

Steele Lane, Santa Rosa to Windsor River Road, Windsor



highway 101

HOV LANE WIDENING AND IMPROVEMENTS PROJECT



Environmental Assessment/ Draft Environmental Impact Report

Highway 101
From Steele Lane to Windsor River Road
04-Son-101-KP 34.9/47.2
(PM 21.7/29.3)
04-0A1000

December 2006



GENERAL INFORMATION ABOUT THIS DOCUMENT

What's in this document:

The California Department of Transportation (Caltrans) and the Federal Highway Administration (FHWA) have prepared this Environmental Assessment / Environmental Impact Report, which examines the potential environmental impacts of the alternatives being considered for the proposed project located in Sonoma County, California. The document describes why the project is being proposed, alternatives for the project, the existing environment that could be affected by the project, the potential impacts from the project, and the proposed avoidance, minimization and/or mitigation measures.

What you should do:

- Please read this Environmental Assessment / Environmental Impact Report. Additional copies of this document as well as the technical studies are available for review at:
 - Caltrans District 4 Office, 111 Grand Avenue, Oakland, California 94623, or website at www.dot.ca.gov/dist4/envdocs.htm
 - The Sonoma County Transportation Authority (SCTA) offices at 520 Mendocino Avenue, Suite 240, Santa Rosa, California 95401, or website at www.sctainfo.org
- The environmental document is also available for review at:
 - The City of Santa Rosa Central Library, Third & E Streets, Santa Rosa, California 95404
 - The Town of Windsor Regional Library, 9291 Old Redwood Highway, Bldg. 100, Windsor, California 95492
- We welcome your comments. If you have any comments regarding the proposed project, please attend the public hearing and/or send your written comments to Caltrans by the deadline. Submit comments via postal mail to:

Caltrans District 4
Attention: Mr. Rey Centeno
Project Manager
111 Grand Avenue
Oakland, CA 94612

- Submit comments via email to: SON_101_North_Project@dot.ca.gov
- Submit comments by the deadline: January 24, 2007.

What happens next:

After comments are received from the public and reviewing agencies, Caltrans and the FHWA may: (1) give environmental approval to the proposed project, (2) undertake additional environmental studies, or (3) abandon the project. If the project is given environmental approval and funding is appropriated, the SCTA could design and construct all or part of the project.

For individuals with sensory disabilities, this document can be made available in Braille, large print, on audiocassette, or on computer disk. To obtain a copy in one of these alternate formats, please call or write to Caltrans District 4, Attention: Mr. Rey Centeno, Project Manager, 111 Grand Avenue, Oakland, CA 94612, (510) 286-5800 Voice, or use the California Relay Service TTY number, 800-735-2929.

SCH# 2003062101
04-SON-101-KP 34.9/47.2
(PM 21.7/29.3)
0A1000/04218

Widen Highway 101 from four to six lanes between the Steele Lane Interchange in Santa Rosa, KP 34.9
(postmile 21.7), to the Windsor River Road Interchange in Windsor at KP 47.2 (postmile 29.3)

ENVIRONMENTAL ASSESSMENT / DRAFT ENVIRONMENTAL IMPACT REPORT

Environmental Assessment pursuant to
National Environmental Policy Act (42 USC §4332) 49 USC Chapter 53, 16 USC §470, 23 CFR Part 771, 23 CFR Part 450,
Executive Order 12898.

Environmental Impact Report pursuant to
California Environmental Quality Act, PRC 21000 *et seq.*; and the State of California CEQA Guidelines,
California Administrative Code, 15000 *et seq.*

U.S. DEPARTMENT OF TRANSPORTATION
Federal Highway Administration, and

THE STATE OF CALIFORNIA
Department of Transportation

12/04/06
Date of Approval


James B. Richards
Deputy District Director
Environmental Planning and Engineering
California Department of Transportation
District 4

12/6/2006
Date of Approval


for Gene K. Fong
Division Administrator
Federal Highway Administration

Summary

S.1 Purpose of and Need for the Project

The California Department of Transportation (Caltrans), in cooperation with the Federal Highway Administration (FHWA) and the Sonoma County Transportation Authority (SCTA), propose 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]). FHWA is the Federal Lead Agency for the project under the National Environmental Policy Act (NEPA), and Caltrans is the State Lead Agency under the California Environmental Quality Act (CEQA).

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:

- Complete one of the remaining portions of the Highway 101 HOV system, as described and recommended in the Metropolitan Transportation Commission's *2002 HOV Lane Master Plan Update* (MTC, 2003);
- Reduce traffic congestion for motorists and transit riders using the high-occupancy vehicle lanes; and
- Address existing roadway and operational deficiencies.

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

- Encourage carpooling and the use of alternative transportation modes, by offering HOV lanes that substantially reduce congestion and delay for HOV lane users;
- Address capacity constraints and increasing travel demand, by consolidating traffic into fewer vehicles; and
- Improve mainline traffic operations and on and off movements, by addressing existing roadway and operational deficiencies.

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.2.2 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 Narrows¹

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

S.2.3 Build Alternative

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;
- Bridge widening at Mark West Creek, Pool Creek and Pruitt Creek to accommodate the highway improvements; and

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.

- 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.

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. A more detailed description of the proposed project is presented in Section 2.2.3, Proposed Project (Build Alternative).

S.2.4 Costs and Funding

Total costs estimated for the project range from \$133.0 to \$136.4 million in 2006 dollars, depending on which design options are selected for the Fulton Road/Airport Boulevard Interchange Complex. The secured funding sources for this project are from the State Transportation Improvement Plan (STIP), a federal earmark authorized under SAFETEA-LU, 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.3 Other Proposed Actions in Project Vicinity

S.3.1 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 is anticipated in 2006, with construction anticipated to begin 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 approval is anticipated in 2007, with construction beginning in 2008.

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.3.2 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, and the environmental document was released in November 2005. Rail service is scheduled to begin by 2009.

S.4 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 Impacts and Proposed Mitigation Measures		
Impact Category	Build 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 to 2.46 ha (2.74 to 6.08 ac) of agricultural and vacant land to transportation uses, depending on Fulton Road / Airport Blvd. Interchange Complex Option.	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 to 1.30 ha (2.74 to 3.21 ac) of farmland to transportation uses, depending on the Fulton Rd. / Airport Blvd. Interchange Complex options. Farmland includes 0.75 to 0.86 ha (1.87 to 2.12 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 Impacts and Proposed Mitigation Measures

Impact Category	Build Alternative Impacts	Proposed Avoidance, Compensation and Minimization Measures
Visual/Aesthetics	<p>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.</p> <p>236 mature trees would be removed—about 179 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.)</p>	<p>Planting concepts and hardscape aesthetic design treatments consistent with Caltrans landscaping requirements would mitigate adverse impacts on overall visual quality.</p> <p>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. The 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 and replacement ratios to be used.</p> <p>A three-year plant establishment period would be implemented.</p> <p>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.</p> <p>Redwood tree clusters shall be reestablished along the linear portions of the corridor where feasible. Additionally, replacement planting will occur near interchanges and points of entry into cities within the project limits.</p>
Archaeological Resources	No sites eligible for National Register of Historic Places (NRHP). Project impact area is not sensitive for buried archaeological resources.	None proposed.
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.

Table S-1: Summary of Build Alternative Impacts and Proposed Mitigation Measures		
Impact Category	Build Alternative Impacts	Proposed Avoidance, Compensation and Minimization Measures
Water Quality/ Stormwater Runoff	Increases in impervious surface. Potential pollutants from area surface runoff, particularly from “first flush” runoff.	Best Management Practices (BMPs), e.g., erosion control measures and such structural treatments as detention basins and vegetated swales.
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	<p>Low risk from hazardous waste sites in the corridor, which are currently undergoing monitoring or remediation.</p> <p>Four bridges and overcrossings with the potential to contain lead based paint and/or asbestos</p> <p>Potential for encounter with soil contaminated by aerially deposited lead.</p>	<p>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.</p> <p>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.</p>
Air Quality	<p>No increase in emissions from vehicle operations. No carbon monoxide exceedences at intersection hot-spots.</p> <p>Reduction of Mobile Source Air Toxic Emissions. Complies with federal transportation conformity criteria (40 CFR Part 93).</p>	None proposed.
Noise	Increase in ambient noise levels in the project vicinity.	Noise Abatement Measures would reduce noise levels.
Energy	Reduced vehicle energy use.	None proposed.

Table S-1: Summary of Build Alternative Impacts and Proposed Mitigation Measures

Impact Category	Build Alternative Impacts	Proposed Avoidance, Compensation and Minimization Measures
Wetlands and Other Waters of U.S.	Up to 0.024 ha (0.060 ac) of wetlands and other waters of the U.S. would be permanently affected, depending upon the Fulton Road/Airport Blvd. Interchange Complex options.	Mitigation banking or on-site/in kind creation or enhancement of wetlands would ensure no net loss of wetlands and compensate for impacts to other waters.
Trees and Other Mature Vegetation	26 mature Valley oaks, and 11 mature Coast 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 would be replaced at a ratio to be determined with CDFG. Compliance with Sonoma County Tree Protection Ordinances prior to removal of any tree in county jurisdiction.
Threatened and Endangered Species	<p>Preliminary surveys resulted in negative findings for all 25 special-status plants with potential to occur within the project area; it is unlikely that these species are present. Protocol-level presence/absence surveys for vernal pool and other special-status plant species are ongoing.</p> <p>Up to 0.0039 ha (0.0097 ac) of aquatic habitat at Mark West Creek that provides suitable habitat for Russian River tule perch, coho salmon, steelhead, and chinook salmon; northern red-legged frog; and western and northwestern pond turtle would be permanently affected.</p>	<p>In the unlikely event special-status plant species are found, specific avoidance, minimization and/or mitigation measures will be established in consultation with the USFWS, USACE and CDFG.</p> <p>Plant surveys are recommended during the bloom period prior to construction to ensure no harm to special-status plants.</p> <p>Protective measures would be implemented to minimize harm to affected species. Revegetation and erosion control of the creek and surrounding riparian areas will improve conditions for salmonids and perch. 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.</p>

Table S-1: Summary of Build Alternative Impacts and Proposed Mitigation Measures

Impact Category	Build Alternative Impacts	Proposed Avoidance, Compensation and Minimization Measures
Invasive Species	Weeds can be inadvertently introduced into the corridor during construction.	<p>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.</p> <p>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.</p>

Table S-1: Summary of Build Alternative Impacts and Proposed Mitigation Measures

Impact Category	Build Alternative Impacts	Proposed Avoidance, Compensation and Minimization Measures
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.
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 Best Management Practices.
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 Stormwater Pollution Prevention Plan (SWPPP) would be prepared and will identify construction period 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 period 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.

Table S-1: Summary of Build Alternative Impacts and Proposed Mitigation Measures		
Impact Category	Build Alternative Impacts	Proposed Avoidance, Compensation and Minimization Measures
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.
Wetlands and Other Waters	Temporarily affects up to 0.145 ha (0.359 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	<p>Suitable habitat for coho salmon, steelhead, chinook salmon, and Russian River tule perch as well as for northern red-legged frog, foothill yellow-legged frog, western and northwestern pond turtle occurs in the project area at Mark West Creek. This habitat could be disturbed during construction.</p> <p>Potential for construction phase effects to nesting raptors and other migratory birds.</p> <p>Preliminary surveys identified no special-status plants in the project area. Protocol-level presence/absence surveys are ongoing.</p>	<p>Buffer zones and work windows would minimize harm to fish species. Any listed fish in dewatered areas would be transported to free flowing water. 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 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.</p> <p>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.</p> <p>An additional round of plant surveys would be conducted during the bloom period prior to construction.</p>

S.5 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.6 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)	The following nationwide permits for impacts to jurisdictional wetlands or other waters of the U.S. under Section 404 of the Clean Water Act: <ul style="list-style-type: none"> • Nationwide permit 14 for linear transportation crossings and possibly, • Nationwide permit 43 for construction or maintenance of stormwater management facilities, and • Nationwide permit 33 for temporary construction, access, and dewatering.
U.S. Fish and Wildlife Service (USFWS)	Issue Biological Opinion (BO) for special-status plant species and California tiger salamander pursuant to Section 7 of the Federal Endangered Species Act (FESA).
National Marine Fisheries Service (NOAA Fisheries)	Issue BO 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 Stormwater 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.

Agency	Approval or Permit
Sonoma County Permit and Resource Management Department	<p>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).</p> <p>The following County ordinances apply to trees in County jurisdiction:</p> <p>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.</p> <p>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.</p> <p>Sonoma County Heritage Tree Ordinance No. 3651 requires approval and mitigation for removal of designated heritage trees.</p>

S.7 Environmental Commitments

Commitments 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 section.

Environmental Category	EA/EIR Section	Environmental Commitments
Utilities	3.5.3	<p>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.</p> <p>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.</p>
	3.16.5	<p>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.</p>

Table S-3: Summary of Proposed Environmental Commitments

Environmental Category	EA/EIR Section	Environmental Commitments
Visual/Aesthetics	3.6.5	<p>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. The following mitigation measures are proposed to reduce visual effects of the Build Alternative.</p> <ul style="list-style-type: none"> ▪ Mature trees will be replaced at a minimum ratio of 1:1. This ratio may be increased based on consultation among Caltrans and the other agencies. ▪ 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, 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: <ul style="list-style-type: none"> ○ Reduce the width of the standard “catch line” to minimize the loss of existing desirable vegetation. ○ 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 shall be reestablished along the linear portions of the corridor where feasible. Additionally, replacement planting will occur near interchanges and points of entry into cities within the project limits.
	3.16.6	<p>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.</p>
Archaeological Resources	3.7.4.1 3.16.7.1	<p>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 regarding late discoveries.</p>

Table S-3: Summary of Proposed Environmental Commitments

Environmental Category	EA/EIR Section	Environmental Commitments
Hydrology/ Floodplains	3.8.4	<p>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 Best Management Practices (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.</p> <p>If detailed study during the final design phase determines that 100-year floodwaters will overtop Highway 101, the effects of widening into the Highway 101 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.</p>
	3.16.8.2	<p>A Stormwater 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:</p> <ol style="list-style-type: none"> 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

Table S-3: Summary of Proposed Environmental Commitments

Environmental Category	EA/EIR Section	Environmental Commitments
		<p>crossing remains during the rainy season.</p> <ol style="list-style-type: none"> 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 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.
<p>Water Quality/ Stormwater Runoff</p>	<p>3.9.4.1</p>	<p>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 that may be considered for this project include detention basins and vegetated swales. Preliminary evaluation indicates that there is adequate area to accommodate these BMPs within the existing and proposed right-of-way and that the BMPs can mitigate nearly 100 percent of all highway run-off, not just the increased run-off attributable to this project. 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.</p> <p>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.</p>
	<p>3.16.9.2</p>	<p>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</p>

Table S-3: Summary of Proposed Environmental Commitments

Environmental Category	EA/EIR Section	Environmental Commitments
		<p>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).</p> <p>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.</p> <p>Construction over and adjacent to waterways will include special construction BMPs to minimize the debris deposition into those waterways, as follows:</p> <ul style="list-style-type: none"> ▪ Demolition and construction over and adjacent to waterways will be accomplished using non shattering methods that will not scatter debris (for 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. <p>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.</p>

Table S-3: Summary of Proposed Environmental Commitments

Environmental Category	EA/EIR Section	Environmental Commitments
Geology/Soils	3.10.3	<p>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.</p> <p>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 lifts and be well compacted.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>Site specific seismic hazard engineering analysis will be conducted during the final design phase and construction process to minimize the impacts of fault rupture.</p>
Hazardous Waste/Materials	3.11.3	<p>The following general avoidance and prevention measures are based on information identified to date:</p> <ul style="list-style-type: none"> ▪ 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 Stormwater Pollution Prevention Plan

Table S-3: Summary of Proposed Environmental Commitments

Environmental Category	EA/EIR Section	Environmental Commitments
		<p>(SWPPP) to be approved by Caltrans prior to the onset of construction activities.</p> <ul style="list-style-type: none"> ▪ 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 be handled and disposed of in accordance with applicable federal and state laws, regulations, rules, and policies. <p>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.</p> <p>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.</p> <p>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.</p> <p>It is recommended that surface samples of soil be collected and analyzed for total lead. Any sample exceeding 1,000 milligrams/kilogram (mg/kg) should be tested</p>

Table S-3: Summary of Proposed Environmental Commitments

Environmental Category	EA/EIR Section	Environmental Commitments
		<p>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. If Caltrans were to use the affected soils on site, special provisions subject to the ADL variance provided to Caltrans by the DTSC will be used. This variance includes testing of the soils exceeding the hazardous waste thresholds via a WET-DI procedure, a waste extraction procedure using de-ionized water as a leaching agent. 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 sampling and testing program will be prepared in accordance with Caltrans guidelines during the design phase of the project.</p>
	3.16.10.2	<p>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.</p>
Air Quality	3.16.11.2	<p>Caltrans will develop a Construction Emissions Mitigation Plan that would include measures such as the following:</p> <ul style="list-style-type: none"> • 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.

Table S-3: Summary of Proposed Environmental Commitments

Environmental Category	EA/EIR Section	Environmental Commitments
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. A final decision concerning noise barriers will be made upon completion of the project design and public involvement processes.
	3.16.12.3	<p>The following control measures will be implemented to minimize noise disturbances at sensitive receptors during construction:</p> <p>Equipment Noise Control</p> <ul style="list-style-type: none"> ▪ 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. <p>Administrative Measures</p> <ul style="list-style-type: none"> ▪ 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	<p>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. Mitigation 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 mitigation ratio and other measures to be implemented, based on its review of this Environmental Assessment/Environmental Impact Report, the Wetlands Delineation Report, and the Biological Assessment for Vernal Pool Plant Species. Mitigation measures will be identified for both permanent and temporary (construction phase) impacts of the project to ensure no net loss of wetlands.</p> <p>It is recommended that SCTA purchase wetland creation/enhancement credits at an USACE approved mitigation bank. Alternatively, SCTA will consult with the USACE to identify on-site locations to create or enhance seasonal freshwater marsh and wetlands at ratios to ensure no net loss. In this case, SCTA will develop a wetlands mitigation plan that will describe the conceptual wetlands creation/enhancement approach, identify the site and preferred plants, and establish performance criteria. Either of these measures will mitigate for project effects to wetlands. The USACE's review will be completed and the final mitigation measures identified before the Finding of No Significant Impact/Final Environmental Impact Report is approved.</p>
	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:

Table S-3: Summary of Proposed Environmental Commitments

Environmental Category	EA/EIR Section	Environmental Commitments
		<ul style="list-style-type: none"> ▪ 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. <p>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 (<i>Typha</i> spp.), <i>Juncus</i> spp., or <i>Cyperus</i> spp. Any revegetation will be carried out by a contractor qualified in habitat restoration.</p>
<p>Threatened and Endangered Species</p>	<p>3.15.3.4</p>	<p>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.</p> <p><u>Special-status Plant Species</u> Pre-construction surveys are recommended during the bloom period for special-status plants. In the unlikely event special-status plant species are found, mitigation will be discussed with the USFWS and CDFG and specific avoidance, minimization and/or mitigation measures will be established in accordance with the Santa Rosa Plain Conservation Strategy. Types of mitigation may include marking and protecting plants with high visibility fencing until seed-set later in the flowering season and/or collecting, storing, and growing seeds in a regional preserve or center for plant conservation following California Native Plant Society (CNPS) and CDFG plant protection guidelines.</p> <p><u>Russian River Tule Perch and Pacific Salmon and Trout: Coho Salmon, Steelhead, and Chinook Salmon:</u> Modifications at the Mark West Creek crossing will be developed in consultation with NOAA Fisheries, and protective measures will be implemented to minimize incidental take of the species and to avoid jeopardizing the continued existence of the species. Revegetation, including erosion control, seeding and planting, will occur to maintain water clarity and nutrients. Revegetation of the creek and surrounding riparian areas will increase cover for Russian River tule perch, coho salmon, steelhead and chinook salmon, prevent erosion in streams, and provide a source of nutrients for the fish. Modifications and revegetation at Mark West Creek will be consistent with the CDFG’s California Salmonid Stream Habitat Restoration Manual. Riparian habitat will be restored at a mitigation ratio to be established in consultation with NOAA Fisheries, USFWS and CDFG.</p> <p><u>Northern Red-legged Frog, Foothill Yellow-legged Frog, Western and Northwestern Pond Turtle:</u> Preconstruction surveys for these species, as described in Section 3.16.13, 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</p>

Table S-3: Summary of Proposed Environmental Commitments

Environmental Category	EA/EIR Section	Environmental Commitments
		<p>is a minimum of 100 m (330 ft) downstream from the construction area boundary.</p> <p><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 is ongoing. Replacement that will most benefit the species will involve purchase of sufficient property rights for habitat conservation to ensure preservation in perpetuity. This approach presumes the identification of suitable land located sufficiently within the Highway 101 corridor to address project impacts, but sufficiently far from the threat of future roadway or urban development to ensure preservation. A multi-agency cooperative endeavor including FHWA, Caltrans, SCTA, and a local public agency such as the Sonoma County Agricultural Preservation and Open Space District that will assume responsibility for maintenance of the habitat conservation easement appears the most promising, subject to consultation with the USFWS and CDFG. Alternatively, SCTA will purchase credits at a USFWS/CDFG-approved habitat conservation bank. Final selection of compensatory measures for the CTS will be determined through coordination with the USFWS during the formal Section 7 consultation process.</p>
	3.16.13.2	<p><u>Pacific Salmon and Trout: Coho Salmon, Steelhead and Chinook Salmon:</u> The construction contractor will adopt BMPs that NOAA Fisheries, USFWS, and CDFG believe will help avoid jeopardizing the continued existence of the species, including:</p> <ul style="list-style-type: none"> ▪ 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. <p><u>Russian River Tule Perch:</u> Avoidance and minimization measures, as described above for coho salmon, steelhead and chinook salmon, will be sufficient to protect Russian River tule perch.</p> <p><u>Northern Red-legged Frog, Foothill Yellow-legged Frog, and Western and Northwestern Pond Turtle:</u> Avoidance and minimization efforts, including preconstruction surveys, will be implemented to avoid construction-related impacts to northern red-legged frog,</p>

Table S-3: Summary of Proposed Environmental Commitments

Environmental Category	EA/EIR Section	Environmental Commitments
		<p>foothill yellow-legged frog, and western and northwestern pond turtle, as described below.</p> <ul style="list-style-type: none"> ▪ 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 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. <p><u>White-tailed Kite, Loggerhead Shrike and Other Migratory Birds:</u></p> <ul style="list-style-type: none"> ▪ If project activities cannot avoid the bird breeding season (generally February 1 – 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 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	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 within the project right-of-way or at a nearby location at a ratio to be

Table S-3: Summary of Proposed Environmental Commitments

Environmental Category	EA/EIR Section	Environmental Commitments
		<p>determined in consultation with the CDFG. Caltrans and their contractors would comply with Federal, 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.</p>
Invasive Species	3.15.5.4	<p>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:</p> <ul style="list-style-type: none"> ▪ 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. <p>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:</p> <ul style="list-style-type: none"> ▪ 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	<p>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.</p> <p>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.</p>

Table S-3: Summary of Proposed Environmental Commitments

Environmental Category	EA/EIR Section	Environmental Commitments
		<p>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.</p> <p>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.</p> <p>Retaining walls will be constructed with the associated widening work in each stage and soundwalls will be constructed as early in each stage as practicable to help abate construction noise.</p>
Traffic and Transportation	3.16.2.2	<p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p>

Table of Contents

Summary		S-1
S.1	Purpose of and Need for the Project	S-1
S.2	Project Alternatives	S-1
S.2.1	Alternatives Development and Screening	S-1
S.2.2	No-Build Alternative	S-2
S.2.3	Build Alternative	S-2
S.2.4	Costs and Funding	S-3
S.3	Other Proposed Actions in Project Vicinity	S-3
S.3.1	Highway 101 Widening and Improvements Projects	S-3
S.3.2	Sonoma-Marín Area Rail Transit (SMART)	S-4
S.4	Environmental Consequences and Mitigation Measures	S-4
S.5	Areas of Potential Controversy and Issues to Be Resolved	S-12
S.6	Agency Permits and Approvals	S-12
S.7	Environmental Commitments	S-13
Chapter 1	Purpose of and Need for Project	1-1
1.1	Introduction	1-1
1.1.1	Scope of this Environmental Assessment/Environmental Impact Report	1-1
1.1.2	Project Location	1-2
1.2	Purpose of and Need for the Proposed Project	1-2
1.2.1	Project Purpose	1-2
1.2.1.1	Complete a Major Segment in the Planned Continuous Highway 101 HOV Lane System	1-2
1.2.1.2	Reduce Traffic Congestion and Delay for HOV Lane Users	1-6
1.2.1.3	Address Existing Roadway Deficiencies	1-6
1.2.2	Project Need	1-7
1.2.2.1	Encourage Carpooling and Use of Alternative Transportation Modes by Reducing Congestion and Delay for HOV Lane Users	1-7
1.2.2.2	Capacity Constraints	1-10
1.2.2.3	Needs Associated with Addressing Existing Roadway Deficiencies	1-11
1.3	Project Background	1-13
1.3.1	Project History	1-13
1.3.2	Funding and Programming	1-14
1.3.3	Related Projects	1-15
1.3.3.1	Highway 101 HOV Lane Widening and Improvements Projects	1-15
1.3.3.2	Sonoma-Marín Area Rail Transit (SMART)	1-16
Chapter 2	Project Alternatives	2-1
2.1	Alternatives Development Process	2-1
2.2	Project Alternatives	2-2
2.2.1	Existing Conditions	2-2
2.2.2	No-Build Alternative	2-3
2.2.3	Proposed Project (Build Alternative)	2-4
2.2.3.1	Mainline Improvements	2-4
2.2.3.2	Interchange Improvements	2-5
2.3	Alternatives Considered and Withdrawn	2-8
2.3.1	Mixed-Flow Lane Alternative	2-8
2.3.2	Transit/Transportation Systems Management Alternative	2-8
2.3.3	Variations on the Build Alternative	2-8
2.3.3.1	Minimum Interchange Improvements	2-9
2.3.3.2	Increase Weave Length	2-9
2.3.3.3	Eliminate Weave	2-10
2.4	Project Costs	2-11
2.5	Project Schedule	2-11

Chapter 3	Affected Environment, Environmental Consequences, and Avoidance, Minimization, and/or Mitigation Measures	3-1
3.1	Traffic and Transportation/Pedestrian and Bicycle Facilities	3-1
3.1.1	Affected Environment	3-1
3.1.1.1	Existing Roadway Network	3-1
3.1.1.2	Existing Traffic Conditions on Highway 101	3-4
3.1.1.3	Existing Transit, Bicycle/Pedestrian, and Parking Conditions	3-10
3.1.2	Environmental Consequences	3-15
3.1.2.1	2030 Peak Hour Traffic Conditions under the No-Build Alternative	3-15
3.1.2.2	2030 Transit Conditions under the No-Build Alternative	3-16
3.1.2.3	Bicycle/Pedestrian and Parking Conditions under the No-Build Alternative	3-16
3.1.2.4	2030 Peak Hour Traffic Conditions under the Build Alternative	3-17
3.1.2.5	2030 Transit, Bicycle/Pedestrian, and Parking Conditions under the Build Alternative	3-20
3.1.2.6	2010 Peak Hour Traffic Conditions under the Build and No-Build Alternatives	3-21
3.1.3	Avoidance, Minimization, and/or Mitigation Measures	3-22
3.2	Land Use, Planning, and Growth	3-23
3.2.1	Existing and Future Land Use	3-23
3.2.1.1	Affected Environment	3-23
3.2.1.2	Developable Land and Development Trends	3-25
3.2.1.3	Major Approved and Active Projects	3-25
3.2.1.4	Environmental Consequences	3-28
3.2.1.5	Avoidance, Minimization and/or Mitigation Measures	3-28
3.2.2	Consistency with State, Regional, and Local Plans	3-28
3.2.2.1	Affected Environment	3-28
3.2.2.2	Environmental Consequences	3-30
3.2.3	Growth Inducement	3-30
3.2.3.1	Affected Environment	3-30
3.2.3.2	Environmental Consequences	3-31
3.3	Farmlands/Agricultural Lands	3-33
3.3.1	Regulatory Setting	3-33
3.3.1.1	Farmland Protection Policy Act	3-33
3.3.1.2	Williamson Act	3-33
3.3.1.3	Sonoma County General Plan (1989)	3-33
3.3.1.4	City of Santa Rosa General Plan	3-33
3.3.1.5	Town of Windsor General Plan	3-33
3.3.2	Affected Environment	3-34
3.3.3	Environmental Consequences	3-34
3.3.4	Avoidance, Minimization and/or Mitigation Measures	3-35
3.4	Community Impacts	3-35
3.4.1	Community Character	3-36
3.4.1.1	Affected Environment (Demographic/Household/Neighborhood Characteristics)	3-36
3.4.1.2	Environmental Consequences	3-40
3.4.1.3	Avoidance, Minimization, and/or Mitigation Measures	3-41
3.4.2	Community Facilities and Public Services	3-41
3.4.2.1	Affected Environment	3-41
3.4.2.2	Environmental Consequences	3-42
3.4.2.3	Avoidance, Minimization, and/or Mitigation Measures	3-44
3.4.3	Relocations	3-44
3.4.4	Environmental Justice	3-44
3.4.4.1	Regulatory Setting	3-44
3.4.4.2	Affected Environment	3-44
3.4.4.3	Environmental Consequences	3-45
3.4.4.4	Avoidance, Minimization, and/or Mitigation Measures	3-47
3.5	Utilities/Service Systems	3-47
3.5.1	Affected Environment	3-47
3.5.2	Impacts	3-47

3.5.3	Avoidance, Minimization, and/or Mitigation Measures	3-48
3.6	Visual/Aesthetics	3-49
3.6.1	Regulatory Setting	3-49
3.6.2	Affected Environment	3-49
3.6.2.1	Existing Visual Character and Context	3-49
3.6.2.2	Existing Visual Image Types and Viewer Groups	3-50
3.6.2.3	Landscape Units	3-50
3.6.3	Environmental Consequences	3-56
3.6.3.1	Visual Resource Change	3-57
3.6.3.2	Visual Changes and Effect on Viewer Groups	3-59
3.6.4	Consistency with Scenic/Visual Resource Plans and Policies	3-67
3.6.5	Avoidance, Minimization, and/or Mitigation Measures	3-69
3.7	Cultural Resources	3-70
3.7.1	Regulatory Setting	3-70
3.7.2	Affected Environment	3-71
3.7.2.1	Archaeological Resources	3-71
3.7.2.2	Historic Resources	3-73
3.7.3	Environmental Consequences	3-74
3.7.3.1	Impacts on Archaeological Resources	3-74
3.7.3.2	Impacts on Historic Archaeological Resources	3-74
3.7.3.3	Impacts on Architectural Resources	3-75
3.7.4	Avoidance, Minimization, and/or Mitigation Measures	3-75
3.7.4.1	Prehistoric Archaeological Resources	3-75
3.8	Hydrology and Floodplains	3-75
3.8.1	Regulatory Setting	3-75
3.8.2	Affected Environment	3-75
3.8.2.1	Hydrology	3-76
3.8.2.2	Floodplains	3-78
3.8.3	Environmental Consequences	3-79
3.8.3.1	Cross-Drainage Impacts	3-79
3.8.3.2	Floodplain Impacts	3-79
3.8.4	Avoidance, Minimization, and/or Mitigation Measures	3-80
3.8.4.1	Roadside Drainage	3-80
3.8.4.2	Cross-Drainage	3-80
3.8.4.3	Floodplains	3-80
3.9	Water Quality and Stormwater Run-off	3-81
3.9.1	Regulatory Setting	3-81
3.9.2	Affected Environment	3-82
3.9.2.1	Beneficial Uses of Water Resources	3-82
3.9.2.2	Existing Drainage	3-82
3.9.2.3	Water Quality	3-82
3.9.2.4	Pollutants	3-82
3.9.3	Environmental Consequences	3-83
3.9.3.1	Stormwater Run-Off	3-83
3.9.3.2	Water Quality	3-83
3.9.4	Avoidance, Minimization and/or Mitigation Measures	3-83
3.9.4.1	Pollutant Removal and Reduction	3-83
3.9.4.2	Erosion Control Measures	3-84
3.10	Geology/Soils/Seismic/Paleontology/Topography	3-84
3.10.1	Affected Environment	3-84
3.10.1.1	Regional Geology	3-84
3.10.1.2	Soils and Sediments	3-84
3.10.1.3	Seismicity	3-85
3.10.1.4	Paleontology	3-85
3.10.2	Environmental Consequences	3-86
3.10.2.1	Landsliding	3-86
3.10.2.2	Expansive Surficial Soils	3-86

Table of Contents

3.10.2.3	Ground Shaking	3-86
3.10.2.4	Liquefaction-Induced Settlement	3-86
3.10.2.5	Lateral Spreading	3-87
3.10.2.6	Fault Rupture.....	3-87
3.10.3	Avoidance, Minimization and/or Mitigation Measures	3-87
3.10.3.1	Expansive Surficial Soils	3-87
3.10.3.2	Ground Shaking	3-88
3.10.3.3	Liquifaction-Induced Settlement.....	3-88
3.10.3.4	Lateral Spreading	3-88
3.10.3.5	Fault Rupture.....	3-88
3.11	Hazardous Wastes/Materials.....	3-88
3.11.1	Affected Environment.....	3-88
3.11.1.1	Identified Hazardous Waste Sites.....	3-89
3.11.1.2	Lead-Based Paint and Asbestos	3-89
3.11.1.3	Aerially Deposited Lead.....	3-91
3.11.2	Environmental Consequences	3-91
3.11.2.1	Hazardous Waste Releases.....	3-91
3.11.2.2	Lead-Based Paint and Asbestos	3-91
3.11.2.3	Aerially Deposited Lead.....	3-91
3.11.3	Avoidance, Minimization, and/or Mitigation Measures	3-92
3.11.3.1	Hazardous Waste Releases.....	3-92
3.11.3.2	Lead-Based Paint and Asbestos	3-92
3.11.3.3	Aerially Deposited Lead.....	3-93
3.12	Air Quality	3-93
3.12.1	Regulatory Setting	3-93
3.12.1.1	National and State Ambient Air Quality Standards.....	3-94
3.12.1.2	Mobile Source Air Toxics	3-96
3.12.1.3	Air Quality Plans.....	3-97
3.12.1.4	Air Quality Conformity.....	3-98
3.12.2	Affected Environment.....	3-98
3.12.2.1	Climate	3-98
3.12.2.2	Air Monitoring Data.....	3-98
3.12.2.3	Background Carbon Monoxide (CO) Conditions.....	3-99
3.12.2.4	Sensitive Receptors	3-100
3.12.3	Environmental Consequences	3-100
3.12.3.1	Methodology	3-100
3.12.3.2	Impact Analysis.....	3-101
3.12.3.3	Mobile Source Air Toxics Impact Analysis	3-102
3.12.4	Avoidance, Minimization, and/or Mitigation Measures	3-104
3.12.5	Transportation Conformity Analysis	3-104
3.13	Noise	3-106
3.13.1	Regulatory Setting	3-106
3.13.2	Affected Environment.....	3-108
3.13.2.1	Noise Fundamentals.....	3-108
3.13.2.2	Existing Highway 101 Noise Levels.....	3-110
3.13.3	Environmental Consequences	3-113
3.13.4	Avoidance, Minimization, and/or Mitigation Measures	3-113
3.14	Energy.....	3-126
3.15	Biological Environment.....	3-128
3.15.1	Natural Communities.....	3-128
3.15.1.1	Affected Environment.....	3-128
3.15.1.2	Environmental Consequences	3-131
3.15.1.3	Avoidance, Minimization, and/or Mitigation Measures.....	3-132
3.15.2	Wetlands and Other Waters of the United States.....	3-133
3.15.2.1	Regulatory Setting.....	3-133
3.15.2.2	Affected Environment.....	3-133
3.15.2.3	Environmental Consequences	3-135

3.15.2.4	Avoidance, Minimization, and/or Mitigation Measures.....	3-136
3.15.3	Threatened and Endangered Species	3-136
3.15.3.1	Regulatory Setting.....	3-136
3.15.3.2	Affected Environment.....	3-138
3.15.3.3	Environmental Consequences	3-144
3.15.3.4	Avoidance, Minimization, and/or Mitigation Measures.....	3-146
3.15.4	Trees and Other Mature Vegetation.....	3-148
3.15.4.1	Regulatory Setting.....	3-148
3.15.4.2	Affected Environment.....	3-149
3.15.4.3	Environmental Consequences	3-149
3.15.4.4	Avoidance, Minimization, and/or Mitigation Measures.....	3-149
3.15.5	Invasive Species.....	3-149
3.15.5.1	Regulatory Setting.....	3-149
3.15.5.2	Affected Environment.....	3-150
3.15.5.3	Environmental Consequences	3-150
3.15.5.4	Avoidance, Minimization, and/or Mitigation Measures.....	3-151
3.16	Construction Impacts	3-151
3.16.1	Construction Stages, Schedule, and Work Hours	3-151
3.16.2	Traffic and Transportation/Pedestrian and Bicycle Facilities	3-153
3.16.2.1	Environmental Consequences	3-153
3.16.2.2	Avoidance, Minimization, and/or Mitigation Measures.....	3-153
3.16.3	Farmlands/Agricultural Lands	3-154
3.16.4	Community Impacts.....	3-154
3.16.5	Utilities/Service Systems	3-154
3.16.6	Visual/Aesthetics	3-155
3.16.7	Cultural Resources.....	3-155
3.16.7.1	Archaeological Impacts.....	3-155
3.16.7.2	Historic Architectural Impacts	3-155
3.16.8	Hydrology and Floodplains	3-156
3.16.8.1	Impacts.....	3-156
3.16.8.2	Mitigation.....	3-156
3.16.9	Water Quality and Stormwater Run-off.....	3-157
3.16.9.1	Impacts.....	3-157
3.16.9.2	Mitigation.....	3-157
3.16.10	Hazardous Wastes/Materials.....	3-158
3.16.10.1	Impacts.....	3-158
3.16.10.2	Avoidance, Minimization, and/or Mitigation Measures.....	3-159
3.16.11	Air Quality.....	3-159
3.16.11.1	Impacts.....	3-159
3.16.11.2	Avoidance, Minimization, and/or Mitigation Measures.....	3-160
3.16.12	Noise.....	3-161
3.16.12.1	Regulatory Setting.....	3-161
3.16.12.2	Impacts.....	3-162
3.16.12.3	Avoidance, Minimization, and/or Mitigation Measures.....	3-162
3.16.13	Biological Resources	3-164
3.16.13.1	Impacts.....	3-164
3.16.13.2	Avoidance, Minimization, and/or Mitigation Measures.....	3-165
3.16.14	Construction Employment.....	3-168
3.16.14.1	Methodology and Impacts.....	3-168
3.16.14.2	Avoidance, Minimization, and/or Mitigation Measures.....	3-169
Chapter 4	Cumulative Impacts.....	4-1
4.1	Overview	4-1
4.2	Regional Context	4-1
4.3	Local Context	4-2
4.3.1	Biological Resources	4-3
4.3.1.1	Natural Communities	4-3

4.3.1.2	Wetlands.....	4-4
4.3.1.3	Special-Status Wildlife Species.....	4-4
4.3.1.4	Valley/Coast Live Oaks	4-6
4.3.2	Farmlands	4-6
4.3.3	Aesthetics.....	4-7
4.3.4	Traffic	4-8
Chapter 5	California Environmental Quality Act (CEQA) Evaluation.....	5-1
5.1	Relationship Between the National Environmental Policy Act (NEPA) and CEQA	5-1
5.2	Significance of the Proposed Project’s Impacts Under CEQA	5-1
5.2.1	CEQA Criteria of Significance	5-1
5.2.2	Unavoidable Significant Adverse Effects Under CEQA	5-2
5.3	Mitigation Measures for Potentially Significant Impacts Under CEQA.....	5-2
Chapter 6	Summary of Public and Agency Involvement and Tribal Coordination	6-1
6.1	Early Public and Agency Consultation (Scoping) Process	6-1
6.1.1	Notice of Preparation	6-1
6.1.2	Stakeholder Interviews.....	6-1
6.1.3	Community Open House (Scoping) Meeting.....	6-2
6.1.4	Newspaper Notices and Flyers.....	6-2
6.1.5	Early Agency Consultation	6-3
6.1.6	Comments Received	6-3
6.2	Consultation and Coordination with Public Agencies	6-3
6.2.1	Consultations under Endangered Species Acts	6-3
6.2.2	Consultations Pursuant to Section 106 of the National Historic Preservation Act	6-4
6.2.2.1	Historic Properties Coordination.....	6-4
6.2.2.2	Tribal Coordination.....	6-4
6.3	Agencies Consulted	6-5
6.4	Other Interested Parties and Stakeholders.....	6-6
6.5	Public Review of This Environmental Document.....	6-7
6.6	Ongoing Public Involvement	6-7
6.6.1	Newsletters	6-7
6.6.2	Project Website.....	6-7
Chapter 7	List of Preparers	7-1
Chapter 8	Distribution List.....	8-1
Chapter 9	List of Technical Studies and Referenced Documents	9-1

Appendices

Appendix A	Build Alternative Plan Drawings
Appendix B	CEQA Environment Checklist
Appendix C	Title VI Policy Statement
Appendix D	Summary of Relocation Benefits
Appendix E	Agency Correspondence
Appendix F	Farmland Conversion Impact Rating Form
Appendix G	Wetland Delineation Maps
Appendix H	Traffic and Transportation/Pedestrian and Bicycle Facilities
Appendix I	Area of Potential Effect
Appendix J	Mobile Source Air Toxics Analysis

List of Figures

Figure 1.1-1: Project Location.....	1-3
Figure 1.1-2: Project Vicinity.....	1-4
Figure 1.1-3: Highway 101 Widening and Improvements Projects.....	1-5
Figure 1.2-1: Highway 101 Total Delay and Locations of Traffic Congestion–Existing Conditions	1-8
Figure 1.2-2: Highway 101 Total Delay and Locations of Traffic Congestion– 2030 No-Build Conditions, Without HOV Lanes.....	1-9
Figure 1.2-3: Highway 101 Total Delay and Locations of Traffic Congestion–2030 Build Conditions, With HOV Lanes in Place.....	1-10
Figure 3.1-1: Caltrans 2003 Annual Average Daily Traffic Volumes on Highway 101	3-2
Figure 3.1-2: Roadway Network within Traffic Study Area and Vicinity	3-3
Figure 3.1-3: Percentages of Accidents in the Project Area (Northbound) by Primary Collision Type.....	3-8
Figure 3.1-4: Percentages of Accidents in the Project Area (Southbound) by Primary Collision Type.....	3-8
Figure 3.1-5: Bus Routes in the Study Area.....	3-11
Figure 3.1-6: Bicycle Routes and Pedestrian Activity Centers.....	3-13
Figure 3.2-1: Existing Land Use.....	3-24
Figure 3.2-2: Major Approved and Active Developments in the Project Area	3-27
Figure 3.2-3: Residential Areas Studied for Growth Inducement Effects of the Project.....	3-32
Figure 3.4-1: Socioeconomic Study Area Census Tracts	3-37
Figure 3.4-2: Parks and Recreational Facilities.....	3-43
Figure 3.4-3: Environmental Justice Communities	3-46
Figure 3.6-1: Viewpoint Locations.....	3-52
Figure 3.6-2: Viewpoint 1	3-60
Figure 3.6-3: Viewpoint 2	3-62
Figure 3.6-4: Fulton Road/Airport Boulevard Interchange Complex (Southbound Option B)	3-63
Figure 3.6-5: Viewpoint 3	3-66
Figure 3.13-1: Typical A-Weighted Noise Levels.....	3-109
Figure 3.15-1: Locations of Wetlands and Other Waters of the U.S.	3-134

List of Tables

Table S-1: Summary of Build Alternative Impacts and Proposed Mitigation Measures.....	S-5
Table S-2: Anticipated Permits and Approvals Required.....	S-12
Table S-3: Summary of Proposed Environmental Commitments.....	S-13
Table 1.3.1-1: Related Studies.....	1-14
Table 1.3.2-1: Funding for Highway 101 Improvements– Steele Lane to Windsor River Road.....	1-15
Table 2.2-1: Bridges and Crossings.....	2-3
Table 2.4-1: Costs for Highway 101 Improvements– Steele Lane to Windsor River Road (2006 \$).....	2-11
Table 3.1-1: Intersection LOS Definitions	3-6
Table 3.1-2: Bikeway Classifications	3-12
Table 3.1-3: Potentially Affected Parking in the Study Area	3-14
Table 3.1-4: Estimated Travel Time, Delay and Time Savings in 2030 (in minutes)	3-18
Table 3.1-5: Year 2010–Travel Time and Delay in Peak Hour under the Build Alternative–Steele Lane to Windsor River Road.....	3-22
Table 3.2-1: Major Approved and Active Projects in the Study Area	3-26
Table 3.2-2: Estimated Land Use Changes Anticipated as a Result of the Build Alternative	3-28
Table 3.3-1: Farmland Impacts with the Build Alternative	3-34
Table 3.4-1: 2000-2030 Population, Housing and Employment Growth	3-36
Table 3.4-2: Ethnic Composition.....	3-38
Table 3.4-3: Household Income and Percent of Low-Income Populations	3-39
Table 3.4-4: Existing Park and Recreational Facilities in the Study Area.....	3-42
Table 3.4-5: Minority and Low-Income Populations in the Study Area	3-45
Table 3.6-1: Summary of the Landscape Unit.....	3-51

Table 3.6-2: Summary of Existing Visual Quality	3-53
Table 3.6-3: Overall Visual Quality Change to Viewpoint 1.....	3-59
Table 3.6-4: Overall Visual Quality Change to Viewpoint 2.....	3-61
Table 3.6-5: Overall Visual Quality Change to Viewpoint 3.....	3-65
Table 3.6-6: Consistency with Scenic/Visual Resource Plans and Policies	3-67
Table 3.10-1: Major Bay Area Faults, Distance from Site, and Maximum Earthquake Magnitudes at Site ...	3-85
Table 3.11-1: Hazardous Waste Sites/Incidences With Potential to Affect Subsurface Conditions along the Highway 101 HOV Lane Widening Project Corridor	3-90
Table 3.12-1: State and National Ambient Air Quality Standards.....	3-95
Table 3.12-2: 2001-2003 Criteria Pollutant Violations: Santa Rosa – 5 th Street Monitoring Station.....	3-99
Table 3.12-3: BAAQMD Daily Operational Emissions Thresholds	3-101
Table 3.12-4: Federal Emissions Thresholds for Nonattainment Areas	3-101
Table 3.13-1: Activity Categories and Noise Abatement Criteria	3-106
Table 3.13-2: Short-Term Noise Measurements Results	3-111
Table 3.13-3: Long-Term Noise Measurements Results	3-112
Table 3.13-4: Predicted Future Noise and Barrier Analysis	3-114
Table 3.15-1: Impacts to Natural Communities for the Build Alternative (hectares/acres).....	3-131
Table 3.15-2: Impacts to Wetlands and Other Waters of U.S. from Highway 101 HOV Lane Widening Project: Santa Rosa to Windsor	3-135
Table 3.15-3: Special-status Plant Species	3-139
Table 3.16.11-1: Construction Emissions.....	3-160
Table 3.16.11-2: Construction Emissions With Mitigation	3-161
Table 3.16.12-1: Base Ambient Noise Levels for the City of Santa Rosa.....	3-161
Table 3.16.12-2: Construction Operation Noise Levels	3-163
Table 3.16.13-1: Temporary Impacts to Natural Communities for the Build Alternative (hectares/acres) ..	3-164
Table 3.16.14-1: Impacts from Construction Investment in the Highway 101 HOV Widening Project: Steele Lane to Windsor River Road (millions of 2006 dollars)	3-169
Table 4.3-1: Non-Transportation Projects Considered for Cumulative Impacts.....	4-3
Table 4.3-2: Cumulative Impacts to Wetlands and Other Waters of the U.S. (hectares/acres)	4-4
Table 4.3-3: Status of Determination of Impacts to CTS Habitat.....	4-5
Table 4.3-4: Cumulative Impacts to Farmlands (hectares/acres).....	4-7
Table 5.3-1: Summary of Potentially Significant Impacts and Significance After Mitigation Highway 101 HOV Lane Widening Project	5-3

Glossary of Technical and Abbreviated Terms

AADT	Annual Average Daily Traffic, represents an average 24-hour period of traffic on a facility in both directions averaged over one year, or the total of all traffic counted for one year, divided by 365 days.
ABAG	Association of Bay Area Governments
ac	acres
ACCS/MV	accidents per million vehicle miles
ACHP	President's Advisory Council on Historic Preservation
ACM	asbestos-containing material
ADA	Americans with Disabilities Act of 1990
ADL	aerially deposited lead
ADT	average daily traffic, total traffic on a facility in both directions, for one 24-hour day, averaged over a given time period.
AHERA	Asbestos Hazardous Emergency Response Act
APE	Area of Potential Effects, the area within which archaeological or historical resources may be affected by a project.
ASR	Archaeological Survey Report
AST	above ground storage tank
ATS	average travel speed
ATT	average travel time
Auxiliary Lane	An auxiliary lane is a traffic lane used to facilitate mainline through-traffic movements. On this project, the proposed auxiliary lanes are located between the SR 116 (Gravenstein Highway) and Rohnert Park Expressway interchanges and extend from one freeway on-ramp to the next freeway off-ramp. The auxiliary lanes allow traffic entering and exiting the freeway to accelerate or decelerate outside of the through traffic lanes.
BA	Biological Assessment
BAAB	Bay Area Air Basin
BAAQMD	Bay Area Air Quality Management District
BART	Bay Area Rapid Transit
Beneficial Use	Use of a natural water resource that enhances the social, economic, and environmental well-being of the user. Twenty-one beneficial uses are defined for the waters of California, ranging from municipal and domestic supply to fisheries and wildlife habitat.
BG	block groups
BMP	best management practice
CAA	Clean Air Act, as amended in 1990.
CAAQS	California Ambient Air Quality Standards
Cal OSHA	California Occupational Safety and Health Administration
Cal EPA	California Environmental Protection Agency
Caltrans	California Department of Transportation
CAP	Bay Area Clean Air Program
CARB	California Air Resources Board
CCAA	California Clean Air Act
CDFG	California Department of Fish and Game
CDTSC	California Department of Toxic Substance Control
CEPA	California Environmental Protection Agency
CEQA	California Environmental Quality Act

CERCLIS	Comprehensive Environmental Response, Compensation and Liability Information System
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
cfs	cubic feet per second
CGS	California Geological Survey
CHP	California Highway Patrol
cm	centimeter
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CO	Carbon monoxide
Cortese	Hazardous Waste and Substances Site List (or Cortese List) is named after State Assemblyman Dominic Cortese. PRC § 65962.5 requires Cal EPA to develop an updated Cortese list at least annually.
CPUC	California Public Utilities Commission
CRHR	California Register of Historic Resources
CRLF	California red-legged frog
CTS	California tiger salamander
CWA	Clean Water Act
dB	decibels, a measurement unit for noise.
dba	A-weighted decibels, the measurement of noise that best represents human perception.
DEIR	Draft Environmental Impact Report
Department	California Department of Transportation or Caltrans
DI	Delay Index
DOT	U.S. Department of Transportation
DPS	distinct population segment
DRIR	Draft Relocation Impact Report
DTSC	California State Department of Toxic Substances Control
EA	Environmental Assessment
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EO	Executive Order
EPA	U.S. Environmental Protection Agency
ERNS	Emergency Response Notification System
ESA	Federal Endangered Species Act of 1973; alternatively, can refer to a designated Environmentally Sensitive Area.
ESU	evolutionarily significant units
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FINDS	Facility Index System
FIRM	Flood Insurance Rating Map
FIS	Flood Insurance Studies
FONSI	Finding of No-Significant Impact
FRA	Federal Railroad Administration
FRIP	Final Relocation Impact Report
ft	foot/feet

ft ²	square feet
FTA	Federal Transit Administration
g	measurement unit of gravity
GARVEE	Grant Anticipation Revenue Vehicle Bonds
GGBHTD	Golden Gate Bridge Highway and Transportation District
GNRTR	RCRA registered small or large generators of hazardous waste
ha	hectares
HCM	Highway Capacity Manual
HCP	Habitat Conservation Plan
HOV	high occupancy vehicle
HPSR	Historic Properties Survey Report
HQE	Habitat Quality Evaluation
HRER	Historical Resource Evaluation Report
Hz	Hertz
I.L.	insertion level
in	inch
ISA	Initial Site Assessment, a review of all published data sources on hazardous waste sites and hazardous waste releases in the vicinity of a project.
km	kilometer(s)
KP	kilometer post
kph	kilometers per hour
kV	Kilovolt
Lead Agency	Public agency that has primary responsibility for carrying out or approving a project that may have a significant effect on the environment and for preparing the environmental document.
LBP	lead based paint
L _{eq} (h)	A-weighted equivalent sound level
L _{max}	maximum sound level
LOS	level of service
LU	landscape unit
LUST	leaking underground storage tank
M	meter(s)
m ²	square meters
m ³ /s	cubic meters per second
Maintenance Area	A federal term to describe any geographic region of the United States designated nonattainment pursuant to the CA and subsequently redesignated to attainment subject to the requirement to develop a maintenance plan under Section 175A of the CAA.
MBTA	Migratory Bird Treaty Act
MCE	maximum credible earthquake
mg/kg	milligrams/kilogram
mg/l	milligrams per liter
mi	mile(s)

MIS	Major Investment Study, prepared during the early planning phase to analyze the range of modal alternatives and cost/benefits of “major metropolitan transportation investments,” which are defined as being highway or transit improvements of substantial cost that are expected to have a significant effect on capacity, traffic flow, level of service or mode share at the transportation corridor or subarea scale. TEA-21 eliminated the requirement for a separate MIS document, but the analysis still must be conducted.
M _{max}	moment magnitude (earthquake)
mph	miles per hour
MPO	Metropolitan Planning Organization, a federal designation for the forum for cooperative transportation decision-making for an urbanized area with population of more than 50,000.
MSAT	Mobile Source Air Toxics
MTBE	methyl tertiary butyl ether
MTC	Metropolitan Transportation Commission of the Bay Area, the Bay Area’s MPO
MTP	Metropolitan Transportation Plan, the official intermodal transportation plan that is developed and adopted through the metropolitan transportation planning process for the metropolitan planning area.
NAAQS	National Ambient Air Quality Standards
NAC	noise abatement criteria
NAGPRA	Native American Graves Protection and Repatriation Act of 1990
NAHC	Native American Heritage Commission
NEPA	National Environmental Policy Act
NES/BA	Natural Environment Study/Biological Assessment
NFRAP	“No further remedial action planned”
NO	nitric oxide
NO ₂	nitrogen dioxide
NOAA Fisheries	National Oceanic and Atmospheric Administration Fisheries Service
NO _x	nitrogen oxide
Nonattainment Area	Any geographic region of the United States that the EPA has designated as a nonattainment area for a transportation related pollutant(s) for which a NAAQS exists.
NOI	Notice of Intent
NOP	Notice of Preparation, the CEQA notice that an EIR will be prepared for a project.
NPDES	National Pollutant Discharge Elimination System Permit, required for facilities and activities that discharge waste into surface waters from a confined pipe or channel.
NPL	National Priorities List
NRCS	U.S. Department of Agriculture, Natural Resources Conservation Service
NRHP	National Register of Historic Places
NWIC	Historical Resources Information System, Northwest Information Center
O ₃	ozone
OHWM	ordinary high water mark, a distinguishing characteristic of Other Waters of the U.S.
PDT	project development team, a multidisciplinary technical advisory group assembled to review and provide direction on project development.
PG&E	Pacific Gas and Electric Company
PM	post mile
PM ₁₀	particulate matter less than 10 microns in diameter (one micron is equal to one millionth of a meter)
PM _{2.5}	particulate matter less than 2.5 microns in diameter, considered to be fine particulate

	matter (one micron is equal to one-millionth of meter)
ppm	parts per million
PRC	California Public Resources Code
Profile	Used to describe the vertical alignment and elevation of the roadway surface along a designated line, typically, the center of the roadway or median.
PSR	Project Study Report, a California Department of Transportation document establishing consensus among state and local decision makers in the viability and appropriateness of a project. Initiates preliminary engineering and environmental review phase of project development.
PSR/PDS	Project Study Report/Project Development Support, a California Department of Transportation project initiation document.
PYE	person years of employment
RCRA	Resource Conservation and Recovery Act
RCRA Viol	RCRA Violation and Enforcement Actions
Responsible Agency	A “public agency, other than the lead agency, that has responsibility for carrying out or approving a project” (PRC 21069). The CEQA Guidelines further explain the statutory definition by stating that a “responsible agency” includes “all public agencies other than the Lead Agency which have discretionary approval power over the project” (14 CCR 15381). State and local public agencies that have discretionary authority to issue permits, for example, fall into this category.
ROG	reactive organic gases
ROW	right-of-way
RTIP	Regional Transportation Improvement Plan or Program
RTP	Regional Transportation Plan
RWQCB	California Regional Water Quality Control Board
SCAQMD	South Coast Air Quality Management District
SCL	State Equivalent CERCLIS sites
SCTA	Sonoma County Transportation Authority
Scoping	A process for determining the scope of issues to be addressed in an EA and EIS and for identifying significant issues to be analyzed in depth in an EIS.
SCPRMD	Sonoma County Permit and Resource Management Department
SCWA	Sonoma County Water Agency
SHPO	State Historic Preservation Officer
Significance	CEQA defines a “significant effect on the environment” as “a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance. An economic or social change by itself shall not be considered a significant effect on the environment. A social or economic change related to a physical change may be considered in determining whether the physical change is significant” (15382). CEQA requires that the lead agency identify each “significant effect on the environment” resulting from the project and avoid or mitigate it. The CEQA Guidelines include mandatory findings of significance for certain effects, thus requiring the preparation of an EIR.
SIP	State Implementation Plan, the portion (or portions) of an applicable implementation plan approved or promulgated, or the most recent revision thereof, under sections 110, 301(d) and 175A of CAA.
SMART	Sonoma-Marín Area Rail Transit
SMP	Soils management plan, addressing handling, storage and disposal of contaminated soils.

SO ₂	sulfur dioxide
Sole Source Aquifer	An aquifer upon which a community depends exclusively for its fresh water supply.
SOV	Single Occupant Vehicle
SO _x	sulfur oxides
SPILLS	State Spills List
SR	State Route
SSU	Sonoma State University
STIP	Statewide Transportation Improvement Plan, a staged, multiyear, statewide, intermodal program of transportation projects that is consistent with the Statewide transportation plan and planning processes and metropolitan plans, TIPs and processes.
STP	Statewide Transportation Plan, the official statewide, intermodal transportation plan that is developed through the statewide transportation planning process.
SWDP	Stormwater Data Plan
SWLF	solid waste landfills
SWMP	Storm Water Management Plan
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	California State Water Resources Control Board, the principal authority for regulating the quantity and quality of waters in the state, established by act of the California legislature in 1967.
TASAS	Traffic Accident Surveillance and Analysis System
TCLP	Toxicity Characteristic Leaching Procedure
TCM	Transportation Control Measure, any measure specifically identified and committed to in the applicable implementation plan that is either one of the types listed in § 108 of the CAA, or any other measure for the purpose of reducing emissions or concentrations of air pollutants from transportation sources by reducing vehicle use or changing traffic flow or congestion conditions. Notwithstanding the above, vehicle technology-based, fuel-base, and maintenance-based measures that control the emissions from vehicles under fixed traffic conditions are not TCMs for the purposes of project-level conformity.
TDM	Transportation Demand Management
TEA-21	Transportation Equity Act for the 21 st Century
TIP	Transportation Improvement Program, a staged, multi-year, intermodal program of transportation projects that is consistent with the metropolitan transportation plan. It is a federal term.
TMP	Transportation Management Plan, used to maintain and manage traffic and transportation in a project vicinity during construction.
TOPS	Traffic Operations Strategies
TOXIC PITS	toxic pits cleanup facilities
Traffic Study Area	The area for which traffic conditions are reported in this document. It consists of Highway 101 within the project limits from north of the Steele Lane Interchange to the Windsor River Road Interchange, a distance of approximately 12.3 km (7.6 mi).
TRASC	Traffic Relief Act for Sonoma County
TRIS	Toxic Release Inventory Database
TSCA	Toxic Substances Control Act of 1976, federal law enacted to give EPA the ability to track industrial chemicals produced in or imported into the U.S.
TSD	treatment storage and/or disposal facilities
TSM	transportation systems management
TSO	traffic service objective
UPRR	Union Pacific Railroad

USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UST	underground storage tank
V/C	volume-to-capacity ratio
VA	value analysis
vht	vehicle hours of travel
vkt	vehicle kilometers of travel
vmt	vehicle miles of travel
vpd	vehicles per day
vph	vehicles per hour
WDR	Water Discharge Requirements
Wetland	Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions (ACOE and EPA definition).
WET-DI	A waste extraction procedure using de-ionized water as a leaching agent.
WH&SP	Worker Health and Safety Plan, designed to prevent exposure of workers to potentially hazardous excavated soils and to comply with applicable waste handling and disposal regulations.