch and Pacific Salmon and Trout: Coho Salmon, Steelhead, and Chinook Salmon:</u> Modifications at Mark West, *Piner, Pruitt, Pool, and Paulin* Creek crossings will be developed in consultation with NOAA Fisheries, *USFWS, and CDFG.* Riparian habitat will be restored at a mitigation ratio to be established in consultation with NOAA Fisheries, USFWS and CDFG. *Measures will be incorporated per the Biological Opinion issued by NOAA Fisheries on October 19, 2007 to ensure that threatened and endangered fishes, their habitat (including critical habitat) and designated Essential Fish Habitat (EFH) in project area streams are not likely to be adversely affected. Project design will be consistent with the California Salmonid Stream Habitat Restoration Manual (CDFG 2003), which provides measures to ensure fish passage and to enhance or restore riparian habitat; the Recovery Strategy for Coho Salmon (CDFG 2004); Guidelines for Salmonid Passage at Stream Crossings (NMFS 2001); and with the NMFS Southwest Region's Habitat Protection Policy (NMFS 1991).* <u>Northern Red-legged Frog, Foothill Yellow-legged Frog, Western and Northwestern and Northwestern Pond Turtle</u>: Preconstruction surveys for the *northern red-legged frog, foothill yellow-legged frog, and western pond turtle*, as described in Section 3.16.13, will be conducted at Mark West Creek*, Piner Creek, and Pruitt Creek.*

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		Preconstruction surveys for the northern red-legged frog, foothill yellow-legged frog, and northwestern pond turtle will be conducted at Mark West Creek. In the unlikely event that individual northern red-legged frogs, foothill yellow-legged frogs, western or northwestern pond turtles are encountered, they will be moved immediately to a pre-approved relocation site that is a minimum of 100 m (330 ft) downstream from the construction area boundary. <u>California Tiger Salamander</u>: Consultation with the USFWS to determine appropriate compensation measures for potential impacts to California tiger salamander areas in accordance with the Santa Rosa Plain Conservation Strategy *was completed October 2006. Caltrans/SCTA will compensate for the loss of 6.36 ha (15.72 ac) of CTS habitat with the acquisition and preservation of 1.27 ha (3.14 ac) of habitat for CTS.* *All required BMPs will be in place during construction.* *Construction will be limited to the dry season (June 1 – October 31) in aquatic habitat when drainages and wetlands would be either dry or at their lowest water level to minimize impacts to aquatic resources including the potential for take of breeding/migrating CTS. CTS habitat that can be avoided during construction will be flagged and designated as Environmentally Sensitive Area. All construction personnel will avoid these areas.* *A qualified biologist(s) shall be onsite during all activities that may result in the take of CTS. The biologist shall have oversight over implementation of all the Terms and Conditions of the Biological Opinion, and shall have the authority to stop project activities, through communication with the resident engineer, if any of the requirements associated with these Terms and Conditions are not being fulfilled. The biologist(s) shall be given the authority to stop any work that may result in the take of this listed animal species. If the biologist(s) exercises this authority, USFWS and CDFG shall be notified by telephone and electronic mail within one working day.* *Pre-construction surveys shall be conducted by a USFWS-approved biologist for CTS.* *The onsite biologist monitor will check for animals under any equipment before the start of work each morning.* *Only USFWS-approved biologist(s) familiar with the biology and ecology of CTS shall capture or handle this listed species.* *Biologists shall take precautions to prevent introduction of amphibian diseases to the action area by disinfecting equipment and clothing as directed in the October 2003 California tiger salamander protocol titled, Interim Guidance on Site Assessment and Field Surveys for Determining Presence or a Negative Finding of the California Tiger Salamander.* *To prevent inadvertent entrapment of CTS during construction, all excavated, steep-walled holes or trenches more than 0.61 m (two feet) deep shall be covered at the close of each working day by plywood or similar materials, or provided with one or more escape ramps constructed of earth fill or wooden planks. Before such holes or trenches are filled, they must be thoroughly inspected for trapped animals. If at any time a trapped listed animal is discovered, the on-site biologist should immediately place escape ramps or*

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		other appropriate structures to allow the animal to escape, or USFWS and/or CDFG shall be contacted by telephone for guidance. USFWS shall be notified of the incident by telephone or electronic mail within one working day. *No canine or feline pets shall be permitted in the action area.* *No plastic mono-filament netting or similar material shall be used.* *Caltrans-approved worker environmental awareness program will be prepared by the contractor and delivered to construction personnel to provide them with information on their responsibilities with regard to CTS.*
	3.16.13.2	Pacific Salmon and Trout: Coho Salmon, Steelhead and Chinook Salmon: The construction contractor will adopt BMPs that NOAA Fisheries, USFWS, and CDFG believe will help avoid jeopardizing the continued existence of the species, including: ▪ Loss of vegetation and delivery of sediments to streams will be minimized through the creation of buffer zones where the project crosses through riparian areas. Construction activities, such as staging, stockpiling of materials or equipment, and equipment movement will be limited to locations outside of riparian areas, where possible. Riparian areas will be identified as ESAs and will be clearly marked with fencing. ▪ Construction and grading that will affect Mark West Creek and drainages, or upland areas that might erode into the creek or drainages, will be restricted to the period from June 15 to October 15. ▪ A Storm Water Pollution Prevention Plan (SWPPP) will be implemented to minimize storm water and groundwater pollution caused by construction activities. The SWPPP will outline erosion control measures and other BMPs to control and prevent to the maximum extent practicable the discharge of pollutants to surface and water and groundwater. ▪ Mark West Creek will be temporarily piped through the construction area between June 15 and October 15. ▪ All coho salmon, steelhead and chinook salmon present in dewatered areas will be captured and transported to free flowing water by a NOAA Fisheries approved biologist. Russian River Tule Perch: Avoidance and minimization measures, as described above for coho salmon, steelhead and chinook salmon, will be sufficient to protect Russian River tule perch. California Tiger Salamander: Avoidance and minimization efforts would be implemented to avoid construction-related impacts to CTS, as described below. • All required BMPs will be in place during construction. • Sensitive areas will be marked with high visibility fencing to clearly identify the construction area relative to sensitive areas. • Construction will be limited to the dry season (June 1 *to* October 31) in aquatic habitat when drainages and wetlands would be either dry or at their lowest water level to minimize impacts to aquatic resources including the potential for take of breeding/migrating CTS. CTS habitat that can be avoided during construction will be flagged and designated as

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		Environmentally Sensitive Area. All construction personnel will avoid these areas. • Site monitoring by a USFWS-approved biologist during construction to remove any CTS found in the construction area. • A worker environmental awareness program will be prepared and delivered *by the contractor* to construction personnel to provide them with information on their responsibilities with regard to CTS. • Prior to the start of construction activities, the biologist will survey the project area for CTS. If a *CTS* is found, the USFWS-approved biologist will contact USFWS to determine if moving the *CTS* is appropriate. If USFWS approves moving the *CTS,* the biologist shall be allowed sufficient time to move the *CTS* from the work site before construction activities begin. <u>Northern Red-legged Frog, Foothill Yellow-legged Frog, and Western and Northwestern Pond Turtl</u>e: Avoidance and minimization efforts, including preconstruction surveys, will be implemented to avoid construction-related impacts to northern red-legged frog, foothill yellow-legged frog, and western and northwestern pond turtle, as described below. ▪ BMPs will be implemented during all phases of construction. ▪ The construction contractor shall furnish a biologist qualified to survey for northern red-legged frogs, foothill yellow-legged frogs, and western and northwestern pond turtles. ▪ Twenty-four hours prior to construction activities, the project areas will be surveyed by the qualified biologist for northern red-legged frog, foothill yellow-legged frog, and western and northwestern pond turtle. Surveys of the project area will be repeated if a lapse in construction activity of two weeks or greater should occur. ▪ A Worker Environmental Awareness Program will be conducted *by the contractor* to provide construction personnel with information on their responsibilities with regard to the northern red-legged frog, foothill yellow-legged frog, and western and northwestern pond turtle. ▪ A permitted biological monitor shall be on-call and capable of responding to the work site within one hour. ▪ If individual northern red-legged frogs, foothill yellow-legged frogs, western or northwestern pond turtles are encountered, they will be moved immediately to a site that is a minimum of 100 meters from the construction area boundary. The relocation site will be determined prior to commencement of construction activities. ▪ If northern red-legged frogs, foothill yellow-legged frogs, western or northwestern pond turtles are encountered during construction, all activities shall cease until appropriate corrective measures have been completed or it has been determined that the species will not be harmed. <u>White-tailed Kite, Loggerhead Shrike and Other Migratory Birds</u>: ▪ If project activities cannot avoid the bird breeding season (generally February 1 *to* August 31), focused pre-construction breeding surveys will be conducted for white-tailed kite and loggerhead shrike, as well as other species protected under the MBTA. Surveys shall be conducted in all

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		areas that may provide suitable nesting habitat by a suitably qualified ornithologist to be furnished by the contractor. ▪ Surveys will include areas within 500 feet of the construction area that provide potential nesting habitat (access permitting). ▪ No more than two weeks before construction, a survey for nesting will be conducted by a qualified ornithologist. ▪ If nesting birds are identified, occupied nests will not be disturbed during the nesting season (February 1 through August 31 for raptors; March 1 through August 31 for other species), including a minimum 250-foot buffer zone around any occupied nest, 150 feet for other non-special status passerine birds, and up to 500 feet for raptors. ▪ Construction-related activities will not be allowed within the buffer zone until the young have fledged. ▪ For activities that occur outside the bird breeding season (generally September 1 through February 28), such surveys will not be required.
Trees and Other Mature Vegetation	3.15.4.4	*Avoidance and minimization approaches as identified in Sections 3.6.5 and 3.15.4.4 will be incorporated during final design to reduce tree loss below the upper end of the reported ranges.* Side slopes steeper than standard will be constructed at several locations to minimize right-of-way and impacts to mature trees. Mature oak trees will be replaced *at a 1:1 ratio where feasible* within the project *limits and* right of way. Caltrans and *its* contractors would comply with *f*ederal, State and Sonoma County quarantine regulations related to Sudden Oak Death (SOD) and the disposal and transport of vegetation debris. Caltrans will comply with the conditions established in the Sonoma County Tree Protection Ordinance prior to removal of any trees outside the State right of way and within County jurisdiction.
Invasive Species	3.15.5.4	To prevent or minimize any introduction or spread of invasive species in the project area, the following methods will be incorporated into the construction specifications: ▪ Using high pressure water blasting or steam cleaning methods, clean all earthmoving equipment of dirt, mud, and seed residue before initially entering the project area. ▪ Avoid any unnecessary disturbance of project areas known to be infested with noxious weeds. ▪ Minimize soil disturbance within right-of-way. ▪ If soil disturbance outside slope stake limits is necessary, keep disturbed area to a minimum, monitor and control disturbed areas and topsoil stockpiles for growth of weed species subject to control, and re-vegetate in accordance with the landscape plans or other project specifications when disturbance is no longer necessary. ▪ Control weeds with pre-emergent, selective and nonselective herbicides. Inspect and monitor erosion control and other disturbed soils throughout construction. Inspect and monitor landscaping/seeding during the vegetation re-establishment period. ▪ Include payment for equipment cleaning under bid item for mobilization. ▪ Construction contractor shall comply with Federal, State and Sonoma County quarantine regulations related to SOD and the disposal and transport of vegetation debris.

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		To prevent or minimize any introduction or spread of invasive animal species in the project area, the construction specifications will require that the contractor adopt sanitation and exclusion methods for preventing spread of invasive species, such as the following: ▪ Restrict use of contaminated soils and fills, ▪ Require pest-free forage and mulch and weed-free sod, ▪ Wash construction equipment.
Construction Stages, Schedule, and Work Hours	3.16.1	Each construction stage will maintain two lanes of traffic on Highway 101 in each direction and all existing bicycle and pedestrian access will be maintained throughout the construction period, except during critical short-term construction activities requiring closure to perform construction or for safety reasons. Lane closures for this project will be made during non-peak travel periods. Closures will require advance approval by the Resident Engineer and will be allowed only during periods of low traffic defined through traffic studies made during the design phase in support of the construction project. Most of the work can be done during daylight hours, but some nighttime work will be necessary to permit temporary closures for tasks that could interfere with mainline traffic or create safety hazards. Examples of these tasks include placing and removing temporary construction barriers, placing pre cast bridge segments, or connecting or conforming ramps to the mainline or local streets. A Transportation Management Plan (TMP) will be developed, in conjunction with the local jurisdictions. The TMP will provide advance notice to motorists and transportation and emergency service providers of information on construction activities and durations, detours, and access issues during each stage of construction. The TMP will identify services to facilitate the safe implementation of the construction project such as increased California Highway Patrol presence during critical construction operations and increased Freeway Service Patrol during peak travel periods. It will also include a public information program to provide motorists with advance notice of information related to the construction activities and durations, temporary closures and detours. Temporary nighttime lane closures and/or detours will be required for activities such as placing and removing temporary concrete barriers to separate construction work areas and traffic. Some short-term closures (closures of a few hours to a few days) of existing interchange ramps may be necessary during some construction activities such as constructing conforms between existing and new roadways, paving operations, and lane striping. Advance notice will be provided of ramp closures, and traffic will be detoured to the adjacent interchanges for these periods. To maintain traffic on Highway 101 and local streets, construction activities requiring traffic lane or ramp closures will not be permitted at adjacent interchanges of Highway 101 at the same time. Retaining walls will be constructed with the associated widening work in

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		each stage and soundwalls will be constructed as early in each stage as practicable to help abate construction noise.
Traffic and Transportation	3.16.2.2	Construction staging plans will be developed to minimize impacts to traffic and transportation on existing roadways during construction. Contractors will be required to coordinate activities with commute schedules to minimize impacts to highway traffic in the corridor. Closure of one or more lanes for construction activities will be limited to late night and weekend hours when traffic is at a minimum. The project TMP will include a public information program to provide motorists and transportation and emergency service providers with information related to construction activities and durations, temporary closures and detours. The SCTA will coordinate with Caltrans and the local jurisdictions to provide the public with advance notice of any proposed traffic detours and their duration. Construction crews will follow established safety practices, including using flaggers, to protect work crews in the construction zone not working behind a temporary concrete barrier. Provisions will be incorporated into the construction contracts to designate areas for construction worker parking and to avoid parking impacts to residential or business areas. Construction haul routes will utilize Highway 101 during non-peak hours to the greatest extent practicable to avoid traffic impacts to residential or business areas.