

State Route 116/Mirabel Road Intersection Improvement Project

SONOMA COUNTY, CALIFORNIA
DISTRICT 4 – SON – 116, PM 19.2/19.5
1A4210

Initial Study With Proposed Mitigated Negative Declaration



Prepared by the
State of California Department of Transportation
and the County of Sonoma



December 2012

GENERAL INFORMATION ABOUT THIS DOCUMENT

What's in this document:

The California Department of Transportation (Caltrans), in cooperation with the County of Sonoma (County), has prepared this Initial Study (IS), which examines the potential environmental impacts of the project located in Sonoma County, California. The document describes why the project is being proposed, the existing environment that could be affected by the project, the potential environmental impacts of the project, and the proposed avoidance, minimization and/or compensation measures.

What you should do:

Please read this Initial Study. Additional copies of this document as well as the technical studies are available for review at:

- Sonoma County Permit & Resource Management Department, Environmental Review Division, 2550 Ventura Ave, Santa Rosa, CA, 95403
- California Department of Transportation, District 4, Office of Environmental Analysis, 111 Grand Avenue, Oakland, CA (www.dot.ca.gov/dist4/envdocs.htm)

The Initial Study is also available for review at:

- Forestville Library, 7050 Covey Rd, Forestville, CA
- Guerneville Library, 14107 Armstrong Woods Rd, Guerneville, CA

We welcome your comments. If you have any comments regarding the project, please attend the public meeting on February 6, 2013 between 6:00 pm and 8:00 pm at Forestville Elementary School, 6321 Hwy 116, Forestville, CA, 95436, and/or send your written comments to Caltrans by February 19, 2013.

- Submit comments via postal mail to:
Valerie Shearer, Senior Environmental Planner
California Department of Transportation, District 4
Office of Environmental Analysis, MS 8B
P.O. Box 23660, Oakland, CA 94623-0660
Valerie_Shearer@dot.ca.gov

What happens next:

After comments are received from the public and reviewing agencies, Caltrans may: (1) give environmental approval to the project, (2) undertake additional environmental studies, or (3) abandon the project. If the project is given environmental approval and funding is appropriated, Caltrans and the County 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 write to Caltrans District 4, Attn: Valerie Shearer, Senior Environmental Planner, Office of Environmental Analysis, MS 8B, P.O. Box 23660, Oakland, CA 94623-0660, (510) 286-5594, or use the California Relay Service 1 (800) 735-2929 (TTY), 1 (800) 735-2929 (Voice) or 711.

State Route 116 at Mirabel Road Intersection Improvement Project
In Forestville, County of Sonoma, Post Mile 19.2 to 19.5

INITIAL STUDY with Proposed Mitigated Negative Declaration

Submitted Pursuant to: (State) Division 13, California Public Resources Code

THE STATE OF CALIFORNIA
Department of Transportation
CEQA Lead Agency

COUNTY OF SONOMA
Department of Transportation and Public Works
CEQA Responsible Agency

Dec. 5, 2012
Date of Approval


MELANIE BRENT, Deputy District Director
Division of Environmental Planning and
Engineering
California Department of Transportation
District 4

PROPOSED MITIGATED NEGATIVE DECLARATION

Pursuant to: Division 13, Public Resources Code

Project Description

The California Department of Transportation as the California Environmental Quality Act (CEQA) lead agency, in cooperation with the County of Sonoma (project sponsor and CEQA responsible agency), proposes to construct improvements at the intersection of State Route (SR) 116 and Mirabel Road in Forestville, Sonoma County. The project includes construction of a roundabout at the intersection to improve traffic flow, and lowering of SR 116 west of the intersection to improve sight distance.

Determination

This proposed Mitigated Negative Declaration (MND) is included to give notice to interested agencies and the public that it is Caltrans' intent to adopt an MND for this project. This does not mean that Caltrans' decision regarding the project is final. This MND is subject to modification based on comments received by interested agencies and the public.

Caltrans has prepared an Initial Study for this project, and pending public review, expects to determine from this study that the project would not have a significant effect on the environment for the following reasons:

The project would have no effect on land use, growth, coastal resources, hydrology and floodplains, wild and scenic rivers, plant species, and threatened and endangered species.

In addition, the project would have no significant effect on consistency with state/regional/local plans; farmlands; community character and cohesion, relocations and real property acquisition; utilities; emergency services; traffic and transportation/pedestrian and bicycle facilities; cultural resources; water quality and storm water runoff; geology, soils and seismicity; hazardous waste and materials; air quality; noise; wetlands and other waters; animal species; invasive species; cumulative impacts; and climate change.

The project would have no significantly adverse effect on visual/aesthetics, paleontological resources, and biological resources because the following mitigation measures would reduce potential effects to insignificance:

- A landscape plan will be implemented and will include center island landscaping, retaining wall texturing, and cut-slope/retaining wall planting.
- A Paleontological Mitigation Plan will be implemented during construction.
- Forty-nine native trees will be planted to mitigate for the removal of twenty-seven native trees.

 Melanie Brent, Deputy District Director
 Division of Environmental Planning and Engineering
 California Department of Transportation
 District 4

Date _____

SUMMARY

The California Department of Transportation (Department or Caltrans) as the California Environmental Quality Act (CEQA) lead agency for the project, in cooperation with the County of Sonoma (County) as the project sponsor and CEQA responsible agency, proposes to construct improvements at the intersection of State Route (SR) 116 and Mirabel Road in Forestville, Sonoma County. The project includes construction of a single-lane roundabout at the intersection, lowering of the crest vertical curve on SR 116 west of the intersection, and profile modifications/sight distance improvements at the SR 116 and Hidden Lake Road intersection.

The project's purpose is to improve the operation and safety of the existing "T" intersection at Mirabel Road and SR 116. The project would reduce peak-period delays at the intersection and improve traffic flow. The project would improve traffic safety by increasing the sight distance on the crest vertical curve on SR 116, just west of Mirabel Road, providing standard shoulder widths and improving the turning movements and lines of sight to and from Hidden Lake Road. Pedestrian access would also be improved by the construction of crosswalks at the SR 116/Mirabel Road intersection.

This Initial Study addresses the project's potential to have adverse impacts on the environment. Potential impacts and avoidance, minimization, and mitigation measures are summarized in Table S-1.

Table S-1. Summary of Project Impacts, and Avoidance, Minimization and/or Mitigation Measures.

Affected Resource	Potential Impact	Avoidance, Minimization, and/or Mitigation Measures
Land Use	The project would require small right-of-way acquisitions from several parcels, as well as construction on portions of parcels for which the County has existing slope or roadway easements. However, these minor acquisitions would not change the land use on the remainder of the parcels, nor conflict with their zoning or development potential.	None Required.

Affected Resource	Potential Impact	Avoidance, Minimization, and/or Mitigation Measures
<p>Consistency with State, Regional and Local Plans and Programs</p>	<p>The project is consistent with Sonoma County General Plan Policies, with implementation of the avoidance and minimization measures.</p> <p><i>Policy OSRC-3h: Design public works projects to minimize tree damage and removal along Scenic Corridors. Where trees must be removed, design replanting programs so as to accommodate ultimate planned highway improvements. Require revegetation following grading and road cuts.</i></p> <p><i>Policy OSRC-7o: Encourage the use of native plant species in landscaping. For discretionary projects, require the use of native or compatible non-native species for landscaping where consistent with fire safety. Prohibit the use of invasive exotic species.</i></p>	<p>The project would implement the measures described from Section 2.1. 8, Visual/Aesthetics; Section 2.3.1 Natural Communities; and Section 2.3.6, Invasive Species, to ensure consistency with the Sonoma County General Plan.</p>
<p>Parks and Recreation</p>	<p>The project could impact the future extension of the West County Trail at its connection with the SR 116/Mirabel Road intersection if not properly designed.</p>	<p>Caltrans and the Sonoma County Department of Transportation and Public Works (DTPW) would coordinate with the Sonoma County Regional Parks Department to ensure the roundabout design could accommodate a future West County Trail crossing at the SR 116 Intersection. Coordination would address issues including, but not limited to, grades, Americans with Disabilities Act (ADA) compliance, and signage.</p>

Affected Resource	Potential Impact	Avoidance, Minimization, and/or Mitigation Measures
Growth	The County's planned growth and land uses are not expected to change with or without the project. Therefore, while the project would be compatible with planned growth, it would not induce growth.	None required.
Farmlands	The project would require the use of land mapped as Farmland of Local Importance, resulting in the direct conversion of approximately 1.79 acres of land mapped as Farmland of Local Importance, and the potential indirect conversion of an additional 0.30 acres. The project would not impact Prime Farmland, Unique Farmland, or Farmland of Statewide Importance.	None required.
Community Character and Cohesion	<p>The project would not change existing community boundaries or divide neighborhoods. Connectivity for pedestrians to downtown Forestville would be improved by the project through installation of crosswalks.</p> <p>Impacts to community character could occur if the aesthetic features selected for the roundabout and center island landscaping are not in keeping with those desired by the community.</p>	A landscaping plan addressing the center island landscaping, retaining wall texturing and landscaping, and cut-slope landscaping would be developed during the design phase. One or more public meetings would be held in the design phase, during which the public would be invited to comment on the proposed plan. The final plan would be provided to the community prior to implementation.
Community Character and Cohesion	The community would experience temporary inconveniences from project construction activities, including noise, dust, intermittent traffic disruptions, and visual effects.	These effects and appropriate avoidance and minimization measures are discussed in sections 2.2.6, Noise; 2.2.5, Air Quality; 2.1.7, Traffic and Transportation/Pedestrian and Bicycle Facilities; and 2.1.8, Visual/Aesthetics.

Affected Resource	Potential Impact	Avoidance, Minimization, and/or Mitigation Measures
Community Character and Cohesion	<p>The citizens of Forestville hold an annual tree lighting celebration each year in the semi-paved/gravel area southeast of the SR 116/Mirabel intersection near the eastern project limits. The project would require minor widening and frontage improvements along SR 116 at this location, which could interfere with the tree lighting activities.</p>	<p>The Contractor would be required to avoid the tree lighting area between November 15 and January 1 and keep it free of obstructions during this time.</p>
Relocations and Real Property Acquisition	<p>The project would not require relocation of households or businesses. The project would require partial acquisition along property frontages. Temporary construction easements (TCEs) would be required from some parcels in order to construct the project.</p>	<p>Property acquisition would be conducted in compliance with Title VI of the Civil Rights Act (42 U.S. Code 2000d, et seq.).</p> <p>Compensation would be negotiated with all affected property owners during the right-of-way acquisition phase.</p> <p>Access to all properties would be provided during construction.</p>
Utilities	<p>Underground and overhead utilities would require relocation.</p>	<p>Caltrans would coordinate relocation work with the affected utility companies to ensure minimum disruption of services to customers in the area during construction.</p>
Emergency Services	<p>The roundabout has been appropriately sized to ensure safe passage of emergency service vehicles, including fire engines.</p> <p>Limited lane widths within the roundabout splitter islands may not allow room for an emergency vehicle to pass other vehicles queued to enter the roundabout, and could result in some increase to emergency response times.</p>	<p>A public education campaign would be implemented to inform area drivers and residents about the new roundabout, and would include information on how drivers should respond when emergency vehicles are approaching the roundabout. The campaign would include measures such as:</p> <ul style="list-style-type: none"> • Hold public meetings prior to opening the roundabout to traffic and/or give presentations at local organization meetings; • Prepare news releases detailing what motorists and pedestrians can expect during and after construction; and • Distribute an informational brochure to residents explaining how to navigate roundabouts (both in a vehicle and as a pedestrian).

Affected Resource	Potential Impact	Avoidance, Minimization, and/or Mitigation Measures
Emergency Services	Construction delays could affect emergency vehicle response.	<p>A Transportation Management Plan would be prepared and implemented to address traffic handling during construction.</p> <p>Local emergency services would be notified prior to construction informing them of the construction schedule. The Contractor would be required to maintain access to properties at all times.</p>
Traffic & Transportation/ Pedestrian and Bicycle Facilities	Vehicles turning left into the south driveway of the Rotten Robbie gas station from eastbound SR 116 could impact roundabout operations.	To minimize the effect on traffic operations of the roundabout by vehicles making a left turn from eastbound SR 116 into the south driveway of the Rotten Robbie gas station, a "Keep Clear" pavement marking would be included on westbound SR 116 at the south entrance of the Rotten Robbie gas station, just east of the roundabout. This would discourage vehicles queued at the westbound SR 116 approach from blocking the entrance to the gas station. In addition, a sign prohibiting left turns during weekday a.m./p.m. peak periods facing eastbound traffic on SR 116 would be placed on the splitter island, just west of the aforementioned south driveway.

Affected Resource	Potential Impact	Avoidance, Minimization, and/or Mitigation Measures
Traffic & Transportation/ Pedestrian and Bicycle Facilities	The roundabout has been designed for the 65-foot long California Legal Design Vehicle. However, extra-legal (oversize vehicles) require special accommodations to travel through the intersection.	Extra-legal vehicles would be required to obtain an encroachment permit from Caltrans prior to using the intersection. The intersection would be temporarily closed and a pilot vehicle would be used to stop traffic so that the extra-legal vehicle can pass through the intersection. Extra-legal vehicles traveling from eastbound SR 116 to northbound Mirabel Road would make a wrong-way (left turn) movement through the roundabout, from eastbound SR 116 onto northbound Mirabel Road. A right turn from Mirabel Road onto SR 116 can be completed by encroaching onto the splitter island, without encroachment into the opposite lanes. The roundabout would be designed so that the extra-legal vehicle can complete the turns by passing over a portion of the splitter island and the truck apron. Roundabout signs would be placed in locations that would not interfere with these turning movements.
Traffic & Transportation/ Pedestrian and Bicycle Facilities	The Sonoma County Transit bus stops on Mirabel Road just north of SR 116 may need to be relocated temporarily during construction.	Caltrans would coordinate the relocation of the bus stops with Sonoma County Transit in advance of construction.

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Traffic & Transportation/ Pedestrian and Bicycle Facilities	A lack of familiarity with how roundabouts operate could initially lead to conflicts between vehicles and pedestrians or cyclists.	<p>A public education campaign would be implemented to inform area drivers, cyclists, and residents about the new roundabout. The campaign would include measures such as:</p> <ul style="list-style-type: none"> • Hold public meetings prior to opening to the roundabout to traffic and/or give presentations at local and cycling organization meetings; • Prepare news releases detailing what motorists, cyclists, and pedestrians can expect during and after construction; • Distribute an informational brochure to residents explaining how to navigate roundabouts (both in a vehicle, as a cyclist and as a pedestrian); and • Install signing that warns of changed traffic patterns. <p>The Sonoma County Bicycle and Pedestrian Advisory Committee (SCBPAC) has reviewed the preliminary project design. Caltrans would coordinate with the BPAC during the design phase.</p>
Traffic & Transportation/ Pedestrian and Bicycle Facilities	Intermittent traffic delays could occur during project construction.	<p>A Transportation Management Plan would be prepared and implemented to address traffic handling during construction, including non-motorized traffic.</p> <p>Access to driveways would be maintained during construction.</p>
Visual/Aesthetics	The proposed retaining wall along the north side of SR 116 may be viewed as an adverse impact by some viewers.	The area located between the tiered walls would be landscaped with native shrubs to the extent feasible (based on maintenance requirements and space constraints) in order to partially screen portions of the wall and provide a more natural appearance. The wall would also be given a texture and color to harmonize with natural surroundings in the SR 116 corridor and/or with roundabout landscape elements.
Visual/Aesthetics	The loss of shrubs on the existing south-side cut slope may be viewed as adverse.	Cut slope planting (using no-maintenance native shrubs, grasses and/or groundcover) would be included in the project landscaping plan.

Affected Resource	Potential Impact	Avoidance, Minimization, and/or Mitigation Measures
Visual/Aesthetics	The project would result in the removal of 36 trees along the roadway.	The County would replant a minimum of 49 native trees. To the extent feasible, tree planting would occur within the right-of-way within the project limits. However, right-of-way space is expected to be limited due to the need to accommodate utilities and maintenance access, and to limit right-of-way acquisition and impacts to adjacent properties. The County of Sonoma would offer to plant trees on private property along the project frontage for those property owners who are interested. If all tree replanting cannot be achieved at these locations, the remaining trees would be planted at an off-site location (Sunset Beach Regional Park) as required per the Section 2.3.1, Natural Communities. If off-site planting is required, additional planting of shrubs and other native vegetation along the project cut slopes would be used to mitigate for any remaining visual impact due to the loss of trees.
Visual/Aesthetics	The project could result in impacts to the visual character of the community.	A landscaping plan addressing center island landscaping, retaining wall texturing and landscaping, and cut-slope landscaping would be developed during the design phase, incorporating input from the citizens' committee. One or more public meetings would be held in the design phase, during which the public would be invited to comment on the plan. The final plan would be provided to the community prior to implementation.
Visual/Aesthetics	During construction of the project, viewers would see materials, equipment, workers, disturbed soils and the operation of construction equipment.	The contractor would be required to comply with Section 5-1.31, Job Site Appearance, of the Caltrans Standard Specifications (2010), which requires the job site to be kept neat. Construction staging and storage areas would be screened where feasible. Visual opaque screening would be used to limit exposure to the public for any extended period of time.

Affected Resource	Potential Impact	Avoidance, Minimization, and/or Mitigation Measures
Visual/Aesthetics	The project could result in visual impacts to SR 116, an officially designated State Scenic Highway.	Tree removal has been limited to that necessary to construct the project. The project with incorporation of the mitigation measures including textured retaining walls, landscape plantings, and tree replacement would be consistent with relevant scenic/visual resources policies of the County and the scenic highway corridor protection program.
Cultural Resources	<p>The project would have no impacts to significant historical resource(s), pursuant to CEQA Guidelines §15064.5(b)(3).</p> <p>However, the project includes roadway excavation, slope grading and associated ground disturbing activities. Therefore, there is the potential for the project to unearth previously unidentified cultural resources.</p>	<p>If cultural materials are discovered during construction, all earth-moving activity within and around the immediate discovery area would be diverted until a qualified archaeologist can assess the nature and significance of the find.</p> <p>If human remains are discovered, State Health and Safety Code Section 7050.5 states that further disturbances and activities would cease in any area or nearby area suspected to overlie remains, and the County Coroner contacted. Pursuant to Public Resources Code Section 5097.98, if the remains are thought to be Native American, the coroner would notify the Native American Heritage Commission (NAHC) who would then notify the Most Likely Descendent (MLD). At this time, the person who discovered the remains would contact Emily Darko at (510) 622-1673 or Emily_Darko@dot.ca.gov so that they may work with the MLD on the respectful treatment and disposition of the remains. Further provisions of PRC 5097.98 are to be followed as applicable.</p>

Affected Resource	Potential Impact	Avoidance, Minimization, and/or Mitigation Measures
Water Quality and Storm Water Runoff	<p>Temporary adverse impacts could result from construction-related erosion and subsequent transport of sediment to surface waters. Potential exists for spills and leaks of fluids from vehicles and equipment used during construction.</p> <p>The project would increase the amount of permanent impervious surface (paved area) by 0.56 acres over the existing conditions. The area of reconstructed pavement is 1.38 acres.</p>	<p>According to Caltrans' NPDES permit and the Construction General Permit, Best Management Practices (BMPs) would be incorporated to reduce the discharge of pollutants during the construction and operation of the project to the Maximum Extent Practicable, including Construction Site BMPs, Permanent Design Pollution Prevention BMPs, and Permanent Treatment BMPs, as described in Section 2.2.1.</p>
Geology/Soils/Seismic/Topography	<p>The project would result in the creation of temporary and permanent roadway slopes, as well as temporary and permanent retaining walls.</p>	<p>To minimize potential impacts from seismic events, the project would be constructed in accordance with all applicable Caltrans standards and regulations, and would be designed for the maximum credible earthquake (MCE). All construction activities would adhere to current engineering practices and recommendations provided by a Geotechnical Engineer/Engineering Geologist.</p> <p>A licensed engineer and/or their representative, experienced in the design and construction of soil nail walls would monitor the soil nail wall construction along SR 116. As the soil nail wall is constructed from the top down, the licensed engineer or their representative would observe the exposed material in the cut face and cuttings from the soil nail drill holes to verify that the conditions are consistent with those assumed during design. If the conditions exposed in the excavation are weaker than assumed in the design, the soil nail wall design would be modified such that the design meets the minimum factors of safety specified in the geotechnical report.</p> <p>The contractor would be prepared to divert or pump seeping groundwater from the slope area during construction activities if encountered. Fluctuations of the groundwater level, localized zones of</p>

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		<p>perched water and soil moisture content variations should be anticipated during and following the rainy season.</p> <p>Temporary and permanent measures would be implemented to reduce the impact of erosion, including, but not limited to, appropriate vegetative cover of disturbed areas to stabilize soil against wind and water erosion, and construction of erosion resistant drainage structures to collect surface water and divert it away from slopes to suitable discharge points. Erosion control would be applied and landscape planting would be established as soon after grading as possible. As described in Section 2.2.1, a Storm Water Pollution Prevention Plan (SWPPP) would be implemented during construction to limit erosion.</p> <p>Construction activities would comply with applicable occupational safety and health standards, rules, regulations, and orders, as well as Caltrans Standard Specifications for occupational safety and health and excavation safety.</p>
Paleontology	The project includes excavation and could uncover previously unidentified paleontological resources.	As described in Section 2.2.3, a Paleontological Mitigation Plan would be implemented, which includes oversight by a qualified professional paleontologist, worker training, construction monitoring and sampling, and a data recovery plan for the recovery, preparation, cataloguing and transfer of significant paleontological resources to a recognized, nonprofit paleontological specimen repository with a permanent curator, such as a museum or a university.
Hazardous Waste/ Materials	The project would require grading and/or excavation into soils potentially contaminated with aerially deposited lead (ADL) during project construction. This could result in adverse impacts to workers or the environment if soils are improperly handled or disposed of.	Testing for ADL would be performed at the Plans, Specifications and Estimates (PS&E) stage prior to project construction. If ADL is found, special handling of the contaminated soil would be required and would include implementing a Health and Safety Plan. Soil that is disturbed by the project would be handled and disposed of in accordance with all local, State, and Federal requirements.

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Air Quality	The project would result in construction-related impact to air quality from dust and construction vehicle emissions.	<p>The construction contractor would comply with Caltrans' Standard Specifications in Section 14 (2010).</p> <ul style="list-style-type: none"> • Section 14-9.01 specifically requires compliance by the contractor with all applicable laws and regulations related to air quality, including air pollution control district and air quality management district regulations and local ordinances. • Section 14-9.02 is directed at controlling dust. If dust palliative materials other than water are to be used, material specifications are contained in Section 18. <p>The contractor would develop a dust control plan documenting sprinkling, temporary paving, speed limits, and expedited revegetation of disturbed slopes as needed to minimize construction impacts to existing communities.</p> <p>All exposed surfaces (e.g., parking areas, staging areas, graded areas, and unpaved access roads) would be watered two times per day, or more frequently as necessary, to minimize dust. (Alternatively, dust palliative materials may be used.)</p> <p>The contractor would enclose, cover, water twice daily, or apply nontoxic soil binders to exposed stockpiles (dirt, sand, etc.).</p> <p>All haul trucks transporting soil, sand, or other loose material off-site would be covered.</p> <p>All visible mud or dirt track-out onto adjacent public roads would be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.</p> <p>All vehicle speeds on unpaved roads would be limited to 15 mph.</p> <p>All roadways, driveways, and sidewalks to</p>

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		<p>be paved would be completed as soon as possible.</p> <p>Idling times would be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage would be provided for construction workers at all access points.</p> <p>All construction equipment would be maintained and properly tuned in accordance with manufacturer's specifications. Use low-sulfur fuel in all construction equipment as provided in California Code of Regulations Title 17, Section 93114.</p> <p>A publicly visible sign would be posted with the telephone number and person to contact at the Lead Agency regarding dust complaints. This person would respond and take corrective action within 48 hours. The Air District's phone number would also be visible to ensure compliance with applicable regulations.</p> <p>The contractor would install stabilized construction entrances and/or wheel washes at project access points to minimize dust and mud deposits on roads affected by construction traffic.</p> <p>The contractor would install permanent erosion control as soon as practical after grading to reduce windblown particulate in the area.</p> <p>Route and schedule construction traffic to avoid peak travel times as much as possible, to reduce congestion and related air quality impacts caused by idling vehicles along local roads.</p>
Noise	The project may result in a permanent increase in noise of one decibel at one receptor.	None required.

Affected Resource	Potential Impact	Avoidance, Minimization, and/or Mitigation Measures
Noise	The project may result in a temporary increase in noise at receptors from construction activities.	<p>Construction would occur in compliance with the provisions set forth in Section 14-8.02 of Noise Control, included in the latest Caltrans Standard Specifications. These Standard Specifications are meant to minimize the impact from short duration construction noise, and include the following requirements:</p> <ul style="list-style-type: none"> • Do not exceed 86 dBA L_{max} at 50 feet from the job site activities from 9 p.m. to 6 a.m. (See the measure below for a description of limitations to working hours.) • Equip internal combustion engines with the manufacturer-recommended muffler. Do not operate internal combustion engines on the job site without the appropriate muffler. <p>The construction contractor would designate a noise disturbance coordinator who would be responsible for responding to complaints regarding construction noise. The coordinator would determine the cause of the complaint and ensure that reasonable measures are implemented to correct the problem. A contact telephone number for the noise disturbance coordinator would be posted conspicuously on construction site fences, and would be included in the notice sent to nearby residents regarding the project's schedule.</p> <p>Construction would occur between 7:00 a.m. and 7:00 p.m. on weekdays, and 9:00 a.m. and 5:00 p.m. on weekends. Exceptions to the work hours may be necessary for limited periods in order to minimize lane closures on SR 116 (such as during activities to conform road and driveway grades in the vicinity of Hidden Lake Road), or to prevent emergency or respond to an existing emergency. Other than work to prevent or respond to an emergency, exceptions to the construction hours would require prior approval by the County. Residents would be notified five days in advance of work outside the</p>

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		<p>specified hours.</p> <p>Unnecessary idling of internal combustion engines within 100 feet of residences would be prohibited.</p> <p>Staging of construction equipment within 200 feet of residences would be avoided, and all stationary noise-generating construction equipment, such as air compressors, portable power generators, or self-powered lighting systems would be located as far practical from noise sensitive residences.</p>
Natural Communities	The project could result in temporary impacts to oak woodland from the use of the project staging area.	<p>All trees within the identified staging area would be retained.</p> <p>Caltrans would require the contractor to install temporary plastic mesh-type construction fencing (Tensor Polygrid or equivalent) that is a minimum of four-feet tall between the construction zone and trees to be retained to prevent inadvertent damage. Fencing would be located at or outside of the tree drip lines. Fencing locations would be determined in consultation with the Sonoma County Permit and Resource Management Department (PRMD) and shown on plans when final design of the project is complete.</p> <p>No storage of oil, gasoline, chemicals or other substances that may be harmful to trees would occur within the drip line of any tree, or any other location on the site from which such substances might enter the drip line.</p> <p>Following construction, all construction equipment and materials would be removed from the staging area.</p> <p>All areas within the staging area where soil has been exposed would be treated with erosion control BMPs to prevent loss of topsoil.</p>

Affected Resource	Potential Impact	Avoidance, Minimization, and/or Mitigation Measures
Natural Communities	The project would require the removal of 27 native trees located within the right-of-way and along property frontages.	<p>Tree removal and pruning would be allowed where needed, but would be limited to that necessary to construct the project. Wherever feasible, vegetation would be tied back in lieu of cutting. Pruning activities would be conducted in conformance with American National Standard Institute (ANSI 2008) and International Society of Arboriculture (ISA 2008) standards.</p> <p>When excavating within the root zones of trees to be retained, care would be taken to minimize damage to the tree root system. Whenever feasible, excavation near trees using heavy equipment would be carried out by pulling the bucket or blade away from the tree (parallel to the roots) to minimize cracking and damaging of roots left in the soil. As roots are exposed during excavation, those that are one inch in diameter or greater would be cut cleanly at the surface of the excavation using hand tools. Roots would be cut progressively as they are exposed until the finish grade of the excavation is reached.</p> <p>Caltrans would require the contractor to install temporary plastic mesh-type construction fencing (Tensor Polygrid or equivalent) that is a minimum of four-feet tall between the construction zone and remaining street trees to prevent accidental disturbance. Fencing locations would be determined in consultation with PRMD and shown on plans when final design of the project is complete.</p> <p>To mitigate for the permanent loss of 27 native trees, the County would plant a minimum of 49 trees. The mitigation ratio used to determine the number of replacement trees was based on the size the tree (measured by diameter at breast height) and roughly based on the Sonoma Tree Protection Ordinance. Oak trees would be replaced with oak trees, to the maximum extent feasible. Other native species would be replaced with the same species, or native species suitable to the site. The project uses all of the existing</p>

Affected Resource	Potential Impact	Avoidance, Minimization, and/or Mitigation Measures
		<p>right-of-way, and also requires acquisition of additional right-of-way. Some replanting is possible within the existing or proposed right-of-way, but may be limited due to traffic sight distance requirements, safety issues, and utility conflicts. Trees would be replanted within one or more of the following locations:</p> <ul style="list-style-type: none"> • In the center island of the roundabout; • Within right-of-way near the top of the roadway cut-slope on the south side of SR 116; • Around the parking area at Sunset Beach Regional Park in cooperation with Sonoma County Regional Parks; • Along the future West County Trail alignment, in cooperation with Sonoma County Regional Parks and private developers; or • On private property along the frontage of SR 116 within the project limits, if desired by the property owners (For each tree planted on private property, a duplicate tree would be planted at Sunset Beach Regional Park to ensure the total required number of trees remain even if a private property owner later removes the tree. These duplicate trees would be in addition to the minimum planting requirement). <p>Trees would be planted in the late fall/early winter following construction to take advantage of seasonal rains, and would be maintained (i.e., watering, herbivore protection, weed control) for three years after installation, with a minimum survival requirement of 80% at the end of the maintenance period.</p>

Affected Resource	Potential Impact	Avoidance, Minimization, and/or Mitigation Measures
Wetlands and Other Waters	There would be no direct impacts to wetlands or other waters of the U.S. or waters of the State. The project is not anticipated to require a USACE 404 or RWQCB 401 permit. Measures have been included in the project to avoid impacts to wetlands or other waters of the U.S. or water of the State from sedimentation of eroded or loose soils generated by construction, or oil, fuel or other pollutants from operation of construction equipment.	<p>The construction boundary would be marked with high visibility fencing a minimum of 48 inches tall, and all natural areas outside the construction zone would be designated as Environmentally Sensitive Areas (ESAs). Delineating the ESA would be designated as the “First Order of Work” in the Project Specifications. Location of the ESA fencing would be determined by a qualified biologist in cooperation with County PRMD staff and shown on the project plans as a thick, solid black boundary. All work would be contained within the construction zone, and no work would be allowed in any area designated as an ESA. All fencing would be removed upon project completion.</p> <p>Continuous silt fence would be installed along the construction boundary to prevent sediment or other substances from exiting the work area. The silt fence would be used in conjunction with the ESA fencing.</p> <p>Spill control absorbent material would be in place under any construction equipment stored, refueled, or maintained in the staging area.</p> <p>The avoidance and minimization measures in Section 2.2.1, Water Quality and Storm Water Run-off, including implementation of a SWPPP and revegetation of cut-slopes, would further minimize indirect impacts to wetlands or waters.</p>
Plant Species	The project would not impact special status plant species.	None required.

Affected Resource	Potential Impact	Avoidance, Minimization, and/or Mitigation Measures
Animal Species	The project could result in construction-related impacts to western pond turtle, pallid bat, white-tailed kite and migratory birds.	Measures would be implemented as described in Section 2.3.4, Animal Species, including exclusionary fencing, preconstruction surveys, and construction worker training for western pond turtle, preconstruction roosting surveys for pallid bat, vegetation removal outside of the bird-nesting season when feasible, and preconstruction surveys for nesting birds.
Threatened and Endangered Species	The project would not impact threatened and endangered species.	None required.
Invasive Species	The project could result in the spread of invasive species in areas disturbed by construction.	<p>Caltrans would require the contractor to regularly inspect and clean construction equipment to prevent spread of plant materials and/or seeds.</p> <p>Erosion and sediment control seed mix would not contain species listed as noxious weeds.</p> <p>In replanting areas, Caltrans would implement a 3-year plant establishment period to allow native species to become established. Control methods for invasive species and maintenance intervals would be established based on recommendations of a person/company qualified in ecological restoration and invasive species control.</p> <p>Chemical control methods, if needed, would be limited to those considered non-toxic to aquatic life.</p>
Cumulative Impacts	The project and the proposed Mirabel Shoulder Widening Project could result in temporary cumulative impacts to traffic and noise during construction, if constructed simultaneously.	<p>Caltrans and the County would coordinate construction activities for the project and the Mirabel Road Shoulder Widening project to minimize traffic disruption and cumulative construction noise to the maximum extent feasible.</p> <p>Section 14-8.02, Noise Control, of the Caltrans Standard Specifications would be applied to the project and the Mirabel Road Shoulder Widening Project.</p>

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Chapter 1 - PROPOSED PROJECT

1.1 Introduction

The California Department of Transportation (Caltrans) as the CEQA lead agency, in cooperation with the County of Sonoma (County) as CEQA responsible agency and project sponsor, proposes to construct improvements at the intersection of State Route (SR) 116 and Mirabel Road in Forestville, Sonoma County (Figures 1 and 2). The project includes construction of a roundabout at the intersection to improve traffic flow, and lowering of SR 116 west of the intersection to improve sight distance. The project limits extend from approximately 170 feet west of Hidden Lake Road to approximately 430 feet east of the SR116/Mirabel Road intersection (Post Mile (PM) 19.2 to 19.5).

The project is proposed for funding through Measure M (a countywide voter-approved sales tax measure), mitigation fees from approved local development projects, countywide traffic mitigation fees, and State-Local Partnership Program (SLPP) funding. Measure M funding is administered by the Sonoma County Transportation Authority (SCTA). Intersection improvements at SR 116/Mirabel Road are included in the Metropolitan Transportation Commission's (MTC) 2009 Regional Transportation Plan (RTP), RTP reference number 230341. No federal funding is proposed for the project.

1.2 Purpose and Need

Existing Facility

SR 116 is one of several routes that connect the U.S. 101 corridor to State Route 1 and the Pacific coast in Sonoma County. On this segment, SR 116 is mainly a rural, 2-lane highway that passes through the downtowns of Forestville and Guerneville. It serves as the primary commercial corridor for Forestville, and is used by residents for local access. SR 116 carries a large volume of truck traffic from rock quarries located west of Forestville, many of which make a left turn onto Mirabel Road.

Mirabel Road is a 2-lane road, approximately 1.5 miles long, connecting River Road at the north end to SR 116 at the south end. Several private driveways and residential streets "T" into Mirabel Road. Many local residents use Mirabel Road to access downtown Forestville. There is no planned development on Mirabel Road north of SR 116. As a result, there are no plans to widen Mirabel Road to a 4-lane facility.

The existing 3-leg, "T" intersection at SR 116 (running east/west) and Mirabel Road (running north/south) is unsignalized, and is stop controlled for southbound Mirabel Road traffic only. The southbound Mirabel approach has separate left and right turn lanes at the intersection. The eastbound approach of SR 116 consists of a single lane, and the westbound approach includes a through lane and right turn lane onto Mirabel Road. There is no existing south leg to the intersection.

Approaching Mirabel Road from the west, easterly of Hidden Lake Road, SR 116 is a crest vertical curve with an existing stopping sight distance of 25 miles per hour (mph). SR 116 is on

a steep grade (climbing up towards the east) and has a width of up to 30 feet (edge of pavement (EP) to edge of pavement) with one 12-foot lane in each direction. The posted speed limit on eastbound SR 116 is 35 mph.

Approaching Mirabel Road from the east, SR 116 is on a steep grade (climbing up towards the west) and has a width of 40 feet (curb to curb) with one 12-foot lane in each direction. About 250 feet east of Mirabel Road, the westbound pavement tapers out slightly to provide a 15-foot wide right turn lane to Mirabel Road. The posted speed limit on westbound SR 116 is 25 mph.



Not to Scale

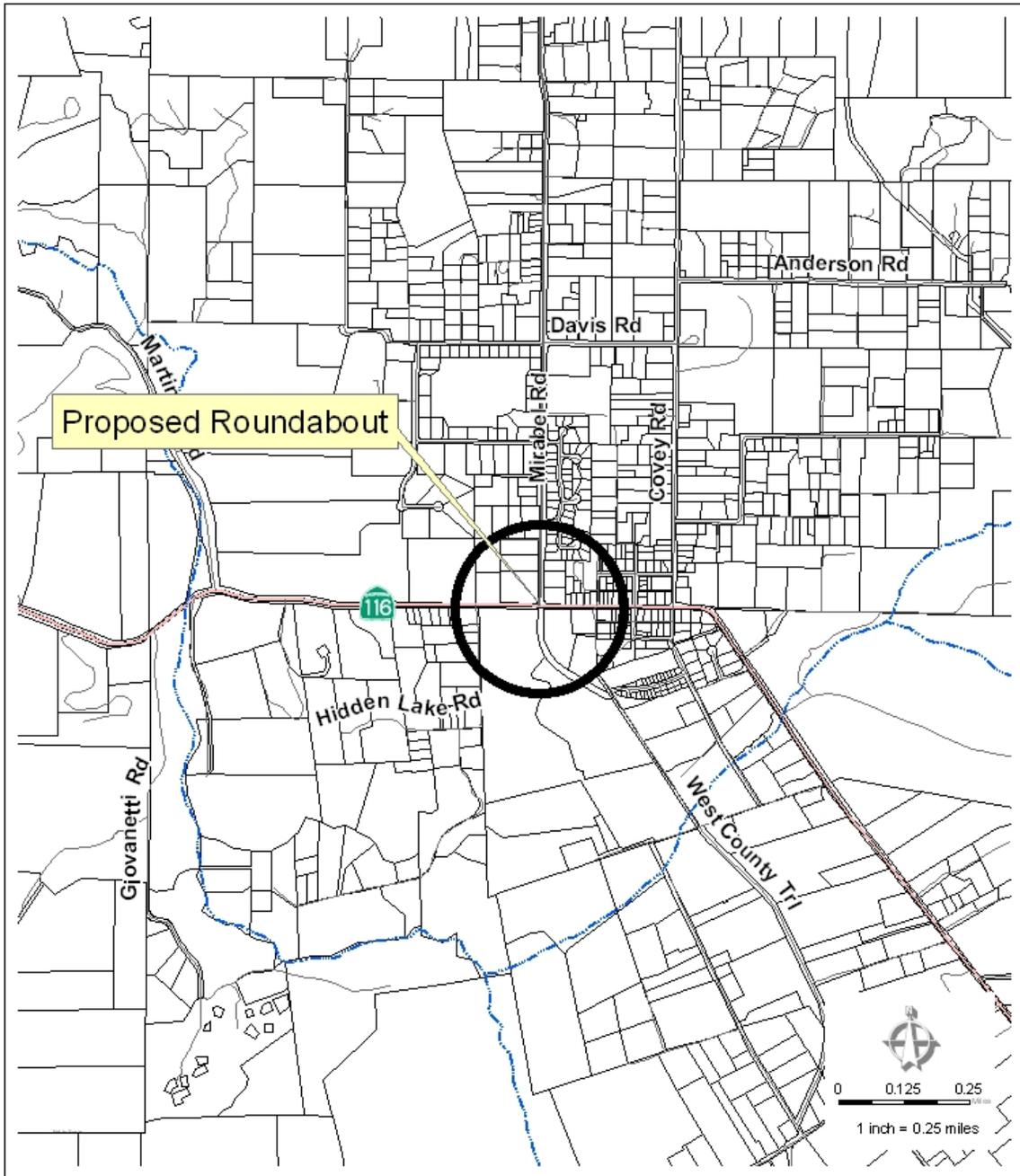
Location Map
State Route 116 at Mirabel Road, Forestville
Intersection Improvement Project
PM 19.2 / 19.5

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 Author: PRMD Cartography D. Reiter File Number: S/0150012/PRMD_BOSE/PRMD Department/Projects/Environmental Review/Mirabel Rd Hwy 116 Location/Map/rev02/14/19/21 C

County of Sonoma

Permit and Resource Management Department
 2550 Ventura Avenue, Santa Rosa, California 95403
 707-545-5000 Fax 707-545-1100

Figure 1. Project Location Map



Vicinity Map
State Route 116 at Mirabel Road, Forestville
Intersection Improvement Project
PM 19.2 / 19.5

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 Author: PRMD, Cartography D. Reiter. File Number: 3101504.01.PRM_BASE.PRM Department Projects/Environmental Review/Mirabel Rd Hwy 116 Vicinity Map and Date: 11/19/14

County of Sonoma

Permit and Resource Management Department
 2550 Ventura Avenue, Santa Rosa, California 95403
 707-545-1500 FAX 707-545-1100

Figure 2. Project Vicinity Map

Purpose

The purpose of the SR 116/Mirabel Road intersection improvement project is to:

- Improve intersection safety by improving sight distance;
- Improve traffic flow at the intersection;
- Accommodate traffic from future regional growth, as well as anticipated growth from approved development projects, and
- Accommodate bicycle and pedestrian movements.

Need

The need to improve the SR 116/Mirabel Road intersection has been identified from a number of sources, including existing accident data, traffic data, environmental studies completed for approved development projects, regional planning documents, and a voter-approved sales tax measure. Several factors, including safety issues and current and future traffic demand, contribute to the overall need for improvements, as described below.

Roadway Deficiencies

The intersection of Mirabel Road and SR 116 has limited sight distance for eastbound vehicles due to its location below the crest of a hill. The existing stopping sight distance approaching the intersection does not meet current standards for the posted speed limit of 35 mph. The limited sight distance condition is worsened as eastbound trucks and other vehicles queue at the intersection while waiting to make a left turn onto Mirabel Road.

The shoulders on SR 116 are narrow (less than 3 feet) and less than the standard for a 2-lane conventional highway. They do not provide sufficient room for a disabled vehicle to stop and clear the adjacent lane.

Safety

Accident data were reviewed for the segment of SR 116 from approximately 1000 feet west to 500 feet east of the Mirabel Road intersection (PM 19.2 to 19.5). There were 13 accidents in the 3-year period from January 1, 2005 through December 31, 2007. The accident rate (per million-vehicle-miles) in this 0.3 mile segment of SR 116 compared to the statewide average for similar facilities is shown below in Table 1. The accident rate for this section of SR 116 is nearly 2.5 times the statewide average. Of the 13 accidents in this segment of SR 116, seven were broadsides, two were rear-ends, two were hit objects, one was head-on and one was a side-swipe.

Table 1. Accident Rates on SR 116 Compared to Statewide Average

Route	Fatalities	Fatalities & Injuries	Total
SR 116	0.000	0.70	3.04
Statewide Average	0.029	0.65	1.34
Note: Accident rates are per million-vehicle-miles traveled.			

Seven of the 13 accidents were at the intersection. All seven of these were broadside collisions with a primary collision factor of failure to yield. In all seven, the southbound motorist on Mirabel

Road failed to yield while turning left to go eastbound on SR 116. In six of these seven accidents, the other motorist was traveling westbound on SR 116. In one of these seven, the other motorist was traveling eastbound on SR 116. Two of the seven broadside collisions were injury accidents.

It is likely that the poor operating conditions described above for the left turn from Mirabel Road onto SR 116 led motorists to attempt the left turn with inadequate gap distances between oncoming vehicles, resulting in broadside accidents. This condition would worsen under increased traffic volumes.

Capacity and Transportation Demand

Intersection improvements are needed to accommodate existing and future transportation demand. The existing average daily traffic (ADT) (year 2005) on SR 116 is 8,813 vehicles per day and the estimated ADT for year 2035 is 10,620 (SCTA, 2011; Caltrans, 2011). The stop-controlled approach from southbound Mirabel Road onto eastbound SR 116 currently operates at Level of Service (LOS) E during the weekday a.m. peak hour (HDR, 2012). See Table 8 in Section 2.1.7.1 for existing and future traffic LOS.

A traffic analysis shows that the existing intersection will operate poorly (LOS F) in the design year of 2035. The analysis reveals that the average delay during the a.m. and p.m. peak hours will exceed 10 minutes per vehicle for two different “no-build” conditions: 1) If the intersection remains stop-controlled on Mirabel Road, as it is today and 2) If the intersection is changed to an all-way stop (Caltrans, 2012). Under the first “no build” condition, traffic attempting to turn onto SR 116 may accept unreasonable gaps during the peak hours, which could lead to safety issues at the intersection.

An analysis has been conducted at the intersection to determine whether current operations, as well as future (year 2030) operations warrant installation of a traffic signal (Crane Transportation Group, 2006). The signal warrant analysis determined that the intersection has traffic volumes meeting signal warrants for both current operations and for the year 2030.

The County Board of Supervisors has approved expansion of operations at the Blue Rock and Canyon Rock quarries located west of Forestville on SR 116. The Environmental Impact Reports (EIRs) for these two quarry projects identified significant impacts to LOS at the intersection from the expansions, resulting in increased delay beyond the existing condition. The mitigation measure in the EIRs and conditions of approval for the expansion projects require the quarry operators to make a fair share contribution to improvements at the SR 116/Mirabel Road intersection.

Other approved development may impact traffic demand and the operation of the SR 116/Mirabel Road intersection in the future. The County has approved a tentative map for an 11-lot subdivision of the parcels southwest of the intersection. (The subdivision would access SR 116 via a driveway connected to the roundabout fourth leg.) The County has also approved the Forestville Square project, a mixed-use development at the southeast quadrant of the intersection which includes a town green (open space), residential units, commercial units, and small hotel. Though the future of these developments is uncertain, as projects that have received approval from the County, they are considered in this CEQA document.

Overall growth in the region, planned development, and quarry expansion are expected to lead to additional delay and decline in LOS at the SR 116/Mirabel Road intersection.

Regional Planning and Legislation

The MTC is responsible for regularly updating the Regional Transportation Plan, a comprehensive blueprint for the development of mass transit, highway, airport, seaport, railroad, bicycle and pedestrian facilities. MTC also screens requests from local agencies for state and federal grants for transportation projects to determine their compatibility with the plan. The SR 116 at Mirabel Road roundabout is included in MTC's 2009 Regional Transportation Plan 2035 (T-2035).

On November 2, 2004, the voters of Sonoma County passed Measure M, a quarter-cent sales tax to address transportation needs throughout the county. Improvements at the SR 116/Mirabel Road intersection are identified in Measure M to relieve congestion and improve safety. Though included under the Forestville Bypass Project, the intersection improvements are identified in the 2009 Measure M Strategic Plan as a separate element that would undergo separate environmental review and be constructed separately from the bypass.

Modal Interrelationships

SR 116 in the project area is designated a Class II bikeway in the Sonoma County Bicycle and Pedestrian Plan (2010) and Sonoma County General Plan 2020. Mirabel Road is designated as a proposed Class II bikeway in these plans (see Table 2 for a definition of bikeway classifications). Improvements to the SR 116/Mirabel Road intersection and its approaches should take into account the status of these roadways as proposed bike routes.

The West County Trail (an existing Class I bike route) is proposed to intersect with SR 116. Currently, the proposal is to connect to SR 116 at the Mirabel Road intersection in association with the proposed private development located at the southeast quadrant of the intersection. Measure M identifies continuation of the West County Trail up Mirabel Road to the Forestville Youth Park as a Class I facility, and ultimately to River Road as a Class II facility. It would be difficult for users of this trail to cross safely at the SR 116/Mirabel Road intersection in its current configuration, as SR 116 is not stop-controlled and there are no crosswalks.

Table 2. Definitions of Bike Route Designations

Class I	Bike Path. Provides a completely separated right of way for the exclusive use of bicycles and pedestrians with crossflow minimized.
Class II	Bike Lane. Provides a striped lane for one-way bike travel on a street or highway.
Class III	Bike Route. Provides for shared use with pedestrians or motor vehicle traffic.
Source: Highway Design Manual, Caltrans, 2006.	

1.3 Project Description

The project is located in Sonoma County in the community of Forestville and proposes to construct improvements at the intersection of SR 116 and Mirabel Road. This section describes the project and alternatives to the project, including the No Build Alternative.

1.4 Alternatives

The alternatives considered in this document are the Build Alternative (the project) and the No Build Alternative. The Build Alternative would construct a single-lane roundabout at the intersection of SR 116 and Mirabel Road, and lower the profile of SR 116 west of Mirabel Road to improve sight distance. The No Build Alternative would leave the SR 116 and the intersection with Mirabel Road in its existing configuration.

1.4.1 Build Alternative (The Project)

Caltrans, in cooperation with the County, proposes to construct a single lane roundabout at the existing SR 116/Mirabel Road “T” intersection. The roundabout would have a diameter of 130 feet. The proposed limits of work on SR 116 are from approximately 170 feet west of Hidden Lake Road to 430 feet east of Mirabel Road (Post Mile 19.2 to 19.5). The work limits on Mirabel Road would extend approximately 250 feet north of the existing intersection.

Upon completion, the project would operate as a three-leg roundabout, though the fourth leg (northbound approach) of the roundabout is proposed to be constructed as part of the current project. The fourth leg would extend approximately 300 feet south of the existing intersection. Construction of the fourth leg would allow access to SR 116 for an approved development project located on parcel 084-031-072. The development would be allowed to connect a driveway to the southern end of the leg. The fourth leg would be constructed to the southern end of the splitter island in order to preserve the roundabout operational characteristics, and to control approach speeds to the roundabout from vehicles exiting the development. The current design of the roundabout and fourth leg also takes into consideration potential construction of a future Forestville bypass, as identified in the Sonoma County General Plan 2020, though the bypass would undergo its own environmental review and, if approved, would be constructed as a separate project. The design of the fourth leg also allows for a connection to the West County Trail bikeway, which is proposed to be constructed as part of an adjacent development project.

The center of the roundabout would be located approximately 15 feet south of the existing intersection in order to reduce right-of-way impacts to the Westside Center (shopping mall and post office) in the northwest quadrant and the gas station in the northeast quadrant. The offset alignment would also accommodate traffic handling during construction.

The alignment of the roundabout approach legs is slightly curved and offset to reduce the speed of vehicles entering the roundabout, and also to allow for adequate sight distance. The posted advisory speed through the roundabout would be 15 mph.

The proposed lane width within the roundabout is 20 feet. Trucks and other large vehicles would be able to use the truck apron (a traversable area about 9.5 feet wide behind a mountable curb) located at the outside edge of the center island in order to have sufficient room to complete their turns.

The roundabout includes splitter (median) islands varying in length. Splitter islands guide traffic into the roundabout, physically separate entering and exiting traffic streams, and deter wrong-way movements. The islands also provide a landing/refuge point for pedestrians so that they only have to cross one lane of traffic at a time. Pedestrian crosswalks would be located on all four legs 20 feet behind the yield line for vehicles entering the circle. Sidewalks (a shared bicycle-pedestrian path) would be located on the outside of the roundabout in all four quadrants of the intersection, and would be separated from the roundabout by a buffer strip. Bike riders could choose to use the roundabout depending on their skill level and experience; accomplished riders would merge with vehicle traffic and proceed through the roundabout as would any other vehicle since speeds would be low enough for this. Novice riders would have an option of exiting to the shared bicycle-pedestrian path and crossing at the crosswalks.

The elevation of the roundabout would be slightly lower than the existing intersection. A retaining wall would be required at the northwest corner of the intersection. Excavation and cut slopes with a 2:1 gradient would be required for the northbound approach leg.

SR 116 between Hidden Lake Road and Mirabel Road currently crosses the crest of hill (vertical curve) which restricts sight distance for vehicles at and approaching the intersection. The roadway over the crest of the hill would be lowered to improve sight distance. The new profile of SR 116 would provide a stopping sight distance for a 40 mph design speed. The new roadway would match the existing grade approximately 150 feet west of Hidden Lake Road, at the western project limit. Excavation (maximum cut of 18-20 feet) would be required to lower the roadway and to widen it to allow for a 10-foot shoulder on the north side, an 8-foot shoulder on the south side, and one 12-foot travel lane in each direction. A tiered retaining wall (with a total height of approximately 18 feet) is proposed along the north side of SR 116 between Mirabel Road and Hidden Lake Road. The wall would be given a textured finish to make it aesthetically compatible with the surrounding landscape and other walls located along SR 116. Cut slopes with a 2:1 gradient are proposed along the south side of SR 116.

Minor grade adjustments would be required on Hidden Lake Road as it approaches the intersection with SR 116. This would involve lowering Hidden Lake Road a couple of feet for a distance of approximately 130 feet so that it would match the new grade of SR 116. The driveway located north of SR 116 opposite of Hidden Lake Road would also be adjusted to match the new grade of SR 116. Some grading of the slopes along SR 116 in the vicinity of Hidden Lake Road is required to provide adequate sight distance.

Lighting is required for the roundabout in order to meet safety standards, and is expected to include an overhead (cobra-head style) light standard on each of the four quadrants of the roundabout, as well as lighting at each crosswalk around the perimeter of the roundabout.

Roundabout Landscaping

The center island of the roundabout would include a combination of architectural elements (including landscaping and hardscape, such as boulders). Caltrans, in cooperation with the County, would develop a detailed landscaping plan in final design, after community input is considered. Landscaping elements within the circle not only provide aesthetic benefits, but also serve to make the intersection more conspicuous and provide a visual barrier to reduce speeds within the circle and prevent vehicles from traveling across the circle. Selection of the center island landscaping would need to take into consideration maintenance issues, community identity, traffic issues (such as sight distance), cost, and safety. Items that would attract

pedestrian traffic to the center island, such as benches or monuments with small text, would be avoided for safety reasons.

Right-Of-Way Needs

The project would use property for which the County has existing slope and road easements. Portions of the easements required for the project would be acquired in fee. In addition, the project requires right-of-way from the parcels located at the northwest, northeast and southeast quadrants of the intersection. The project would also require minor amounts of right-of-way from parcels at the southwest corner of the intersection of SR 116 and Hidden Lake Road, and from parcels located across SR 116 from Hidden Lake Road.

Property Access Modifications

Due to the necessary length of the splitter island on the north leg of the roundabout, the existing Rotten Robbie gas station driveway on Mirabel Road would become right in and right out only.

To minimize the effect on traffic operations of the roundabout by vehicles making a left turn from eastbound SR 116 into the south driveway of the Rotten Robbie gas station, a “Keep Clear” pavement marking would be placed on westbound SR 116 at the south entrance of the Rotten Robbie gas station, just east of the roundabout. This would discourage vehicles queued at the westbound SR 116 approach from blocking the entrance to the gas station. In addition, a sign prohibiting left turns during weekday a.m./p.m. peak periods facing eastbound traffic on SR 116 would be placed on the splitter island, just west of the aforementioned south driveway.

Utility Relocations

Both overhead (electrical, cable television, telephone) and underground (electrical, gas, water, sewer, telecommunications) are located in the project area. Relocation of utilities would be required, including several overhead poles located north and south of SR 116 and on Mirabel Road. Overhead utilities would be moved from their existing location at the top of the road cuts to their location at the top of the new retaining wall or road cut, or possibly underground along the new shoulder of SR 116. Underground utilities would be moved from their current location under the existing roadway to beneath the new roadway.

Storm Water Collection and Treatment

The project includes construction of storm water treatment features in order to offset the addition of hardscape (paved surfaces) created by the project. These include bioswale(s) along SR 116 west of Hidden Lake Road, tree well filter inlets at the top of the retaining wall by the Westside Center parking lot, and a bioswale within the County’s roadway easement south of the fourth leg of the roundabout.

Staging Location

The contractor may use a portion of the County’s 60-foot wide roadway easement extending 200 feet south of the end of the roundabout fourth leg as a primary staging area for equipment, materials, and temporary soils storage. A portion of the privately-owned undeveloped parcel located to the southeast of the SR 116/Mirabel Road intersection (Assessor Parcel Number 084-031-069) could potentially be used for staging as well. However, any use of this land would require prior approval of the property owner and would be negotiated directly between the

construction contractor and the owner. The contractor may negotiate the use of additional paved staging areas directly with private property owners.

Excavation for the new roadway would create a surplus of soil. Soils would be hauled off-site for disposal at a facility permitted to accept them.

Construction Sequencing and Traffic Handling

Following is a general overview of the tentative construction sequencing. The project would be constructed in multiple stages in order to limit lane closures on SR 116 and Mirabel Road, and to maintain access to Hidden Lake Road. The detailed draft Stage Construction plans are included in Appendix C. In general, two-foot shoulders would be provided on SR 116. Access to private driveways would be maintained. Construction is expected to take approximately 15 months.

During the first stage, traffic would remain on the existing SR 116. Following relocation of utilities on the south side of the road, the area to the south of the existing lanes would be excavated to the depth of the new roadway and roundabout. Temporary retaining walls would be required to support the vertical excavation. Roadway cut-slopes would be constructed on the south side of the proposed alignment. Once excavation is complete and the temporary retaining wall is in place, new pavement for the southern SR 116 lanes would be placed, pavement for the southern half of the roundabout would be constructed, and new pavement for the southern leg of the roundabout would be placed. Additional temporary pavement would be installed beyond the edge of the permanent lane location. The new permanent and temporary paving would be used as a traffic detour during later stages. Temporary barriers and striping for traffic control would be installed.

During the next stages, temporary pavement and a temporary detour would be constructed at the SR 116/Hidden Lake Road intersection to allow grade adjustments and sight distance improvements to be constructed at the intersection. Some work during these stages would require short duration single lane closures with traffic control (including at night) on SR 116.

Next, traffic would be shifted south from the existing SR 116 to the traffic detour, and the SR 116/Mirabel Road intersection would be shifted south of its current location. Driveways across from Hidden Lake would be adjusted to the final grades. The, the existing SR 116 pavement would be removed. The area beneath the existing SR 116 alignment would be excavated down to the depth of the proposed new roadway and temporary retaining wall would be removed. Permanent retaining walls would be constructed along the north side of the roadway. New pavement for the northern SR 116 lanes and northwest portion of the roundabout would be constructed.

In the next stages, the shopping center and gas station driveways would be adjusted to grade (one driveway to the gas station would remain open at all times), followed by the northeast quadrant of the roundabout. The SR 116 lanes would be shifted to their final alignment, remaining areas of curb, gutter and sidewalk would be constructed, and areas of temporary pavement would be removed. Finally, the roundabout center island and splitter islands would be constructed.

1.4.2 No-Build Alternative

If the No Build Alternative is chosen, no improvements to SR 116 would be implemented and the intersection with Mirabel Road would remain in its existing configuration. Analysis of the No Build Alternative in this document includes what would reasonably be expected to occur in the foreseeable future if the project is not constructed. The No-Build Alternative is examined as a basis for comparison between the project and not building the project. It is anticipated that congestion would continue to increase if the project is not built.

1.4.3 Alternatives Considered but Eliminated from Further Discussion

1.4.3.1 Signalized Intersection

An alternative was considered to install a signal at the SR 116/Mirabel Road intersection, add a dedicated left turn lane on SR 116 for eastbound traffic turning onto Mirabel Road, and increase stopping sight distance by lowering the existing roadway over the crest of the hill west of the intersection. SR 116 would be widened to accommodate two 12-foot through lanes (one in each direction), one 12-foot turn lane, and two eight-foot shoulders. The turn lane would extend back to Hidden Lake Road. Approximately two thirds of the lane would provide storage for the left turn lane onto Mirabel Road, and the remaining third would provide a left turn lane from westbound SR 116 onto Hidden Lake Road.

As part of the signalization, three sets of design criteria were evaluated: a 35 mph design speed, a 40 mph design speed, and a 45 mph design speed. The existing posted speed limit is 35 mph. The Highway Design Manual recommends the design speed be five to ten mph greater than the posted speed. A 35 mph design speed would have required lowering the speed limit by five to ten mph in order to meet sight distance requirements and was eliminated by the project development team. The 40 mph design speed criteria was retained because it met sight distance standards while reducing right-of-way and environmental impacts. The 45 mph design speed was eliminated by the project development team because it required a deeper road cut that would result in higher costs, increased right-of-way requirements, and increased environmental impacts, including tree removal.

Following development of the signalized intersection alternative, the County was contacted by citizens of Forestville interested in a roundabout alternative. The 40 mph design criteria signalized intersection alternative and a roundabout alternative were presented at a public meeting in Forestville on February 26, 2009. The project development team considered verbal and written comments received at the meeting.

The signalized intersection alternative was eliminated from consideration based on the following:

- Improved capacity and safety benefits associated with a roundabout.
- Potentially higher emissions for a signalized intersection compared to a roundabout based on a higher number of stopping/starting movements at the intersection.
- The signalized intersection would result in impacts to roadside ditches west of Hidden Lake Road - potential Waters of the State. These impacts would not occur with the roundabout.
- There would potentially be more traffic noise associated with the signalized intersection than a roundabout based on a higher number of stopping/starting movements at the

intersection and travel lanes being shifted closer to several residences west of Hidden Lake Road.

- The aesthetics of signal poles and wires associated with the signalization project were viewed negatively by some members of the public.
- Construction costs for the signal alternative are higher than the roundabout.

A majority of those who submitted comments at the public meeting preferred the roundabout alternative to the signal.

1.4.3.2 Four Way Stop

Based on a comment from a member of the public, traffic operations for the installation of all-way stop signs were analyzed. The analysis assumed that the fourth leg of intersection was in place to account for the development of the property at the southwest quadrant of the intersection. In the year 2030, a 4-way stop would operate at an unacceptable Level of Service (LOS F). In addition, installation of a four-way stop without other improvements would not address sight distance. Therefore, a 4-way stop was eliminated from consideration.

1.5 Project Funding, Estimated Cost, and Schedule

The project is funded by a combination of sources: Measure M funds, Countywide traffic mitigation fees, quarry expansion mitigation fees and Proposition 1B State-Local Partnership Program funds. No federal funding is proposed for the project.

The preliminary capital cost estimate for the project, which consists of right-of-way and construction costs, is \$7,082,000. Project construction is anticipated to begin in summer of 2013.

1.6 Permits and Approvals Needed

The following approvals are required:

Caltrans will consider whether to adopt a Mitigated Negative Declaration for the project, and whether to approve the project.

The Sonoma County Board of Supervisors will consider whether to fund and approve the project.

Applications/notifications would be submitted to the State Water Resources Control Board (SWRCB) pursuant to the National Pollutant Discharge Elimination System (NPDES) permit during final project design.

Chapter 2 - AFFECTED ENVIRONMENT, ENVIRONMENTAL CONSEQUENCES, AND AVOIDANCE, MINIMIZATION AND/OR MITIGATION MEASURES

This chapter describes the environmental resources of the project area and how the resources would be impacted by the project alternatives. This chapter also discusses recommended avoidance, minimization and/or mitigation measures to reduce impacts of the project. The chapter addresses issues of concern pursuant to the California Environmental Quality Act (CEQA) and provides the basis for responses to the CEQA Checklist form. Please see Appendix A for the CEQA checklist.

As part of the scoping and environmental analysis conducted for the project, the following environmental issues were considered, but no adverse impacts were identified. Consequently, these issues will not be discussed further.

- Coastal Zone- The project is not located within the Coastal Zone.
- Hydrology and Floodplains- The project is not located within or adjacent to a floodplain or a flood hazard area as identified on the Federal Emergency Management Administration's Flood Insurance Rate Maps. The project would not impact floodplains or watercourses, or substantially alter hydrology.
- Wild and Scenic Rivers- There are no designated Wild and Scenic Rivers in or near the project limits.

The remainder of this chapter covers environmental issue areas that require further consideration or discussion.

2.1 Human Environment

2.1.1 LAND USE

2.1.1.1 Existing and Future Land Use

Information in this section was obtained from visits to the project site, aerial photograph review, the Sonoma County General Plan 2020, the Sonoma County Zoning Ordinance, and planning files at the Sonoma County Permit and Resource Management Department (PRMD).

Regulatory Setting

Land use in the project area is governed by the Sonoma County General Plan 2020 and the Sonoma County Zoning Regulations. Table 3 lists general plan land use designations and zoning for parcels adjacent to the project.

Table 3. Land Use and Zoning of Adjacent Parcels

Assessor Parcel Number	General Plan Land Use Designation	Zoning*
083-130-081	Limited Commercial	C1 SD SR
083-090-085	Limited Commercial	C1 SD SR
083-090-079	Limited Commercial	LC SR
083-090-055	Limited Commercial	LC SR
083-090-056	Limited Commercial	LC SR
083-080-001	Limited Commercial	PC B6 1 SD SR
084-031-069	Urban Residential 1 unit/acre	PC B6 1 SR
084-031-072 (parcel has split zoning)	Urban Residential 1 unit/acre/Limited Commercial	RR B7 SR/AS B7
084-031-050	Rural Residential 2-ac density	AR B6 2 SR
083-130-008	Rural Residential 2-ac density	AR B6 2 SR
083-130-053	Rural Residential 2-ac density	AR B6 2 SR
084-020-004	Urban Residential 2	R1 B6 2 DU SD SR

*C1= Neighborhood Commercial District, SD= Scenic Design Combining District, SR= Scenic Resources Combining District, LC= Limited Commercial District, PC= Planned Community District, RR= Rural Residential, AS= Agricultural Services, AR= Agriculture and Residential District, R1= Low Density Residential District, B= B Combining Districts specify residential density and/or minimum parcel or lot size for a particular parcel, lot or area.

Affected Environment

Figure 3 shows land uses in the project vicinity, along with general plan land use designations for the area. The intersection of SR 116 and Mirabel Road is located at the west end of the community of Forestville. To the northeast of the intersection, existing land uses consist of the Rotten Robbie gas station (with entrances on both SR 116 and Mirabel Road) and small commercial establishments along SR 116. Forestville School is located east of the project limits on SR 116.

Uses northwest of the intersection include Westside Center (a small commercial park accessed from Mirabel Road, with a mix of professional offices, restaurants, retail, and a post office), transitioning to rural residential development along SR 116 further west.

Undeveloped land zoned as a “planned community district” is located to the southeast of the intersection. An application has been approved by the County to develop these parcels (totaling 8 acres). This development, the Forestville Square project, would consist of mixed commercial, residential, and open spaces uses. However, project development is uncertain at this time, due to a change of ownership of the parcels. The parcels to the southwest of the intersection are zoned “residential” and “agricultural services district”. The County has approved an 11 lot subdivision (the “Crinella Subdivision”) for these parcels (totaling 60 acres). Some of the land is currently planted in vineyard. Existing single family residences are located further west along SR 116 and Hidden Lake Road. Two hard-rock quarries are located west of the project limits on SR 116.

Existing land use to the north of the project limits on Mirabel Road is primarily residential. The Forestville Fire Protection District station and Forestville Water District building are located approximately 500 feet north of the intersection, and the Forestville Youth Park is located approximately 0.4 mile north of the intersection.



Figure 3. Land Use

Environmental Consequences

The project would require small right-of-way acquisitions from several parcels, as well as construction on portions of parcels for which the County has existing slope or roadway easements. However, these minor acquisitions would not change the land use on the remainder of the parcels, nor conflict with their zoning or development potential.

The No Build Alternative would not impact existing and future land use.

Avoidance, Minimization and/or Mitigation Measures

None required.

2.1.1.2 Consistency with State, Regional and Local Plans and Programs

Regulatory Setting

Planning goals and policies for the study area are guided by the *Sonoma County General Plan 2020* (General Plan) and the *Sonoma County 2009 Comprehensive Transportation Plan* (CTP).

The purpose of the General Plan is to express policies which guide decisions on future growth, development, and conservation of resources through the year 2020 in a manner consistent with the goals and quality of life desired by the county's residents. Primary goals of the Land Use element of the General Plan are to coordinate land use with growth policies, phase rural and urban growth with availability of adequate services, provide open space separation between cities/communities, create opportunities for diverse rural and urban residential environments, protect agricultural lands, and preserve scenic features and biotic resource areas.

The project was reviewed by the Comprehensive Planning Division of PRMD to identify relevant policies from the General Plan. The following policies were identified as relevant to the project:

Circulation and Transit Element (CT)

Policy CT-1j: Where practical, locate and design improvements and new circulation and transit facilities to minimize disruption of neighborhoods and communities, disturbance of biotic resource areas, destruction of trees, and noise impacts.

Policy CT-3f: Implement safety improvements when and where problems arise. Where safety problems may result from a proposed project, require the safety improvements as a condition of approval.

Policy CT-5h: Carry out on an as needed basis projects that enhance traffic safety but do not significantly increase capacity, including but not limited to traffic control devices, curvature reduction, turn lanes at intersections, shoulder improvements, reconstruction and resurfacing.

Public Safety Element (PS)

Policy PS-2m: Regulate development, water diversion, vegetation removal, grading and fills to minimize any increase in flooding and related damage to people and property.

Open Space and Resource Conservation Element (OSRC)

Policy OSRC-3h: Design public works projects to minimize tree damage and removal along Scenic Corridors. Where trees must be removed, design replanting programs so as to accommodate ultimate planned highway improvements. Require revegetation following grading and road cuts.

Policy OSRC-7o: Encourage the use of native plant species in landscaping. For discretionary projects, require the use of native or compatible non-native species for landscaping where consistent with fire safety. Prohibit the use of invasive exotic species.

Land Use Element

General Plan land use designations are listed in Table 3 above.

The Sonoma County 2009 Comprehensive Transportation Plan (CTP), adopted by the Sonoma County Transportation Authority, contains goals and objectives for improving mobility on Sonoma County's streets, highways, and transit system and bicycle/pedestrian facilities, as well as reducing transportation related impacts. The four policy goals of the CTP are to maintain the existing system, relieve congestion, reduce greenhouse gas emissions, and plan for public health and safety.

Environmental Consequences

Sonoma County General Plan

The project is consistent with planning goals and policies in the General Plan. The project is consistent with the specific policies listed in the *Affected Environment*, as described below:

The project is consistent with Policy CT-1j because it is a circulation improvement project that would not disrupt the local neighborhood or larger community and Caltrans would consider community identity in selecting the landscaping for the center island of the roundabout. The project is also consistent with Policy CT-1j subject to compliance with the measures listed below for Policies OSRC-3h and OSCRC-7o.

The project is consistent with Policies CT-3f and CT-5h because it would improve the safety of the State Route 116/Mirabel Road intersection but would not significantly increase the capacity of SR 116.

The project is consistent with Policy PS-2m because the project site is not located near a stream and would not otherwise affect stream flow.

The project is consistent with Policies OSRC-3h and OSRC-7o subject to compliance with the following measures: 1) the project is designed and constructed so as to minimize damage to and removal of trees; 2) the project includes a replanting program for trees that are removed,

and the location of tree replanting is outside of the area of ultimate planned improvements to State Route 116 in the project area; 3) the project includes a plan for revegetation of areas disturbed by grading and other construction activities; and 4) native vegetation is used in landscaping the center island of the roundabout. The project has been designed to minimize tree removal; however removal of trees would still be required. See *Avoidance, Minimization and Mitigation Measures* below.

The No Build Alternative would be consistent with the General Plan, but would not provide the safety benefits described by Policy CT-5h.

Sonoma County 2009 Comprehensive Transportation Plan (CTP)

Intersection improvements at SR 116 and Mirabel Road (signalization and channelization) are identified in the CTP Appendix A project list. The project list identifies improvements needed to relieve congestion on the county roadway system. The roundabout project (in place of signalization) would be consistent with the policy goals of the CTP because it would reduce congestion, improve safety at the intersection, and improve access for pedestrians at the intersection. The roundabout may reduce greenhouse gas emissions by reducing idling.

The No Build Alternative would not provide safety, congestion or pedestrian improvements at the intersection.

Avoidance, Minimization and Mitigation Measures

Avoidance, minimization, and mitigation measures for tree removal are consistent with General Plan Policies OSRC-3h and OSRC-7o, and are described in Section 2.1.8, Visual/Aesthetics, Section 2.3.1, Natural Communities, and Section 2.3.6, Invasive Species. Revegetation of areas disturbed by grading, consistent with General Plan Policy OSRC-3h, is also described in Sections 2.1.8, and 2.2.1, Water Quality and Storm Water Run-off.

2.1.1.3 Parks and Recreational Facilities

Affected Environment

The only park within the project vicinity is the Forestville Youth Park, located on Mirabel Road approximately 0.4 mile north of the existing SR 116/Mirabel Road intersection. The Forestville Youth Park is owned and operated by a community non-profit group, but open to the public. It provides barbecue pits, picnic tables, a playground, a large meeting room and baseball and soccer fields.

The other recreational facility in the vicinity is the West County Trail, which primarily follows the former Petaluma and Santa Rosa Railway right-of-way and is managed by Sonoma County Regional Parks. The West County Trail connects with the Joe Rodota Trail in Sebastopol, forming a trail system that extends from Santa Rosa through Sebastopol to Forestville. The West County Trail is paved for walking, bicycle riding, and roller skating. Though identified as extending all the way to SR 116, the final approximately 650-foot section connecting to SR 116 has not been constructed. The County General Plan 2020 and Sonoma County Bicycle and Pedestrian Plan propose to extend the trail to the Forestville Youth Park.

Environmental Consequences

The project would not impact the Forestville Youth Park.

The West County Trail is proposed to be extended up to the SR 116/Mirabel Road intersection. The trail was proposed to be constructed in conjunction with the approved Forestville Square mixed-use development project at the southeast corner of the intersection and would have connected to the combined pedestrian/bicycle path that would be constructed as part of the roundabout project. At this time, the details and timeframe of the trail connection are unknown due to uncertainty of the future development of the parcel. A measure has been included below to ensure the project is compatible with future trail development.

The No Build Alternative would not impact parks or recreational facilities.

Avoidance, Minimization and/or Mitigation Measures

Caltrans and the Sonoma County Department of Transportation and Public Works (DTPW) would coordinate with the Sonoma County Regional Parks Department to ensure the roundabout design can accommodate a future West County Trail crossing at the SR 116 Intersection. Coordination would address issues including, but not limited to, grades, Americans with Disabilities Act (ADA) compliance, and signage.

2.1.2 GROWTH

Regulatory Setting

CEQA requires the analysis of a project's potential to induce growth. CEQA guidelines, Section 15126.2(d), require that environmental documents "...discuss the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment..."

Sonoma County plans for growth through development of its General Plan. The land use designations and policies in the General Plan direct how the county plans to grow. Land use designations are supported by zoning ordinances that contain enforceable requirements to regulate development (e.g., allowable uses, dwelling densities, minimum lot sizes, and setback requirements).

The Forestville urban service boundary contained in the General Plan influences how the community will grow by concentrating development around the urbanized area and limiting the extension of public services including water and sanitary sewer outside this area.

Affected Environment

The population in the unincorporated areas of Sonoma County is projected to grow at a rate of 0.88% per year through the year 2020. In the Russian River Planning Area, where Forestville is located, the population is expected to increase by 15% (or approximately 0.75% per year) from 16,462 in 2000 to 18,960 in 2020. (Sonoma County, 2008)

Land surrounding the project area is to a large extent already developed in commercial, urban residential, and rural residential uses, limiting the opportunities for growth. Undeveloped parcels exist to the south of the SR 116/Mirabel Road intersection.

Environmental Consequences

A tentative map for an 11-lot subdivision was approved by the County in 2007 for the land to the southwest of the proposed roundabout. If constructed, the subdivision would be located adjacent to the new fourth leg of the roundabout. Once the fourth leg is constructed, a private roadway from the 11-lot subdivision could be connected to it to provide access to the SR 116/Mirabel Road intersection. However, access for the subdivision could also be provided by connecting a private roadway to the existing intersection under an encroachment permit from Caltrans, as described in the subdivision project conditions of approval. Therefore, the development could be constructed regardless of whether the project is approved, and the project would not induce growth.

The Forestville Square mixed-use residential and commercial development was approved the County in 2010 for land to the southeast of the intersection, and if constructed, would also be adjacent to the fourth leg of the roundabout. However, the development would have its access from a driveway along the existing SR 116 (which could be constructed under a separate encroachment permit from Caltrans regardless of whether the roundabout project is constructed) and not the roundabout fourth leg.

The project would not provide access to any other undeveloped parcels. The County's planned growth and land uses are not expected to change with or without the project. Therefore, while the project would be compatible with planned growth, it would not induce growth.

The No Build Alternative would not impact growth or induce growth.

Avoidance, Minimization and/or Mitigation Measures

None proposed.

2.1.3 FARMLANDS

Regulatory Setting

The Farmland Protection Policy Act (FPPA, 7 USC 4201-4209; and its regulations, 7 CFR Part 658) require federal agencies, such as FHWA, to coordinate with the Natural Resources Conservation Service (NRCS) if their activities may irreversibly convert farmland (directly or indirectly) to nonagricultural use. For purposes of the FPPA, farmland includes prime farmland, unique farmland, and land of statewide or local importance. Though the project is not federally funded, and therefore not subject to the FPPA, it provides a useful framework for evaluating impacts to farmland.

CEQA requires the review of projects that would convert Williamson Act Contract land to non-agricultural uses. The main purposes of the Williamson Act are to preserve agricultural land and to encourage open space preservation and efficient urban growth. The Williamson Act

provides incentives to landowners through reduced property taxes to deter the early conversion of agricultural and open space lands to other uses.

CEQ's definition of agricultural land includes Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Section 21060.1). According to the CEQA Checklist, CEQA analysis should consider whether a project would convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (as shown on maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency) to non-agricultural use.

Affected Environment

Information in this section is based on a Farmland Conversion Assessment completed for the project (Sonoma County PRMD, 2012). The study identifies mapped farmland and existing agricultural uses, and evaluates impacts to the farmland from the project.

As stated in Caltrans' Environmental Handbook Volume 4: Community Impact Assessment, "The intent of the California Department of Transportation is to avoid, whenever practical, locating public improvements within agricultural preserves or acquiring high quality agricultural land for transportation improvements." This section presents a discussion of the agricultural resources in the project area.

As of 2008, Sonoma County had 30,815 acres of land designated as Prime Farmland, 17,251 acres as Farmland of Statewide Importance, 32,107 acres as Unique Farmland, and 780,045 acres as Farmland of Local Importance (California Department of Conservation, 2010).

There are no lands mapped as Prime Farmland or Farmland of Statewide Importance within the project limits. There are no lands under Williamson Act Contract within the project limits.

One parcel, 084-031-072, contains Unique Farmland within the project limits. Portions of parcels 084-031-069, 084-031-ROW, 083-130-008 and 083-130-053 are mapped as Farmland of Local Importance (California Department of Conservation, 2010). Farmland designations for parcels within and adjacent to the project limits are shown in Figure 4.

Unique Farmland is land which does not meet the criteria for Prime Farmland or Farmland of Statewide Importance, that is currently used for the production of specific high economic value crops (as listed in the last three years of California Agriculture produced by the California Department of Food and Agriculture). It has the special combination of soil quality, location, growing season and moisture supply needed to produce sustained high quality or high yields of a specific crop when treated and managed according to current farming methods. Examples of such crops may include oranges, olives, avocados, rice, grapes, and cut flowers. It does not include publicly owned lands for which there is an adopted policy preventing agriculture use (California Department of Conservation, 1992).

Farmland of Local Importance is land of importance to the local economy, as defined by each county's local advisory committee and adopted by its Board of Supervisors. Farmland of Local Importance is either currently producing, or has the capability of production, but does not meet the criteria of Prime Farmland, Farmland of Statewide Importance, or Unique Farmland.

Within the project limits, a portion of 084-031-072 is currently planted in wine grapes. The portions of the remaining parcels within the project limits are not currently in agricultural use. Sonoma County General Plan land use designations and zoning for these parcels are listed in

Table 4. All these zoning designations allow varying types and levels of agricultural uses, though agriculture is not considered the primary use (Sonoma County General Plan Policy LU-6d).

Table 4. Land Use and Zoning for Parcels Containing Mapped Farmland

Map ID	Assessor Parcel Number	Farmland Designation for Portion of Parcel Impacted By Project	General Plan Land Use Designation	Zoning*
1	084-031-069	Farmland of Local Importance	Urban Residential 1 unit/acre	PC B6 1 SR
2	084-031-072	Unique Farmland	Urban Residential 1 unit/acre/Limited Commercial	RR B7 SR/AS B7**
3	083-130-008	Farmland of Local Importance	Rural Residential 2-ac density	AR B6 2 SR
4	083-130-053	Farmland of Local Importance	Rural Residential 2-ac density	AR B6 2 SR
5	084-031-ROW	Farmland of Local Importance	N/A	Roadway easement for Forestville Bypass

* SR= Scenic Resources Combining District, PC= Planned Community District, RR= Rural Residential, AS= Agricultural Services, AR= Agriculture and Residential District, B= B Combining Districts specify residential density and/or minimum parcel or lot size for a particular parcel, lot or area.

** Parcel has split zoning. The portion impacted by the project is zoned Rural Residential.

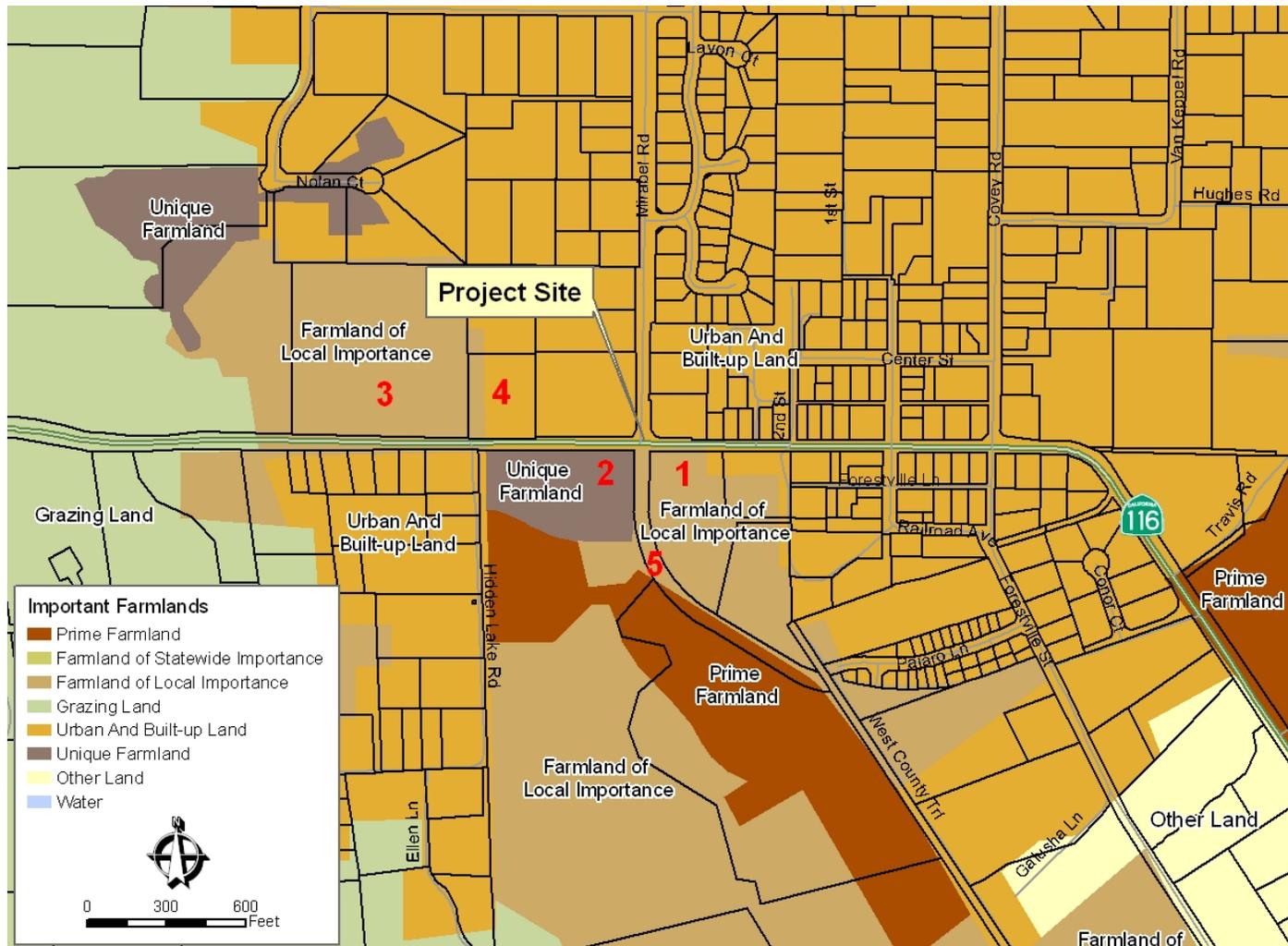


Figure 4. Mapped Farmland

(Sonoma County PRMD, 2012; California Department of Conservation, 2010)

Note: Map numbers correspond to Map ID numbers in Table 4

Environmental Consequences

The project would not impact Williamson Act Contracts, Prime Farmland, or Farmland of Statewide Importance.

The project would result in the direct conversion of 1.06 acres of Unique Farmland and 0.73 acres of Farmland of Local Importance to roadway uses, and the potential indirect conversion of an additional 0.30 acres of Unique Farmland (see Table 5 and Figure 5). Of the total 2.09 acres impacted, approximately 0.78 acres is currently planted in wine grapes, and the remaining 1.31 acres are not currently in agricultural production. A majority of the actively farmed area is located within an existing slope easement dedicated to the County of Sonoma.

Impacts to mapped farmland were evaluated using the United States Department of Agriculture (USDA) "Farmland Conversion Impact Rating" (Form AD 1006), which was completed in conjunction with the Natural Resource Conservation Service (NRCS). Form AD 1006 helps determine the impact the project may have on farmlands within the project area. Specific criteria are looked at by both the NRCS and the federal agency involved, including, but not limited to, soil productivity, water conditions, proximity to other urban and rural land uses, impacts on remaining farmland after the conversion, and indirect or secondary effects of the project on agricultural and other local factors. The NRCS must complete the land evaluation part of the form, and the federal agency must complete the site assessment portion. Each criterion has a set number of points it may be awarded. Once those points are added up, they are compared to the "threshold score" of 160 points created by the USDA. Sites receiving a total score of less than 160 need not be given further consideration for protection and no additional sites need to be evaluated under the FPPA (CFR 658.4 (c) (2)). The completed form may be found in Appendix E. The total site assessment rating for the project is 129, below the threshold score of 160.

Based on the score of 129, further protection from farmland conversion is not warranted. In addition, the size of the conversion represents a very small fraction (less than 0.01%) of the mapped farmland in the county, and a relatively small percentage of the overall size of the impacted parcels. Compensation to individual landowners for property impacts would be addressed and negotiated through the right-of-way process, as warranted. No mitigation is proposed.

The No Build Alternative would not impact farmlands.

Avoidance, Minimization and/or Mitigation Measures

None proposed.

Table 5. Proposed Farmland Conversion

Map ID Number	Assesor Parcel Number (APN)	Current Use(s) Adjacent to Project	Farmland Designation on portion of parcel affected by the Project	Parcel Size (acres)	Conversion Acreage		Area of Conversion Currently Planted with Crops (acres)
					Direct Conversion Of Mapped Farmland* (acres)	Indirect Conversion Of Mapped Farmland (acres)	
1	084-031-069	Ruderal	Local Importance, Urban/Built Up Land	3.66	0.29***	N/A	N/A
2	084-031-072	Vineyard, farm road/buffer	Unique Farmland	43.67	1.06**	0.30	0.78
3	083-130-008	Driveway, residence, ruderal, orchard	Local Importance	10.00	0.03	N/A	N/A
4	083-130-053	Driveway, residence, landscaping	Local Importance, Urban/Built Up Land	2.00	0.02	N/A	N/A
5	084-031-ROW	Ruderal (County roadway easement for future bypass)	Local Importance	1.75	0.39	N/A	N/A
				TOTAL Farmland of Local Importance Converted	0.73	0	0
				TOTAL Unique Farmland Converted	1.06	0.30	0.78
				TOTAL Farmland Converted	1.79	0.30	0.78

* Reported Right-Of-Way (ROW) acreages slightly overestimate actual impact to farmable soil since existing driveways were included in calculations.

** Within existing County slope easement

*** Includes areas both within a County slope easement and proposed new ROW

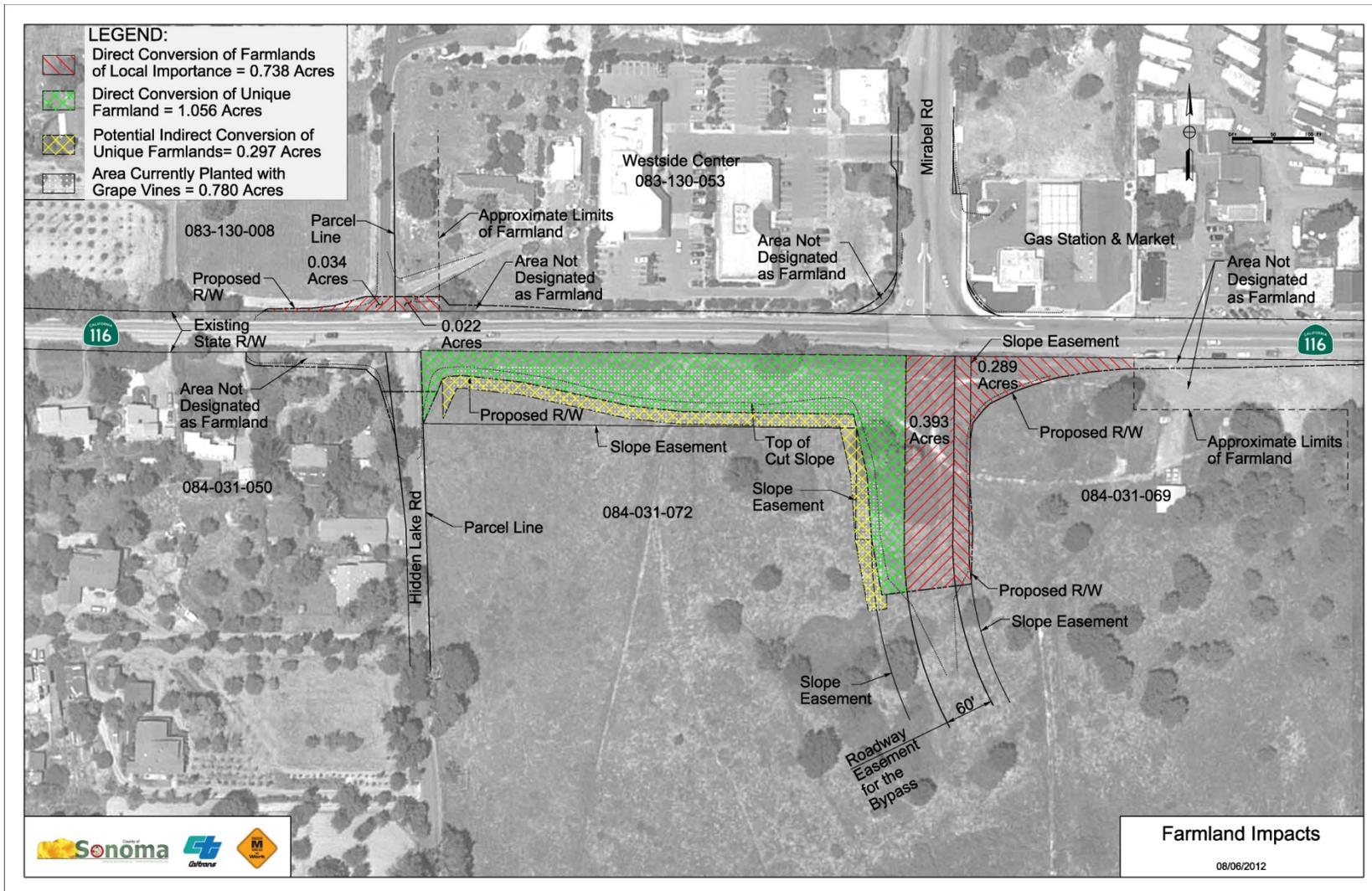


Figure 5. Farmland Impacts

2.1.4 COMMUNITY CHARACTER AND COHESION

Regulatory Setting

Under CEQA, an economic or social change by itself is not to be considered a significant effect on the environment. However, if a social or economic change is related to a physical change, then social or economic change may be considered in determining whether the physical change is significant. Since this project would result in physical changes to the environment, it is appropriate to consider changes to community character and cohesion in assessing the significance of the project's effects.

Affected Environment

According to the Sonoma County General Plan 2020, the community of Forestville remains essentially rural. The downtown commercial area provides primarily local serving commercial uses in keeping with the existing character and scale of the community. The residential areas consist predominantly of single family residences located north and south of SR 116.

Objective LU-15.4 of the Sonoma County General Plan 2020 addresses the community character of Forestville, as follows:

Maintain the "rural village" character of Forestville through design and development standards that support small scale development with substantial open space and native landscaping.

A public meeting was held in Forestville to hear community input on the project. Community members expressed interest in avoiding project features that would give the town an urbanized feeling.

Environmental Consequences

The project would not change existing community boundaries or divide neighborhoods, because it is the modification of an existing interchange. Connectivity for pedestrians to downtown Forestville would be improved by the project through installation of crosswalks. Therefore, community cohesion would not be adversely impacted.

In response to the public meeting, many community members commented that a roundabout would be more compatible with the small town character of Forestville than a signal alternative. However, impacts to community character could occur if the aesthetic features selected for the roundabout and center island landscaping are not in keeping with those desired by the community. A measure is included below to minimize this impact.

The community would experience temporary inconveniences from project construction activities, including noise, dust, intermittent traffic disruptions, and visual effects. These effects and appropriate avoidance and minimization measures are discussed in sections 2.2.6, Noise; 2.2.5, Air Quality; 2.1.7, Traffic and Transportation/Pedestrian and Bicycle Facilities; and 2.1.8, Visual/Aesthetics.

The citizens of Forestville hold an annual tree lighting celebration each year in the semi-paved/gravel area southeast of the SR 116/Mirabel intersection near the eastern project limits. The project would require minor widening and frontage improvements along SR 116 at this location, which could interfere with the tree lighting activities. A measure has been included below to avoid this impact.

The No Build Alternative would not impact community character or cohesion, but also would not improve pedestrian connectivity.

Avoidance, Minimization and/or Mitigation Measures

A landscaping plan addressing the center island landscaping, retaining wall texturing and landscaping, and cut-slope landscaping would be developed during the design phase. One or more public meetings would be held in the design phase, during which the public would be invited to comment on the proposed plan. The final plan would be provided to the community prior to implementation.

The Contractor would be required to avoid the tree lighting area between November 15 and January 1 and keep it free of obstructions during that period.

2.1.5 RELOCATIONS AND REAL PROPERTY ACQUISITION

Regulatory Setting

Caltrans' Relocation Assistance Program (RAP) is based on the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (as amended) and Title 49 Code of Federal Regulations (CFR) Part 24. The purpose of RAP is to ensure that persons displaced as a result of a transportation project are treated fairly, consistently, and equitably so that such persons will not suffer disproportionate injuries as a result of projects designed for the benefit of the public as a whole.

All relocation services and benefits are administered without regard to race, color, national origin, or sex in compliance with Title VI of the Civil Rights Act (42 USC 2000d, et seq.). Please see Appendix D for a copy of the Caltrans' Title VI Policy Statement.

Affected Environment

Some land would need to be acquired for the project from parcels containing a gas station, residences, a vineyard, the Westside Center (containing a mix of retail stores, services, and professional offices), and an undeveloped parcel. These parcels are described in more detail in Section 2.1.1.1., Existing and Future Land Use

Environmental Consequences

The project does not require relocation of any households or businesses, and does not require acquisition of entire properties. The project would require partial acquisition along property frontages on SR 116, Hidden Lake Road, and Mirabel Road, and conversion of areas of existing County easements to fee title. Temporary construction easements (TCEs) would be required

from some parcels in order to construct the project. Acquisitions and easements are listed in Table 6.

Table 6. Proposed Property Acquisitions

Address	APN	Type of Property*	Type of Acquisition
7001 Hwy 116, Forestville	083-090-079	Commercial	Partial & TCE
None, Mirabel Road, Forestville	083-090-085	Commercial (undeveloped)	Partial & TCE
6484 Mirabel Rd, Forestville	083-130-081	Commercial	Partial
6701 Hwy 116, Forestville	083-090-055	Commercial	TCE
6740 Hwy 116, Forestville	084-031-072	Agricultural	Partial
6772 Hwy 116, Forestville	084-031-069	Commercial (undeveloped)	Partial & TCE
7050 Hwy 116, Forestville	084-031-049	Single Family Residential	Partial
8444 Hidden Lake Rd, Forestville	084-031-050	Single Family Residential	Partial & TCE
6935 Hwy 116, Forestville	083-130-008	Single Family Residential	Partial
6821 Hwy 116, Forestville	083-130-053	Single Family Residential	Partial

*For undeveloped properties, the property type listed is based on the Sonoma County General Plan land use designation. Otherwise, property type is based on existing use.

Residential Impacts

Residential acquisitions may impact landscaping, fencing and open/lawn areas along property frontages. No occupied structures are located within the acquisition areas.

Business Impacts

The project does not require relocation of businesses. Property that would be acquired from the Westside Center is limited to a portion of a retaining wall and landscaping located along the property frontage. The project would not impact buildings or parking for the property. The driveway would be modified only to match the new elevation of Mirabel Road. A measure is included below to ensure access is maintained during construction.

The project would require acquisition of a small portion of the landscaped area from the Rotten Robbie gas station. The project would also modify access to the gas station. The Mirabel Road entrance would be closed temporarily for a short time during construction, and would be converted to a right turn in/right turn out only driveway once the roundabout is complete, due to the required length of the splitter islands. Left turns into the gas station from eastbound SR 116 would be prohibited during weekday a.m./p.m. peak periods in order to minimize the effect on traffic operations of the roundabout. During peak periods, eastbound vehicles would still be able to access the gas station by turning north at the roundabout and using the Mirabel Road entrance. Vehicles traveling westbound on SR 116 could queue up and block the Rotten Robbie entrance on SR 116. A measure is included below to minimize this impact.

One parcel currently in agricultural production would be affected by the project. The area that would be directly affected by the project is within an existing County slope easement, a portion of which would be acquired in fee title, and a portion of which would remain a slope easement. The affected area is currently planted in grape vines, which would be removed by the project.

An additional area would be affected should the property owner wish to re-establish the buffer/farm vehicle access that is currently located between the fence and the first row of vines, as described in Section 2.1.3, Farmlands. The project would not require relocation of any buildings on the parcel.

Acquisition from the undeveloped parcels at the southeast corner of the intersection would be limited to small areas along the property frontage and would not future development of the property.

Avoidance, Minimization and/or Mitigation Measures

A “Keep Clear” pavement marking would be installed on westbound SR 116 at the south entrance of the Rotten Robbie gas station, just east of the roundabout. This would discourage vehicles queued at the westbound SR 116 approach from blocking the entrance to the gas station.

Property acquisition would be conducted in compliance with Title VI of the Civil Rights Act (42 U.S. Code 2000d, et seq.).

Compensation would be negotiated with all affected property owners during the right-of-way acquisition phase.

Access to all properties would be provided during construction.

2.1.6 UTILITIES / EMERGENCY SERVICES

2.1.6.1 Utilities

Affected Environment

There are multiple utility lines within the project limits. Overhead utility poles are located along both sides of SR 116 west of Mirabel Road, along the east side of Mirabel Road, and along the east side of Hidden Lake Road. The overhead poles carry a combination of electrical lines, telephone lines, and cable television lines depending on location. Underground utilities include electrical lines, telecommunications lines, a gas line, and Forestville Water District water and sewer lines. There is also an electrical vault located at the south side of the SR 116/Mirabel Road intersection.

Environmental Consequences

Underground utilities (gas, electrical, telecommunications, water, and sewer), several utility poles (with a combination of electrical, cable television, and telephone, depending on location), and the electrical vault south of the existing intersection would need to be relocated for the project. Utility relocations would be accommodated within the existing and new right-of-way. Overhead utilities would be moved from their existing location at the top of the road cuts to their location at the top of the new retaining wall or road cut, or possibly underground along the new shoulder of SR 116. Underground utilities would be moved from their current location along existing SR 116 to their new location along the new roadway.

The No Build Alternative would not impact utilities.

Avoidance, Minimization and/or Mitigation Measures

Caltrans would coordinate relocation work with the affected utility companies to minimize disruption of services to customers in the area during construction.

2.1.6.2 Emergency Services

Affected Environment

Fire protection for the project area is provided by the Forestville Fire Protection District (FFPD). The FFPD also provides emergency medical response. The district has one station located at 6554 Mirabel Road. The Sonoma County Sheriff's Department provides law enforcement services to unincorporated areas of the county, including the project area. The California Highway Patrol provides law enforcement along all state routes within California, including SR 116 within the project vicinity, and assists local governments during emergencies when requested.

Environmental Consequences

The roundabout has been appropriately sized to ensure safe passage of emergency service vehicles, including fire engines. It has been sized for the 65-foot long California Legal Design Vehicle. Fire engines (and other large vehicles) can cross onto the center truck apron of the roundabout when completing turns.

In order to control vehicle speeds and vehicle queuing approaching the roundabout, the roadway width between the sidewalk curb and the splitter island is limited. These limited widths may not allow room for an emergency vehicle to pass other vehicles queued to enter the roundabout, and could result in some increase to emergency response times. According to FHWA's "Roundabouts: An Informational Guide," drivers should be educated how to properly respond when an emergency vehicle is approaching the roundabout in order to minimize potential delays to emergency response (NCHRP, 2010). The guide includes following advice for drivers:

Do not enter a roundabout when an emergency vehicle is approaching on another leg. This will allow traffic within the roundabout to clear in front of the emergency vehicle. When an emergency vehicle is approaching, be sure to proceed beyond the splitter island of your approach leg to ensure the emergency vehicle has adequate room to turn and exit the roundabout at any approach.

A measure for driver education has been included below to minimize delays to emergency response.

The project does not affect the availability of or need for emergency services.

In general, two-way through traffic would be maintained on SR 116 and Mirabel Road during project construction to the maximum extent feasible. However, during some stages of construction, single lane closures with flagged traffic control would be required at times on

Mirabel Road and on SR 116 in the vicinity of Hidden Lake Road (See Section 1.4.1 and Appendix C). Construction delays could affect emergency vehicle response.

The No Build Alternative would not impact emergency services operations.

Avoidance, Minimization and/or Mitigation Measures

A public education campaign would be implemented to inform area drivers and residents about the new roundabout, and would include information on how drivers should respond when emergency vehicles are approaching the roundabout. The campaign would include measures such as:

- Hold public meetings prior to opening the roundabout to traffic and/or give presentations at local organization meetings;
- Prepare news releases detailing what motorists and pedestrians can expect during and after construction; and
- Distribute an informational brochure to residents explaining how to navigate roundabouts (both in a vehicle and as a pedestrian).

A Transportation Management Plan would be prepared and implemented to address traffic handling and minimize delays during construction.

Local emergency services would be notified prior to construction informing them of the proposed construction schedule. The Contractor would be required to maintain access to properties at all times.

2.1.7 TRAFFIC AND TRANSPORTATION/PEDESTRIAN AND BICYCLE FACILITIES

2.1.7.1 Motor Vehicle Traffic

Affected Environment

Traffic analysis for the project was conducted as part of the Roundabout Report of Conceptual Approval (Caltrans, 2009), Roundabout Report of Conceptual Approval Supplemental Memo (Caltrans, 2011), and Draft Project Study Report/Project Report (Caltrans, 2012).

Operations

As described in Section 1.2, Purpose and Need, and shown in Table 7 below, the stop-controlled left turn from southbound Mirabel Road onto eastbound SR 116 operates at LOS E during the weekday a.m. peak hour (HDR, 2012). The average daily traffic (ADT) on SR 116 (year 2005) is 8,813 vehicles per day (SCTA, 2011).

Table 7. Existing and Future Traffic Levels of Service

Intersection Configuration	Existing Conditions (Year 2006)				2035 No Build Conditions				2035 Build Conditions			
	A.M. Peak		P.M. Peak		A.M. Peak		P.M. Peak		A.M. Peak		P.M. Peak	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
Existing (T intersection, Mirabel stop-controlled)	36.3	E	17.2	C	> 600	F	>600	F	N/A			
Roundabout with 3 legs operating, no Forestville Bypass	N/A				N/A				8.7	A/B	7.6	A/B
4 leg roundabout with Forestville Bypass	N/A				N/A				7.3	A/B	7.5	A/B

Sources: HDR, 2012; Caltrans, 2012; Caltrans, 2011.

Delay is in seconds per vehicle.

Delay and LOS for the existing unsignalized T-intersection is based on the worst movement.

Delay for the 3-leg and 4-leg roundabouts is the average delay for all vehicle movements.

LOS for the 3-leg and 4-leg roundabouts is shown as the average LOS for all movements/LOS for the worst movement.

Safety

As described in the project Purpose and Need (Section 1.2), the accident rate (per million-vehicle-miles) in this 0.3 mile segment of SR 116 is nearly 2.5 times the statewide average. Of the 13 accidents in this segment of SR 116, seven were broadsides, two were rear-ends, two were hit objects, one was head-on and one was a side-swipe. All seven of the accidents that occurred at the SR 116/Mirabel Road itself were broadside collisions.

Oversized Vehicles

Currently, extra-legal (oversized) vehicles transporting heavy construction equipment use the SR 116/Mirabel Road intersection several times a year to access quarries located west of Forestville. The oversize vehicle makes two movements: 1) East to North (from the quarry) and 2) South to West (to the quarry). These 9-axle extra-legal vehicles require an encroachment permit from Caltrans to operate on SR 116. The vehicle size requires that the existing intersection be shut down under traffic control in order for the vehicle to safely complete the turn from one roadway to the other.

Environmental Consequences

This section discusses impacts during operations. Construction impacts are discussed in Section 2.1.7.5.

Operations

The project would improve operations at the SR 116/Mirabel Road intersection. The approximate ADT for 2035 on SR 116 is 10,620 vehicles per day. The traffic operation of the single-lane roundabout for year 2035 was evaluated for two scenarios: one as a four leg roundabout with the Forestville Bypass in place, and one as a three leg roundabout without the bypass. The roundabout would operate at LOS A/B in both the a.m. and p.m. peak hours, with delays of up to 15 seconds per vehicle (see Table 7, above) for both scenarios, compared to LOS E (a.m. peak) and C (p.m. peak) for current conditions. (Caltrans, 2011)

Vehicles making a left turn into the south driveway of the Rotten Robbie gas station from eastbound SR 116 could queue up if traffic on westbound SR 116 is blocking the driveway, or during peak hours when traffic volumes are higher, thus affecting the roundabout operations. Pavement markings and turning restrictions have been included in the project design to minimize the impacts to SR 116 as described below under “Avoidance, Minimization and/or Mitigation Measures.”

A traffic analysis shows that the existing intersection would operate poorly (LOS F) in the design year of 2035 under the No Build alternative. The analysis reveals that the average delay during the AM and PM peak hours would exceed 10 minutes per vehicle for two different “no-build” conditions: 1) If the intersection remains stop-controlled on Mirabel Road, as it is today and 2) If the intersection is changed to an all-way stop (Caltrans, 2012).

Safety

The project would improve sight distance at the intersection, and may provide other safety benefits as well. A 2007 study by the National Cooperative Highway Research Program (NCHRP Report 572) studied 55 sites throughout the U.S. where various traditional intersections were converted to modern roundabouts. The study found an overall reduction in vehicular crashes of 35% and injury crashes of 76% after conversion to a roundabout. For two-way stop-controlled rural intersections (the configuration that most closely matches the existing SR 116/Mirabel Road intersection), overall crashes were reduced by 72%, and injury crashes were reduced by 87% following conversion to single-lane roundabouts.

At modern roundabouts, the geometric design features ensure that vehicle speeds are low, reducing the severity of crashes, and giving drivers more time to react to other drivers and pedestrians. Roundabouts have fewer points of vehicle-to-vehicle conflict. Crossing conflicts are eliminated, and vehicle entry points to the roundabout are angled. Both of these features serve to prevent the broadside-type accident currently experienced at the existing SR 116/Mirabel Road intersection.

The No Build Alternative would not improve intersection safety.

Oversize Vehicles

SR 116 through Forestville is not on the National Truck Network, but on the California Legal Advisory Route. Therefore, the roundabout has been designed for the 65-foot long California Legal Design Vehicle. The roundabout can accommodate regular quarry trucks, fire trucks and other legal vehicles without special traffic control, as part of normal intersection operations.

As with the existing condition, passage of extra-legal (oversize) vehicles through the roundabout, such as trucks transporting heavy-duty quarry equipment, would require an encroachment permit from Caltrans and temporary closure of the intersection. Design features have been included in the project as described below under “Avoidance, Minimization, and/or Mitigation Measures” to allow oversize vehicles to complete a wrong way (left turn) movement through the intersection from eastbound SR 116 to northbound Mirabel Road under traffic control.

As an alternative, oversized vehicles could opt to use River Road to SR 116 to access the quarries. An additional alternative would be the use of a vehicle with rear-steering, which can negotiate the normal roundabout turning movements without encroaching onto the splitter islands.

Under the No Build Alternative, oversized vehicles would continue to travel through the existing intersection under traffic control, as they do currently.

Avoidance, Minimization and/or Mitigation Measures

To minimize the effect on traffic operations of the roundabout by vehicles making a left turn from eastbound SR 116 into the south driveway of the Rotten Robbie gas station, a “Keep Clear” pavement marking would be included on westbound SR 116 at the south entrance of the Rotten Robbie gas station, just east of the roundabout. This would discourage vehicles queued at the westbound SR 116 approach from blocking the entrance to the gas station. In addition, a sign prohibiting left turns during weekday a.m./p.m. peak periods facing eastbound traffic on SR 116 would be placed on the splitter island, just west of the aforementioned south driveway.

Extra-legal vehicles would be required to obtain an encroachment permit from Caltrans prior to using the intersection. The intersection would be temporarily closed and a pilot vehicle would be used to stop traffic so that the extra-legal vehicle can pass through the intersection. Extra-legal vehicles traveling from eastbound SR 116 to northbound Mirabel Road would make a wrong-way (left turn) movement through the roundabout, from eastbound SR 116 onto northbound Mirabel Road. A right turn from Mirabel Road onto SR 116 can be completed by encroaching onto the splitter island, without encroachment into the opposite lanes. The roundabout would be designed so that the extra-legal vehicle can complete the turns by passing over a portion of the splitter island and the truck apron. Roundabout signs would be placed in locations that would not interfere with these turning movements.

2.1.7.2 Mass Transit

Affected Environment

Sonoma County Transit’s Russian River Area/Santa Rosa bus line runs along SR 116 from Sebastopol and turns up Mirabel Road. There are bus stops in both directions along Mirabel Road approximately 250 feet north of the intersection (just north of the gas station and Westside Center). There are also stops in both directions located at the intersection of Second Street and SR 116.

Environmental Consequences

The bus stop at SR 116 and Second Street would be unaffected by the project. The stops on Mirabel Road may need to be relocated a short distance temporarily during construction. The measure below would minimize impacts to transit users.

The No Build Alternative would not impact transit operations.

Avoidance, Minimization and/or Mitigation Measures

Caltrans would coordinate the relocation of the bus stops with Sonoma County Transit in advance of construction.

2.1.7.3 Pedestrian Traffic

Regulatory Setting

Caltrans, as assigned by FHWA, directs that full consideration should be given to the safe accommodation of pedestrians and bicyclists during the development of federal-aid highway projects (see 23 CFR 652). It further directs that the special needs of the elderly and the disabled must be considered in all federal-aid projects that include pedestrian facilities. When current or anticipated pedestrian and/or bicycle traffic presents a potential conflict with motor vehicle traffic, every effort must be made to minimize the detrimental effects on all highway users who share the facility.

Caltrans is committed to carrying out the 1990 ADA by building transportation facilities that provide equal access for all persons. The same degree of convenience, accessibility, and safety available to the general public will be provided to persons with disabilities.

Affected Environment

Because of local businesses, parks and schools in and around downtown Forestville, pedestrians are prevalent east and north of the existing SR 116/ Mirabel Road intersection. Sidewalks exist along the north side of SR 116 near the intersection, and along both sides of Mirabel Road bordering the gas station and shopping center. Based on pedestrian counts at the intersection (Crane Transportation Group, 2006), very few pedestrians cross at the intersection. There are currently no designated crosswalks. West of the intersection, pedestrian use is limited because SR 116 has no sidewalk and the shoulders are narrow. Residents use an existing informal footpath at the top of the road cut-slope to reach the commercial area of Forestville

Environmental Consequences

The project would improve pedestrian access at the intersection by providing crosswalks and a raised sidewalk/pedestrian pathway separated from the travel lanes by a buffer strip.

Single-lane roundabouts also provide safety benefits to pedestrians, as described in FHWA's Roundabouts: An Informational Guide (NCHRP, 2010):

For pedestrians, the risk of being involved in a severe collision is lower at roundabouts than at other forms of intersections due to the slower vehicle speeds. Likewise, the number of conflict points for pedestrians is lower at roundabouts than at other intersections, which can lower the frequency of crashes. The splitter island between entry and exit also allows pedestrians to resolve conflicts with entering and exiting vehicles separately.

Pedestrians only have to cross one lane of traffic at a time, and vehicles are typically traveling at speeds of 15-20 mph.

Though roundabouts provide safety benefits for pedestrians, a lack of familiarity with how roundabouts operate could initially lead to conflicts between vehicles and pedestrians. Minimization measures are included below to reduce this potential.

The No Build Alternative would not alter existing pedestrian activity at the intersection. It would also not provide the benefits of crosswalks that the project provides.

Avoidance, Minimization and/or Mitigation Measures

A public education campaign would be implemented to inform area drivers and residents about the new roundabout. The campaign would include measures such as:

- Hold public meetings prior to opening to the roundabout to traffic and/or give presentations at local organization meetings;
- Prepare news releases detailing what motorists and pedestrians can expect during and after construction;
- Distribute an informational brochure to residents explaining how to navigate roundabouts (both in a vehicle and as a pedestrian); and
- Install signing that warns of changed traffic patterns.

The Sonoma County Bicycle and Pedestrian Advisory Committee (SCBPAC) has reviewed the preliminary project design (see Appendix I). Caltrans would coordinate with the BPAC during the design phase.

2.1.7.4 Bicycle Traffic

Affected Environment

SR 116 in the project area is designated a proposed Class II bikeway in the Sonoma County Bicycle and Pedestrian Plan (2010) and Sonoma County General Plan 2020. Mirabel Road is also designated a proposed Class II bikeway in these plans.

The West County Trail bike path is described in Section 2.1.1.3, Parks and Recreational Facilities.

Environmental Consequences

The project would not conflict with the bikeway designations on Mirabel Road and SR 116. Bicyclists would have two options when approaching the roundabout based on their level of experience and comfort. More experienced riders could merge with vehicle traffic and proceed through the roundabout as would any other vehicle since speeds would be low enough for this. Novice riders would have an option of exiting to the pedestrian path/widened sidewalk and crossing at the crosswalks as pedestrians.

To accommodate bicyclists traveling as vehicles, FHWA design guidelines recommend that bike lanes end in advance of the roundabout to encourage cyclists to mix with vehicles (NCHRP, 2010). The project would provide ramps or other suitable connections between the road surface and the shared path for cyclists who wish to exit or enter the roadway and cross at the crosswalks.

Within the project limits, the roadway beyond the roundabout approaches would have shoulders with widths suitable to their proposed bikeways designations.

A lack of familiarity with roundabouts could lead to conflicts between vehicles and cyclists. Minimization measures are included below to reduce this potential.

The No Build Alternative would not alter existing bicycle facilities at the intersection.

Avoidance, Minimization & or Mitigation Measures

A public education campaign would be implemented to inform area drivers and cyclists about the new roundabout. The campaign would include measures such as:

- Hold public meetings prior to opening the roundabout to traffic and/or give presentations at local citizen and cyclists group meetings;
- Prepare news releases detailing what motorists and cyclists can expect during and after construction;
- Distribute an informational brochure explaining how to navigate roundabouts; and
- Install signing that warns of changed traffic patterns.

The SCBPAC has reviewed the preliminary project design (see Appendix I). Caltrans would coordinate with the SCBPAC during the design phase.

2.1.7.5 Construction Impacts

Environmental Consequences

In general, two-way through traffic would be maintained on SR 116 and Mirabel Road during project construction to the maximum extent feasible. However, during some brief stages of construction, single lane closures with flagged traffic control would be required at times (including at night) on Mirabel Road and on SR 116 in the vicinity of Hidden Lake Road (See Section 1.4.1, Build Alternative, and Appendix C). Intermittent traffic delays could occur during project construction.

The No Build Alternative would not result in construction-related traffic impacts.

Avoidance, Minimization & or Mitigation Measures

A Transportation Management Plan would be prepared and implemented to address traffic handling during construction, including non-motorized traffic.

Access to driveways would be maintained during construction.

2.1.8 VISUAL / AESTHETICS

Regulatory Setting

CEQA establishes that it is the policy of the state to take all action necessary to provide the people of the state “with...enjoyment of aesthetic, natural, scenic, and historic environmental qualities.” (CA Public Resources Code Section 21001[b])

In 1988, at the request of local jurisdictions, a portion of SR 116 (including the project limits) was designated as an official State Scenic Highway. The California Streets and Highways Code states that concerning State Scenic Highways, Caltrans “will give special attention both to the impact of the highway on the landscape and to the highway’s visual appearance.” SR 116 is also a designated Scenic Corridor in the Sonoma County General Plan 2020.

Affected Environment

Project impacts were evaluated in a Visual Impact Assessment (VIA) (PRMD, 2012), generally following the guidelines outlined in FHWA’s *Visual Impact Assessment for Highway Projects* (FHWA, January, 1988). The purpose of the VIA was to assess the visual impacts of the project and identify measures to avoid, minimize or mitigate adverse visual impacts of the project, and improve visual quality through project design. This section summarizes information contained in the VIA associated with the construction of the project on the surrounding visual environment.

The project is located in the community of Forestville, near a transitional point in the regional landscape between the rolling hills and agricultural areas east of Forestville on SR 116 and the narrow, winding canyon and conifer forests of the “Pocket Canyon” area on SR 116 west of the project limits.

The community of Forestville maintains a small town atmosphere. Commercial development is centered along SR 116 (Front Street), surrounded by predominantly low density urban residential development, and lower density rural residential development in the outlying areas.

The SR 116/Mirabel Road intersection is located just to the east of and below a hill crest on SR 116. The hill crest serves to divide the project viewshed into two areas: those areas visible to the west of the hill, and those visible to the east. Approaching the project area from the west, the hill crest ahead on SR 116, the road cut-slopes, and the roadway itself are dominant visual features, because they constrain views approaching the intersection. Oak trees located atop the cut slopes and utility poles along the roadway are prominent vertical features in the landscape.

In the vicinity of the SR 116/Mirabel Road intersection, the landscape transitions from a more rural appearance, to the more developed area of Forestville. Viewers have their first extended views of the commercial area as they reach the intersection travelling easterly. This landscape transition creates a “gateway” character at the intersection. This feeling is reinforced by a decorative “Welcome to Forestville” sign placed for eastbound travelers approximately 200 feet east of the intersection.

A diversity of landscape elements is present at the intersection. Vacant parcels to the south provide views of rolling topography, grassland, scattered oaks, and vineyard (though these parcels are approved for future development). A large eucalyptus along SR 116, and a large clump of trees within the vineyard at the top of the hill are prominent vertical features. These softer-edged natural features contrast with the more formal landscaping and modern structures associated with the gas station across the roadway to the north, and other linear/angular features at the intersection, such as light poles, utility poles/lines, and retaining wall along Mirabel Road.

Caltrans evaluates visual quality by assessing three characteristics of the project viewshed: vividness, intactness, and unity. Vividness is the visual power or memorability of landscape components as they combine in distinctive visual patterns. Intactness is the visual integrity of the natural and man-built landscape and its freedom from encroaching elements. Unity is the visual coherence and compositional harmony of the landscape considered as a whole.

The overall visual quality of the project viewshed is moderate. The landscape has a moderately high level of intactness and unity. The small-scale commercial development and streetscape along SR 116 is generally harmonious with the rural surroundings. Though no strikingly discordant elements are present in the project viewshed, the scale and modern appearance of the gas station and shopping center, and prominence of utility poles and wires at the intersection detract somewhat from the overall visual quality. The project viewshed has a moderate level of vividness. Though of good quality, views are typical of the region and not unique for this route. The gentle, rolling topography and man-made structures lack highly distinctive patterns, and broad vistas are mostly absent.

Viewers of the project include motorists on SR 116 and Mirabel Road, which would include commuters, local area residents and tourists. Motorists views of the project area of relatively short duration. Tourists generally have a high awareness of the visual resources around them, yet are anticipated to be less sensitive to specific changes in that environment, due to a lack of familiarity with the area. Commuters driving the route regularly may be more aware of changes in the visual environment, and local residents or business owners traveling on the roadway are likely most sensitive to aesthetic issues due to their familiarity as well as their personal

investment in the area. Other viewers include bicyclists, who would have somewhat longer duration views than motorists, and pedestrians in the downtown Forestville area. Pedestrians also may be divided into locals who live or work in the area and tourists. Many businesses in the commercial core along SR 116 serve the everyday needs of residents. These local viewers would be more sensitive to changes in the visual environment. There are also businesses that attract tourists. Tourists may be less aware of specific changes to the visual environment, but may desire views of good visual quality.

Environmental Consequences

Visual Simulations

To evaluate visual impacts and inform the public of aesthetic changes proposed by the project, visual simulations of the project were prepared. Three viewpoints were selected that would display the key visual effects of the project and represent the primary viewer groups that would potentially be affected by the project. Figure 6 shows the location of these viewpoints.

Figures 7 through 9 compare existing photographs with simulated future views. Figure 7 is the view looking from the southeast corner of the Westside Center shopping center property, elevated above the roadway looking to the southeast across the SR 116/Mirabel Road Intersection towards downtown Forestville and its surroundings. The viewpoint was selected to show the primary components of the roundabout itself. Figure 8 is looking west along SR 116 toward the intersection with Mirabel Road. This viewpoint is representative of what a pedestrian or motorist in downtown Forestville may see as they approach the intersection from the east. The view shows topographical changes associated with the proposed roadway cut slope on the south side of SR 116 and the retaining wall at the northwest corner of the intersection. Figure 9 is the view from the top of the south roadway west of the existing hill crest on SR 116 looking east toward the Mirabel intersection. The viewpoint was selected to show the proposed tiered retaining wall and topographical changes (lowering of the roadway to improve sight distance).

It should be noted that landscaping shown in the visual simulation is for illustrative purposes, and final landscaping features (such as plant species and density, pavement textures and colors, decorative boulders, etc.) would be selected during the design phase. A citizens' committee is currently working on conceptual designs for the landscape center island. Preliminary landscape concepts developed by the citizens' committee are included in Appendix F. Final selection of landscape designs is subject to Caltrans and County approval.

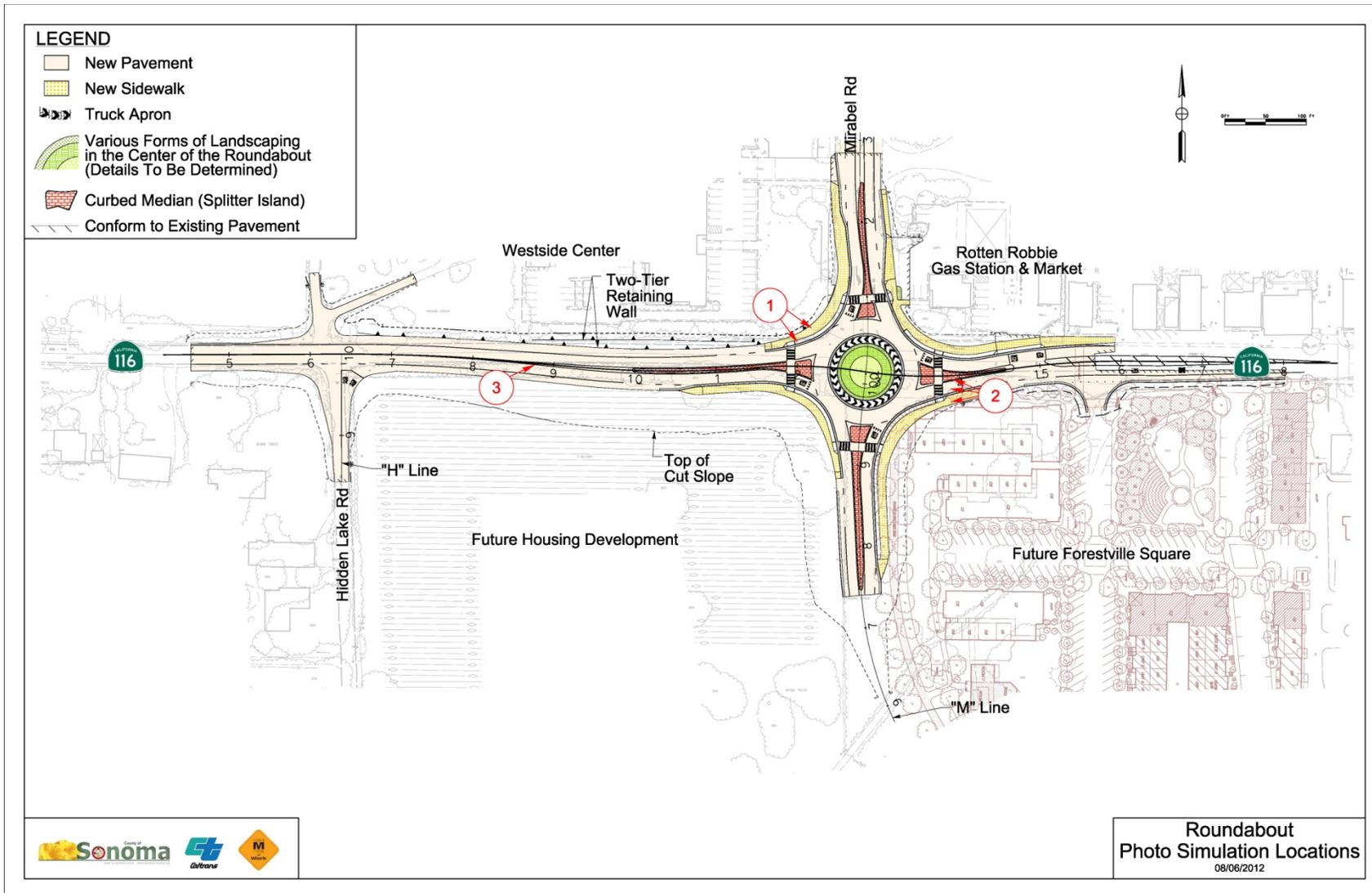


Figure 6. Photo Simulation Locations



Viewpoint 1. Existing (top) and proposed (bottom). Landscaping shown in the visual simulation is for illustrative purposes, and final landscaping features (such as plant species and density, pavement textures and colors, decorative boulders, etc.) would be selected during the design phase. The red outline represents the roof outline of Building A of the approved Forestville Square Project. The building façade and vegetation associated with Forestville Square appear semi-transparent to distinguish features that are not associated with the proposed intersection Project.

Figure 7. Photo Simulation of Viewpoint 1



Viewpoint 2. Existing (top) and with project (bottom). Landscaping shown in the visual simulation is for illustrative purposes, and final landscaping features (such as plant species and density, pavement textures and colors, decorative boulders, etc.) would be selected during the design phase.

Figure 8. Photo Simulation of Viewpoint 2



Viewpoint 3. Existing (top) and with project (bottom). Landscaping shown in the visual simulation is for illustrative purposes, and final landscaping features (such as plant species and density, pavement textures and colors, decorative boulders, etc.) would be selected during the design phase.

Figure 9. Photo Simulation of Viewpoint 3

Discussion

Impacts of the project include topographical changes (new cut slopes, grading, and retaining wall with safety fencing) from lowering the roadway to improve sight distance, new structures at the intersection, including the roundabout center island, new pavement, signage, and additional intersection lighting, as well as tree and shrub removal along the existing roadway. Utility poles and lines would be relocated, and would likely be consolidated on one side of SR 116, or possibly relocated underground. Aesthetic features proposed as part of the project include texturing of the retaining wall, textured concrete in buffer strips and around the roundabout truck apron, and landscaping of the center island.

The project would result in removal of 36 trees of varying size, 27 of which are native trees. Trees to be removed include 23 oaks (Oregon white oak, coast live oak, California black oak), three redwoods, one big leaf maple, and nine ornamental or landscape trees (i.e. palms, fruit trees, pines, planted sycamores, pines). Tree removal at the top of the road cut-slope, within the vineyard, and at the northwest corner of the intersection is depicted in the simulations. Tree removal not depicted in the simulations includes a large oak tree and other trees (within the right-of-way and on adjacent residential parcels) in the vicinity of Hidden Lake Road. The project would also result in the removal of scattered shrubs (predominantly coyote brush and blackberry) along the existing roadway cut slopes.

Overall, the project would have a moderate visual impact. In general, the project replaces an existing intersection located at a transition in the landscape with another intersection at the same location. Though an obvious visual change, the roundabout would maintain the existing gateway effect at the SR 116/Mirabel Road intersection. Project features of the roundabout have a more developed appearance than the existing intersection, and would accentuate the transition from the downtown to the more rural area to the west. The specific visual features of the roundabout are expected to receive a positive reception from most viewers. The retaining wall and removal of trees and vegetation at the top of the existing cut slope on the south side of SR 116 could be viewed as moderately adverse. However, the somewhat expanded vistas provided by the topographical changes, and consolidation of utility lines, could be viewed as beneficial.

The existing intersection is lit with one cobra-head fixture mounted on an existing pole. Existing street lighting extends into downtown Forestville along SR 116. The adjacent gas station and shopping center parking lot also have existing lighting. Lighting is required for the roundabout in order to meet safety standards, and is expected to include a cobra-head style light standard on each of the four quadrants of the roundabout, as well as lighting at each crosswalk around the perimeter of the roundabout. The additional lighting for the project would not create a substantial new source of light or glare, and is compatible with the project setting given that surrounding properties and SR 116 to the east are already lit.

Though the project would not result in substantial adverse effects to a scenic vista, individual project components including retaining wall construction and tree removal could be viewed as adverse. Mitigation measures are included so that the project design would take into account the existing visual character and visual character desired by the community. Visual impacts of the project would be less than significant with incorporation of the mitigation measures included below.

The No Build Alternative would not impact the existing visual setting of the area.

Construction Impacts

During construction of the project, which would occur over an approximate 15-month period, viewers would generally see materials, equipment, workers, disturbed soils and the operation of construction equipment. Motorists, pedestrians, and bicyclists would be exposed to views of construction activities while passing through construction zones. A portion of construction activities would be visible from the downtown area. The visual effects of project construction would be temporary. Measures would be included in the project to minimize visual impacts during construction.

State Scenic Highway Program

In 1988, SR 116 within the project limits was officially designated as a State Scenic Highway. As described in the Regulatory Setting, the California Streets and Highways Code states that concerning State Scenic Highways, Caltrans “will give special attention both to the impact of the highway on the landscape and to the highway’s visual appearance.”

The corridor protection program for SR 116 consists of policies in the Sonoma County General Plan and regulations in the Sonoma County Zoning Ordinance protecting Scenic Corridors, as well as policy recommendations contained within the Sonoma 116 Scenic Highway Corridor Study (Caltrans, 1988 and 1996)

Scenic Corridor regulations in the zoning ordinance are applicable to private development projects. General plan policies from Open Space and Resource Conservation (OSRC) element relevant to public road projects include:

Policy OSRC-3h: *Design public works projects to minimize tree damage and removal along Scenic Corridors. Where trees must be removed, design replanting programs so as to accommodate ultimate planned highway improvements. Require revegetation following grading and road cuts.*

Policy OSRC-3i: *Recognize Highway 116 from Highway 1 to the southern edge of Sebastopol as an official State Scenic Highway. The unique scenic qualities of this portion of Highway 116 shall be protected as generally outlined in the 116 Scenic Highway Corridor Study, September 1988.*

Relevant policies from the Sonoma 116 Highway Corridor Study include minimization of tree removal not essential to providing for public safety.

While the state is not subject to the jurisdiction of local ordinances, Caltrans attempts to abide by these policies and ordinances wherever feasible.

The project, with incorporation of the mitigation measures, would be consistent with relevant scenic/visual resources policies of the County and the corridor protection program.

Avoidance, Minimization & or Mitigation Measures

The area located between the tiered walls would be landscaped with native shrubs to the extent feasible (based on maintenance requirements and space constraints) in order to partially screen portions of the wall and provide a more natural appearance. The wall would also be given a

texture and color to harmonize with natural surroundings in the SR 116 corridor and/or with roundabout landscape elements.

Cut slope planting (using no maintenance native shrubs, grasses and groundcover) would be included in the project landscaping plan to mitigate for loss of shrubs.

The County would replant a minimum of 49 native trees. To the extent feasible, tree planting would occur within the right-of-way within the project limits, such as within the roundabout center island and within proposed right-of-way at the top of the proposed roadway cut-slope along the south side of SR 116. However, right-of-way space may be limited due to the need to accommodate utilities and maintenance access, to meet traffic sight distance and safety requirements, and to limit right-of-way acquisition and impacts to adjacent properties. The County of Sonoma would offer to plant trees on private property along the project frontage for those property owners who are interested. If all tree replanting cannot be achieved at these locations, the remaining trees would be planted at an off-site location (Sunset Beach Regional Park) as required per the Natural Environment Study. If off-site planting is required, additional planting of shrubs and other native vegetation along the project cut slopes would be used to mitigate for any remaining visual impact due to the loss of trees.

A landscaping plan addressing center island landscaping, retaining wall texturing and landscaping, and cut-slope landscaping would be developed during the design phase, incorporating input from the citizens' committee. One or more public meetings would be held in the design phase, during which the public would be invited to comment on the proposed plan. The final plan would be provided to the community prior to implementation.

The contractor would be required to comply with Section 5-1.31, Job Site Appearance, of the Caltrans Standard Specifications (2010), which requires the job site to be kept neat.

Construction staging and storage areas would be screened where feasible. Visual opaque screening would be used to limit exposure to the public for any extended period of time.

2.1.9 CULTURAL RESOURCES

Regulatory Setting

“Cultural resources” as used in this document refers to all “built environment” resources (structures, bridges, railroads, water conveyance systems, etc.), culturally important resources, and archaeological resources (both prehistoric and historic), regardless of significance.

Historical resources are considered under CEQA, as well as California Public Resources Code (PRC) Section 5024.1, which established the California Register of Historical Resources. PRC Section 5024 requires state agencies to identify and protect state-owned resources that meet National Register of Historic Places listing criteria. It further specifically requires Caltrans to inventory state-owned structures in its rights-of-way. Sections 5024(f) and 5024.5 require state agencies to provide notice to and consult with the State Historic Preservation Officer (SHPO) before altering, transferring, relocating, or demolishing state-owned historical resources that are listed on or are eligible for inclusion in the National Register or are registered or eligible for registration as California Historical Landmarks.

Affected Environment

A Historical Resources Compliance Report (HRCR) was completed for the project in July 2012. For CEQA projects, the study areas for cultural resources investigations are referred to as the Project Area Limits (PAL). The PAL includes the project footprint, identified staging area, utility relocation areas, the Sunset Beach Regional Park replanting area, and areas adjacent to the project that could be subject to indirect impacts from the project. The study included a record search at the Northwest Information Center, field survey, and consultation with representatives of local Native American tribes and the local historical society.

The record search identified two known prehistoric archaeological sites in the general vicinity, but well outside of the PAL. No prehistoric archaeological sites were found within the PAL during the field survey.

During the field survey, an historical archaeological site was identified that extends into the PAL. The HRCR determined that the archaeological site is exempt from evaluation and it does not meet any criteria outlined in CEQA Guidelines 15064.5(a).

One structure (a building at 6701 Front Street) was evaluated as part of the HRCR, but was determined not to be a historical resource for purposes of CEQA.

Environmental Consequences

The project would have no impacts to significant historical resource(s), pursuant to CEQA Guidelines §15064.5(b)(3).

However, the project includes roadway excavation, slope grading and associated ground disturbing activities. Therefore, a potential exists that the project could unearth previously unidentified cultural resources.

Avoidance, Minimization &/or Mitigation Measures

If cultural materials are discovered during construction, all earth-moving activity within and around the immediate discovery area would be diverted until a qualified archaeologist can assess the nature and significance of the find.

If human remains are discovered, State Health and Safety Code Section 7050.5 states that further disturbances and activities would cease in any area or nearby area suspected to overlie remains, and the County Coroner contacted. Pursuant to Public Resources Code Section 5097.98, if the remains are thought to be Native American, the coroner would notify the Native American Heritage Commission (NAHC) who would then notify the Most Likely Descendent (MLD). At this time, the person who discovered the remains would contact Emily Darko at (510) 622-1673 or Emily_Darko@dot.ca.gov so that they may work with the MLD on the respectful treatment and disposition of the remains. Further provisions of PRC 5097.98 are to be followed as applicable.

2.2 Physical Environment

2.2.1 WATER QUALITY AND STORM WATER RUNOFF

Regulatory Setting

In 1972 Congress amended the Federal Water Pollution Control Act, making the addition of pollutants to the waters of the United States (U.S.) from any point source unlawful unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. Known today as the Clean Water Act (CWA), Congress has amended it several times. In the 1987 amendments, Congress directed dischargers of storm water from municipal and industrial/construction point sources to comply with the NPDES permit scheme. Important CWA sections are:

- Sections 303 and 304 require states to promulgate water quality standards, criteria, and guidelines.
- Section 401 requires an applicant for a federal license or permit to conduct any activity, which may result in a discharge to waters of the U.S. to obtain certification from the state that the discharge will comply with other provisions of the act. This is most frequently required in tandem with a Section 404 permit request (see below).
- Section 402 establishes the NPDES, a permitting system for the discharges (except for dredge or fill material) of any pollutant into waters of the U.S. Regional Water Quality Control Boards (RWQCB) administer this permitting program in California. Section 402(p) requires permits for discharges of storm water from industrial/construction and municipal separate storm sewer systems (MS4s).
- Section 404 establishes a permit program for the discharge of dredge or fill material into waters of the United States. This permit program is administered by the U.S. Army Corps of Engineers (USACE).

The objective of the CWA is “to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.”

USACE issues two types of 404 permits: Standard and General permits. There are two types of General permits, Regional permits and Nationwide permits. Regional permits are issued for a general category of activities when they are similar in nature and cause minimal environmental effect. Nationwide permits are issued to authorize a variety of minor project activities with no more than minimal effects.

There are two types of Standard permits: Individual permits and Letters of Permission. Ordinarily, projects that do not meet the criteria for a Nationwide Permit may be permitted under one of USACE’s Standard permits. For Standard permits, the USACE decision to approve is based on compliance with U.S. Environmental Protection Agency’s Section 404 (b)(1) Guidelines (U.S. EPA Code of Federal Regulations [CFR] 40 Part 230), and whether permit approval is in the public interest. The Section 404(b)(1) Guidelines were developed by the U.S.

EPA in conjunction with USACE, and allow the discharge of dredged or fill material into the aquatic system (waters of the U.S.) only if there is no practicable alternative which would have less adverse effects. The Guidelines state that USACE may not issue a permit if there is a least environmentally damaging practicable alternative (LEDPA), to the proposed discharge that would have lesser effects on waters of the U.S., and not have any other significant adverse environmental consequences. According to the Guidelines, documentation is needed that a sequence of avoidance, minimization, and compensation measures has been followed, in that order. The Guidelines also restrict permitting activities that violate water quality or toxic effluent standards, jeopardize the continued existence of listed species, violate marine sanctuary protections, or cause “significant degradation” to waters of the U.S. In addition every permit from the USACE, even if not subject to the Section 404(b)(1) Guidelines, must meet general requirements. See 33 CFR 320.4. A discussion of the LEDPA determination, if any, for the document is included in Section 2.3.2, Wetlands and Other Waters.

State Requirements: Porter-Cologne Water Quality Control Act (California Water Code)

California’s Porter-Cologne Act, enacted in 1969, provides the legal basis for water quality regulation within California. This Act requires a “Report of Waste Discharge” for any discharge of waste (liquid, solid, or gaseous) to land or surface waters that may impair beneficial uses for surface and/or groundwater of the state. It predates the CWA and regulates discharges to waters of the state. Waters of the state include more than just waters of the U.S., like groundwater and surface waters not considered waters of the U.S. Additionally, it prohibits discharges of “waste” as defined and this definition is broader than the CWA definition of “pollutant”. Discharges under the Porter-Cologne Act are permitted by Waste Discharge Requirements (WDRs) and may be required even when the discharge is already permitted or exempt under the CWA.

The State Water Resources Control Board (SWRCB) and RWQCBs are responsible for establishing the water quality standards (objectives and beneficial uses) required by the CWA, and regulating discharges to ensure compliance with the water quality standards. Details regarding water quality standards in a project area are contained in the applicable RWQCB Basin Plan. In California, Regional Boards designate beneficial uses for all water body segments in their jurisdictions, and then set criteria necessary to protect these uses. Consequently, the water quality standards developed for particular water segments are based on the designated use and vary depending on such use. In addition, the SWRCB identifies waters failing to meet standards for specific pollutants, which are then state-listed in accordance with CWA Section 303(d). If a state determines that waters are impaired for one or more constituents and the standards cannot be met through point source or non-point source controls (NPDES permits or WDRs), the CWA requires the establishment of Total Maximum Daily Loads (TMDLs). TMDLs specify allowable pollutant loads from all sources (point, non-point, and natural) for a given watershed.

State Water Resources Control Board and Regional Water Quality Control Boards

The SWRCB administers water rights, sets water pollution control policy, and issues water board orders on matters of statewide application, and oversees water quality functions throughout the state by approving Basin Plans, TMDLs, and NPDES permits. RWQCBs are responsible for protecting beneficial uses of water resources within their regional jurisdiction using planning, permitting, and enforcement authorities to meet this responsibility.

- **National Pollution Discharge Elimination System (NPDES) Program**

Municipal Separate Storm Sewer Systems (MS4)

Section 402(p) of the CWA requires the issuance of NPDES permits for five categories of storm water discharges, including Municipal Separate Storm Sewer Systems (MS4s). The U.S. EPA defines an MS4 as “any conveyance or system of conveyances (roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, human-made channels, and storm drains) owned or operated by a state, city, town, county, or other public body having jurisdiction over storm water, that are designed or used for collecting or conveying storm water.” The SWRCB has identified the Department as an owner/operator of an MS4 pursuant to federal regulations. The Department’s MS4 permit covers all Department rights-of-way, properties, facilities, and activities in the state. The SWRCB or the RWQCB issues NPDES permits for five years, and permit requirements remain active until a new permit has been adopted.

The Department’s MS4 Permit, under revision at the time of this update, contains three basic requirements:

1. The Department must comply with the requirements of the Construction General Permit (see below);
2. The Department must implement a year-round program in all parts of the State to effectively control storm water and non-storm water discharges; and
3. The Department storm water discharges must meet water quality standards through implementation of permanent and temporary (construction) Best Management Practices (BMPs), to the Maximum Extent Practicable, and other measures as the SWRCB determines to be necessary to meet the water quality standards.

To comply with the permit, the Department developed the Statewide Storm Water Management Plan (SWMP) to address storm water pollution controls related to highway planning, design, construction, and maintenance activities throughout California. The SWMP assigns responsibilities within the Department for implementing storm water management procedures and practices as well as training, public education and participation, monitoring and research, program evaluation, and reporting activities. The SWMP describes the minimum procedures and practices the Department uses to reduce pollutants in storm water and non-storm water discharges. It outlines procedures and responsibilities for protecting water quality, including the selection and implementation of Best Management Practices (BMPs). The project would be programmed to follow the guidelines and procedures outlined in the latest SWMP to address storm water runoff.

Construction General Permit

Construction General Permit (Order No. 2009-009-DWQ), adopted on September 2, 2009, became effective on July 1, 2010. The permit regulates storm water discharges from construction sites which result in a Disturbed Soil Area (DSA) of one acre or greater, and/or are smaller sites that are part of a larger common plan of development.

By law, all storm water discharges associated with construction activity where clearing, grading, and excavation results in soil disturbance of at least one acre must comply with the provisions of the General Construction Permit. Construction activity that results in soil disturbances of less than one acre is subject to this Construction General Permit if there is potential for significant water quality impairment resulting from the activity as determined by the RWQCB. Operators of regulated construction sites are required to develop storm water pollution prevention plans; to implement sediment, erosion, and pollution prevention control measures; and to obtain coverage under the Construction General Permit.

The 2009 Construction General Permit separates projects into Risk Levels 1, 2, or 3. Risk levels are determined during the planning and design phases, and are based on potential erosion and transport to receiving waters. Requirements apply according to the Risk Level determined. For example, a Risk Level 3 (highest risk) project would require compulsory storm water runoff pH and turbidity monitoring, and before construction and after construction aquatic biological assessments during specified seasonal windows. For all projects subject to the permit, applicants are required to develop and implement an effective Storm Water Pollution Prevention Plan (SWPPP). In accordance with the Department's Standard Specifications, a Water Pollution Control Plan (WPCP) is necessary for projects with DSA less than one acre.

Section 401 Permitting

Under Section 401 of the CWA, any project requiring a federal license or permit that may result in a discharge to a water of the United States must obtain a 401 Certification, which certifies that the project would be in compliance with state water quality standards. The most common federal permits triggering 401 Certification are CWA Section 404 permits issued by USACE. The 401 permit certifications are obtained from the appropriate RWQCB, dependent on the project location, and are required before USACE issues a 404 permit.

In some cases the RWQCB may have specific concerns with discharges associated with a project. As a result, the RWQCB may issue a set of requirements known as Waste Discharge Requirements (WDRs) under the State Water Code (Porter-Cologne Act) that define activities, such as the inclusion of specific features, effluent limitations, monitoring, and plan submittals that are to be implemented for protecting or benefiting water quality. WDRs can be issued to address both permanent and temporary discharges of a project.

Affected Environment

The project is located within the Green Valley Creek watershed, within the North Coast RWQCB jurisdiction (Region 1), on the border of the Wilson Grove Formation Highlands groundwater basin. Green Valley Creek is a tributary of the Russian River. Green Valley Creek and its tributaries drain a basin of approximately 17 square miles.

There are no natural waterbodies within the project limits. Green Valley Creek crosses SR 116 approximately ½ mile west of the western project limits. A small unnamed tributary to Green Valley Creek is located approximately 0.4 miles southeast of the project.

The Green Valley Creek watershed is part of the Guerneville Hydrologic Subarea (HSA) of the Russian River Hydrologic Unit. The Guerneville HSA is listed as impaired under the Environmental Protection Agency's (EPA) 303(d) List of Water Quality Limited Segments for pollutants/impairments which include the following: sedimentation/siltation and water temperature. The Region 1 RWQCB Basin Plan has established beneficial uses for the Guerneville HSA. These include municipal supply, agricultural supply, industrial service supply, groundwater recharge, freshwater replenishment, navigation, water recreation, commercial and sportfishing, aquatic (both warm and cold water) wildlife habitat, terrestrial wildlife habitat, rare, threatened and endangered species, migration of aquatic organisms, spawning, and estuarine habitat.

Storm water from the project area is carried in a combination of sheet flow, roadside ditches, storm drains, and concrete gutter. Storm water west of the hill crest on SR 116 drains to Green Valley Creek. Immediately west of Hidden Lake Road, water is conveyed along the shoulder and in poorly defined roadside ditches. Further west of Hidden Lake Road, the ditches become more defined. Shallow roadside ditches collect storm water along Hidden Lake Road. There are no roadside ditches on SR 116 between Hidden Lake Road and Mirabel Road, and storm water runs along the shoulder and roadway as sheet flow.

Storm water in the project area east of the hill crest on SR 116 drains to the unnamed tributary to Green Valley Creek. Drainage inlets are present at the northwest and northeast corners of the SR 116/Mirabel Road intersection, and storm water is carried in a storm drain along the north side of SR 116 east of the intersection. Along Mirabel Road, within the project limits, storm water flows in concrete gutters to the storm drain inlets at the intersection. The storm drain system discharges to a swale along the West County Trail, which connects with the unnamed tributary to Green Valley Creek located approximately 0.5 miles southeast of the project limits.

The County has classified the project area as an area of marginal groundwater availability (Sonoma County, 1989). Existing and potential beneficial uses for groundwater in the Region 1 RWQCB Basin Plan include municipal and domestic water supply, and agricultural water supply.

Environmental Consequences

Long-term Impacts

No waters of the U.S. are present in the project limits. Therefore, the project would not result in a discharge dredged or fill material into waters of the U.S., and would not require a 404 CWA permit or 401 Water Quality Certification.

Storm water from the project would be connected to the existing storm water drainage system on the east end of the project and to existing roadside ditches at the western project limits. The project would increase the amount of permanent impervious surface (paved areas) by 0.56 acres over the existing conditions. The area of reconstructed pavement is 1.38 acres. Increases in the amount of paved surfaces may increase flow velocities and volume of storm water runoff, and carry additional pollutants to receiving waters. The primary pollutant of concern for this project is sediment. The project is required to achieve 100% treatment of storm water equal to the added impervious area, and would treat the reconstructed impervious area to the Maximum Extent Practicable. Treatment measures are described below under Avoidance, Minimization and/or Mitigation measures.

The project also requires construction of cut slopes, which could result in soil erosion and sedimentation to surface waters over the long term if not properly stabilized.

The No Build Alternative would not increase impervious surfaces or otherwise alter existing storm water facilities.

Construction Impacts

Project construction would disturb approximately 4.14 acres of soil. Disturbed surfaces impact water quality by increasing runoff of sediment. Construction activities can also result in accidental releases of oil, fuel or other fluids from construction equipment. Measures are included below to minimize impacts to water quality from construction activities.

The No Build Alternative would not result in construction-related water quality impacts.

Avoidance, Minimization &/or Mitigation Measures

1) Section 401 of the Clean Water Act

No 401 Water Quality Certification and no 404 CWA permit is required, because the project would not discharge dredged or fill materials into any Waters of the U.S.

2) Section 402 of the Clean Water Act

According to Caltrans' NPDES permit and the Construction General Permit, BMPs would be incorporated to reduce the discharge of pollutants during construction as well as permanently to the Maximum Extent Practicable. These BMPs fall into three categories: Temporary Construction site BMPs, Design Pollution Prevention BMPs, and Permanent Treatment BMPs.

(a) Construction Site Best Management Practices (BMPs)

Construction Site BMPs would be implemented during construction activities to reduce pollutants in storm water discharges. Temporary silt fences, fiber rolls, drain inlet protections, concrete washouts, stockpile covers, stabilized construction entrances/exits, street sweeping, spill prevention measures, and temporary soil stabilizers (i.e. mulch) are some of the temporary erosion and water pollution control measures that may be used in combination to prevent and minimize soil erosion and sediment discharges during construction. Given that the anticipated soil disturbance is greater than one acre, a SWPPP would be developed by the Contractor and would be implemented during construction. This dynamic document addresses the deployment of various erosion and water pollution control measures that are required for changing construction activities. The SWPPP would include 1) standard temporary erosion control measures to reduce sedimentation and turbidity of surface runoff from disturbed areas; 2) personnel training; 3) scheduling and implementation of BMPs throughout the construction phases and seasons; 4) identification of BMPs for non-storm water discharges such as fuel spills; and 5) monitoring throughout the construction period.

(b) Permanent Design Pollution Prevention BMPs

Design Pollution Prevention BMPs are permanent measures to improve storm water quality by reducing erosion, stabilizing disturbed soil areas, and maximizing vegetated surfaces. Erosion control measures would be provided on all disturbed areas to the extent feasible. These

measures can use a combination of source and sediment control measures to prevent and minimize soil erosion from disturbed areas.

For this project, treatments may include fiber rolls and hydroseeding that would be placed on slopes to control runoff of sediment. Other measures to be considered in the design phase of the project include compost blankets, compost, and erosion control blankets.

Further slope stabilization would be provided by native landscape plantings, with planting specifications to be determined during the design phase. Design Pollution Prevention BMPs associated with permanent landscaping may include low-water plantings, native groundcovers, and selection of plantings requiring minimal pesticide use.

The project includes creating (and modifying existing) ditches, dikes, berms and swales. Changes to drainage could result in changes to the interception of surface runoff. Outlet protection and velocity dissipation devices are another form of Design Pollution Prevention BMPs to reduce runoff velocity and control erosion and scour. Implementing these devices for this project would be further investigated during the design phase.

The project has been designed to minimize areas of disturbance and retain existing vegetation when feasible. Vegetation to be retained would be shown on the plans.

(c) Permanent Treatment BMPs

Treatment BMPs are permanent devices and facilities for treating storm water runoff. Treatment would be included to the Maximum Extent Practicable. Currently proposed treatment BMPs include bioswales at the west end of the project and south of the fourth leg of the roundabout, and tree well filter inlets. Treatment BMPs would be selected following further study in the design phase, and may include infiltration devices, biofiltration strips, bioswales, and tree well filters.

2.2.2 GEOLOGY / SOILS / SEISMIC / TOPOGRAPHY

Regulatory Setting

For geologic and topographic features, the key federal law is the Historic Sites Act of 1935, which establishes a national registry of natural landmarks and protects “outstanding examples of major geological features.” Topographic and geologic features are also protected under the California Environmental Quality Act (CEQA).

This section also discusses geology, soils, and seismic concerns as they relate to public safety and project design. Earthquakes are prime considerations in the design and retrofit of structures. The Department’s Office of Earthquake Engineering is responsible for assessing the seismic hazard for Department projects. Structures are designed using the Department’s Seismic Design Criteria (SDC). The SDC provides the minimum seismic requirements for highway bridges designed in California. A bridge’s category and classification will determine its seismic performance level and which methods are used for estimating the seismic demands and structural capabilities. For more information, please see the Department’s [Division of Engineering Services, Office of Earthquake Engineering, Seismic Design Criteria](#).

Affected Environment

Geotechnical reports were prepared for the project in 2008 and 2012. These reports reviewed existing geological data, conducted soil exploration borings, evaluated slope stability, and made recommendations regarding retaining wall design.

The topography of the area consists of gently rolling hills. There is a hill crest directly west of the SR 116/Mirabel Road intersection. SR 116 passes through the hill on an existing road cut approximately 9 feet deep with side slope gradients ranging from near vertical near the top to 1:1 lower on the slope. East of the intersection, SR 116 continues downhill for approximately 600 feet before beginning to rise again.

The soil type in the project area is mapped as Goldridge fine sandy loam by the United States Department of Agriculture, Natural Resource Conservation Service. Based on test borings, the soil is classified as silty sand under the Unified Soil Classification System. The underlying geology is silty sandstone of the late Pliocene to late Miocene Wilson Grove Formation (Blake, Graymer and Stamski, 2002; Kleinfelder, 2012). According to the test borings, the bedrock is encountered almost immediately near the surface, but the rock material behaves similar to a dense to very dense soil material and is readily excavated.

The depth to groundwater varies, based on the test borings. Groundwater was encountered at depths between 3.5 feet to 27 feet depending on the location of the borings, while in many of the borings (including one to a depth of 31 feet) no groundwater was encountered. Groundwater levels in the Wilson Grove Formation can fluctuate depending on factors including seasonal rainfall, temperature, rock permeability, groundwater withdrawal and construction activities in the area (Kleinfelder, 2008).

All of Sonoma County, including the project area, is subject to strong seismic ground shaking hazards from the San Andreas, Healdsburg, Rodgers Creek and Maacama faults, and other potentially active faults. The Alquist-Priolo Earthquake Fault Zoning Act (formerly the Alquist-Priolo Special Studies Zone Act) requires the delineation of zones along active faults in California. The purpose of the Alquist-Priolo Act is to regulate development on or near active fault traces to reduce the hazard of fault rupture. The project site is not within a fault hazard zone as defined by the Alquist-Priolo Earthquake Fault Zoning Act. No known active fault traces traverse the site (Kleinfelder, 2012). The Mt. Jackson Fault is located approximately 1-1.5 miles north and east of site. The Mt. Jackson fault is classified as “possibly active” because it exhibits features that suggest surface rupture in the recent geological past (DMG, 1980), but does not fit the criteria used to identify faults within Alquist-Priolo Special Study Zones.

The project site has a minimal liquefaction risk and low susceptibility to landslides (DMG, 1980).

Environmental Consequences

The project would result in the creation of permanent roadway slopes, as well permanent retaining walls.

According to the geotechnical investigation, the permanent roadway slopes of 2:1 would provide adequate slope stability under normal conditions and in seismic events.

Project construction would require excavation, temporary cut slopes, and temporary retaining walls, which could expose workers to seismic hazards. Temporary cut slopes not steeper than 1.5:1, in combination with temporary retaining wall, are proposed during construction to allow through traffic to be maintained on SR 116. According to the geotechnical investigation, these temporary cut slopes would be stable. However, surface erosion of permanent and temporary slopes and other disturbed areas could occur during wet weather. Measures would be included in the project to provide for construction worker safety.

A retaining wall would be constructed on the north side of SR 116 between Hidden Lake Road and Mirabel Road. The geotechnical investigation provides information that would be used in determining the appropriate wall design.

Based on current groundwater information from test borings in the preliminary geotechnical investigation, and the proposed depths of cut, groundwater is not expected to be encountered in the excavation for the project. However, the investigation notes that groundwater in the area can fluctuate due to seasonal rainfall or other factors.

The No Build Alternative would not impact geology, soils, or result in a change to seismic-related risks.

Avoidance, Minimization &/or Mitigation Measures

To minimize potential impacts from seismic events, the project would be constructed in accordance with all applicable Caltrans standards and regulations, and would be designed for the Maximum Credible Earthquake (MCE). All construction activities would adhere to current engineering practices and recommendations provided by a Geotechnical Engineer/Engineering Geologist.

A licensed engineer and/or their representative, experienced in the design and construction of soil nail walls would monitor the soil nail wall construction along SR 116. As the soil nail wall is constructed from the top down, the licensed engineer and/or their representative would observe the exposed material in the cut face and cuttings from the soil nail drill holes to verify that the conditions are consistent with those assumed during design. If the conditions exposed in the excavation are weaker than assumed in the design, the soil nail wall design would be modified such that the design meets the minimum factors of safety specified in the geotechnical report.

The contractor would be prepared to divert or pump seeping groundwater from the slope area during construction activities if encountered. Fluctuations of the groundwater level, localized zones of perched water and soil moisture content variations should be anticipated during and following the rainy season.

Temporary and permanent measures would be implemented to minimize the impact of erosion, including, but not limited to, appropriate vegetative cover of disturbed areas to stabilize soil against wind and water erosion, and construction of erosion resistant drainage structures to collect surface water and divert it away from slopes to suitable discharge points. Erosion control would be applied and landscape planting would be established as soon after grading as possible. As described in Section 2.2.1, Water Quality and Storm Water Run-off, a SWPPP would be implemented during construction to limit erosion.

Construction activities would comply with applicable occupational safety and health standards, rules, regulations, and orders, as well as Caltrans Standard Specifications for occupational safety and health and excavation safety.

2.2.3 PALEONTOLOGY

Regulatory Setting

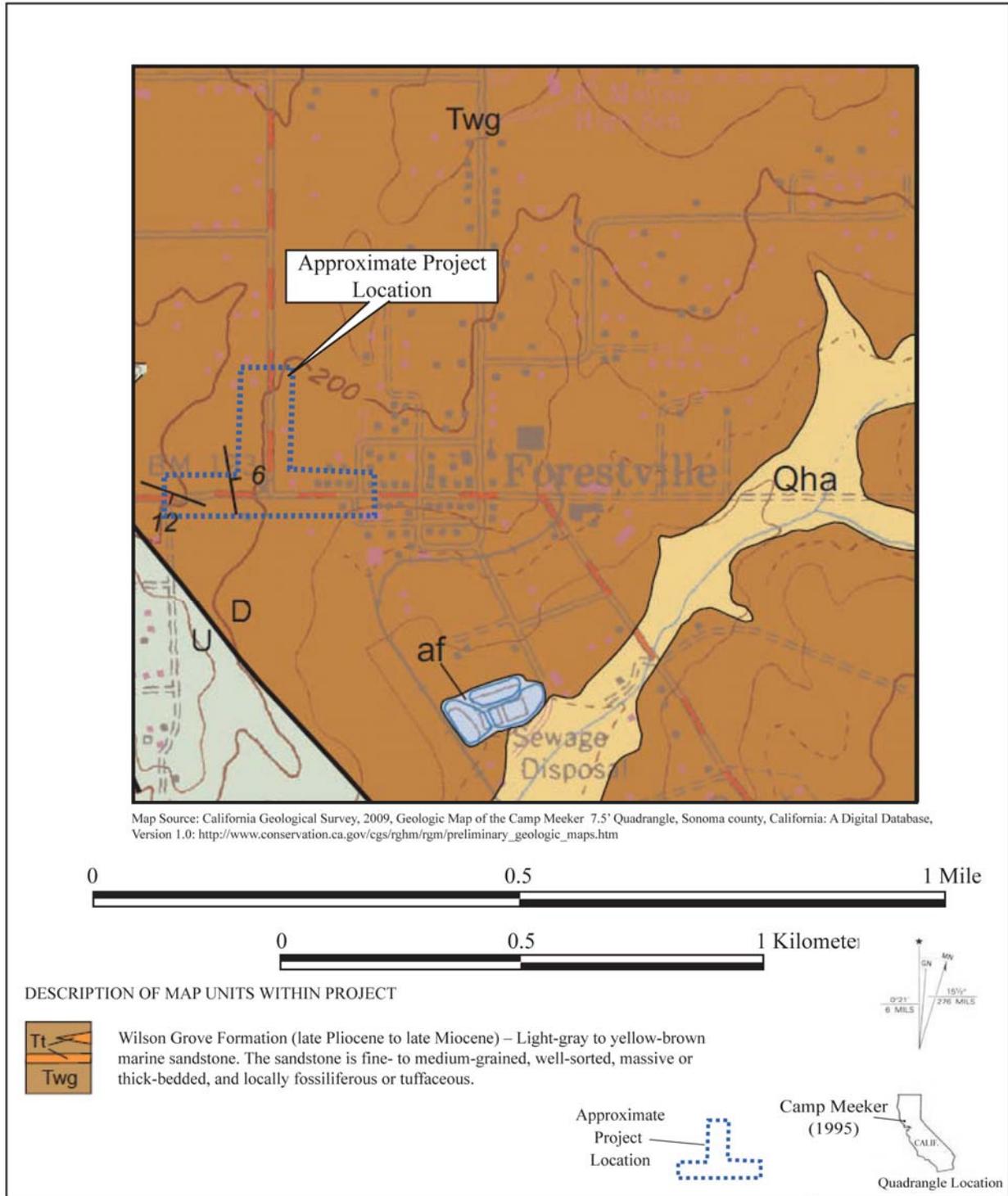
Paleontology is the study of life in past geologic time based on fossil plants and animals. Under California law, paleontological resources are protected by CEQA.

Affected Environment

A Paleontological Evaluation Report (PER) and Mitigation Plan (PMP) has been prepared for the project (Allen, 2012). According to geologic maps of the project area, the project is underlain by ancient ocean crustal rocks (turbidites, ultramafics) and marine sedimentary rocks of the Pliocene (about 5 million years old), friable, Wilson Grove Formation (California Geological Survey, 2009) (See Figure 10). It is a common location for paleontological remains (Sonoma County, 2008).

Within the Wilson Grove Formation, over 100 fossil localities have been mapped, the closest of which is approximately 0.75 miles west of the project (Powell et al., 2004). The following fossil types have been found in the Wilson Grove Formation, according to paleontological record search performed for the PER: Microfossils (foraminifer), Invertebrates (sponges-bryozoans, clams-pelecypods and snails-gastropods) and vertebrates (extinct whale-cetacean and dolphin bones).

Assessments of paleontological sensitivity (i.e., potential to contain scientifically important paleontological resources) follow standard Caltrans criteria (California Department of Transportation, 2012b). The Caltrans criteria identify three categories to describe the likelihood that a geologic unit contains significant fossil materials: high potential, low potential, and no potential, as indicated below in Table 8. Sedimentary rocks of the Wilson Grove Formation are assigned a High paleontological sensitivity rating.



Source: Allen, 2012

Figure 10. Geologic Map of the Project Area

Table 8. Caltrans Paleontological Sensitivity Terminology

Caltrans Sensitivity Designation	Characteristics of Geologic Units in This Category
High Potential (High Sensitivity)	<p>This category consists of rock units known to contain significant vertebrate, invertebrate, or plant fossils anywhere within their geographic extent, including sedimentary rock units that are suitable for the preservation of fossils, as well as some volcanic and low-grade metamorphic rock units.</p> <p>This category includes rock units with the potential to contain :</p> <ul style="list-style-type: none"> • abundant vertebrate fossils; • a few significant vertebrate, invertebrate, or plant fossils that may provide new and significant taxonomic, phylogenetic, ecologic, and/or stratigraphic data; • areas that may contain datable organic remains older than Recent; • areas that may contain unique new vertebrate deposits, traces, and/or trackways; and • fossiliferous deposits with very limited geographic extent or an uncommon origin (e.g., tar pits and cave deposits).
Low Potential (Low Sensitivity)	<p>This category includes sedimentary rock units that:</p> <ul style="list-style-type: none"> • are potentially fossiliferous, but have not yielded significant fossils in the past; • have not yet yielded fossils, but have the potential to contain fossil remains; or • contain common and/or widespread invertebrate fossils of species whose taxonomy, phylogeny, and ecology are well understood. <p><i>Note that sedimentary rocks expected to contain vertebrate fossils are considered highly sensitive, because vertebrates are generally rare and found in more localized strata.</i></p>
No Potential (No Sensitivity)	<p>This category includes rock units of intrusive igneous origin, most extrusive igneous rocks, and moderate- to high-grade metamorphic rocks.</p>

Environmental Consequences

Construction activities may impact paleontologically sensitive geologic units when equipment excavates, grades or otherwise impacts previously undisturbed sediment/rocks. This can result in destruction of fossils, or disturbance from their setting such that their scientific value is lost. The project includes excavation ranging from zero to approximately 20 feet in depth in the Wilson Grove Formation for construction of travel lanes, road cuts, retaining walls, utility relocation and drainage features, and may impact previously undiscovered fossils.

As stated above, the Wilson Grove Formation has a high sensitivity for paleontological resources. Paleontological resources preserved in sedimentary rocks of the Wilson Grove Formation have the potential to provide the following geological, paleontological, and biological information:

- Paleoecologic structure of Late Miocene-Pliocene marine invertebrate assemblages of northern California,
- Late Miocene-Pliocene marine paleoenvironments and paleoclimate of northern California,
- Late Miocene-Pliocene marine biodiversity and biogeography of northern California,
- Late Miocene-Pliocene marine microfossil biochronology and biostratigraphy,
- Late Miocene-Pliocene marine microfossil evolution and systematics,
- Late Miocene-Pliocene marine invertebrate evolution and systematics; and
- Correlation of Late Miocene-Pliocene marine sedimentary rocks of the greater Bay Area.

The project includes mitigation measures for impacts to paleontological resources, as described below. The research themes above have been considered and incorporated into the design of the mitigation measures.

The No Build Alternative would not impact paleontological resources.

Avoidance, Minimization &/or Mitigation Measures

A project-specific PMP has been developed by a qualified professional paleontologist and would be implemented during project construction. The PMP would include the following components:

- A qualified professional paleontologist (Project Paleontologist) would be retained to administer the PMP.
- The Project Paleontologist would annotate construction plans to show Environmentally Sensitive Areas (ESAs) for paleontological resources.

- The Project Paleontologist may designate a paleontological monitor meeting minimum qualifications as outlined in the PMP to be present during earth-moving activities. The Project Paleontologist and paleontological monitor(s) would be notified by the Lead Agency or Resident Engineer in advance of the start of construction activity.
- All Project personnel would receive paleontological training prior to commencement of work.
- In all identified areas of concern, a paleontological monitor would be present to observe ground disturbance activities. It is the Resident Engineer's responsibility to keep the Project Paleontologist and the paleontological monitor(s) up-to-date with current plans and any construction or scheduling changes.
- Full-time monitoring during at least the first two-weeks of ground disturbing activities would be required in Environmentally Sensitive Areas underlain by the Wilson Grove Formation. Part-time monitoring (less than four hours/day, on average) may be carried out under the recommendations of the Project Paleontologist.
- Ongoing recordation of stratigraphic data is required during excavation monitoring to provide context for any eventual fossil discoveries.
- Bulk samples of the sedimentary matrix would be collected and processed to identify presence of microfossils that may not be readily visible in the field. Blocks of sedimentary rock would be hand quarried and split along bedding planes to reveal compressed fossil plant material.
- In the event of a fossil discovery, the monitor or Project Paleontologist has the authority to temporarily stop construction or grading work at the discovery location. When work is stopped, the Resident Engineer would be contacted immediately. The paleontological monitor, under direction of the Project paleontologist, would divert, direct, or temporarily halt ground disturbing activities in the area of discovery to allow for preliminary evaluation of potentially significant paleontological resources and to determine if additional mitigation (i.e., collection and curation) is required.
- The significance of the discovered resources would be determined by the Project Paleontologist in consultation with appropriate Caltrans representatives, based on significance criteria contained in the PMP.
- For significant paleontological resources, a data recovery program would be initiated, and would include fossil recovery, preparation, identification to the lowest taxonomical level practical, and sorting. Specimens would be cataloged and a complete list would be prepared of specimens introduced into the collections or repository of a recognized, nonprofit paleontological specimen repository with a permanent curator, such as a museum or a university. A complete set of field notes, geologic maps, and stratigraphic sections must accompany the fossil collections.
- A Paleontological Mitigation Report would be completed that outlines the results of the mitigation program.

2.2.4 HAZARDOUS WASTE/MATERIALS

Regulatory Setting

Hazardous materials, including hazardous substances and wastes are regulated by many state and federal laws. Statutes govern the generation, treatment, storage and disposal of hazardous materials, substances, and waste, and also the investigation and mitigation of waste releases, air and water quality, human health and land use.

The primary federal laws regulating hazardous wastes/materials are the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) and the Resource Conservation and Recovery Act of 1976 (RCRA). The purpose of CERCLA, often referred to as “Superfund,” is to identify and clean up abandoned contaminated sites so that public health and welfare are not compromised. RCRA provides for “cradle to grave” regulation of hazardous waste generated by operating entities. Other federal laws include:

- Community Environmental Response Facilitation Act (CERFA) of 1992
- Clean Water Act
- Clean Air Act
- Safe Drinking Water Act
- Occupational Safety and Health Act (OSHA)
- Atomic Energy Act
- Toxic Substances Control Act (TSCA)
- Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)

In addition to the acts listed above, Executive Order (EO) 12088, *Federal Compliance with Pollution Control Standards*, mandates that necessary actions be taken to prevent and control environmental pollution when federal activities or federal facilities are involved.

California regulates hazardous materials, waste, and substances under the authority of the CA Health and Safety Code California Health and Safety Code and is also authorized by the federal government to implement RCRA in the state. California law also addresses specific handling, storage, transportation, disposal, treatment, reduction, cleanup and emergency planning of hazardous waste. The Porter-Cologne Water Quality Control Act also restricts disposal of wastes and requires clean-up of wastes that are below hazardous waste concentrations but could impact ground and surface water quality. California regulations that address waste management and prevention and clean up contamination include Title 22 Division 4.5 Environmental Health Standards for the Management of Hazardous Waste, Title 23 Waters, and Title 27 Environmental Protection.

Worker and public health and safety are key issues when addressing hazardous materials that may affect human health and the environment. Proper management and disposal of hazardous material is vital if it is encountered, disturbed during, or generated during project construction.

Affected Environment

An Initial Site Assessment (ISA) has been completed for the project (2007). The ISA included a review of federal, state and local regulatory records for reports of hazardous waste, as well as a visual inspection of the project site to check for evidence of hazardous substance storage, application, use, or disposal, discolored soil or water, stressed vegetation, sumps, drums, transformers, groundwater wells, surface tanks, ponds, basins, landfills, cisterns, wetlands or aboveground storage tanks (ASTs).

Land use surrounding the project includes commercial, agricultural, and rural residential. An active service station is located at the northeast corner of the SR 116/Mirabel Road intersection (discussed below). No signs that hazardous substances may be present were observed in the project area.

The State GeoTracker website records indicated that the site of the current Rotten Robbie Service Station in the northeast quadrant of the roundabout recorded a fuel release from an underground storage tank (UST) in 1999, but the leaking USTs and affected soils were removed from the site. Based on remedial activities, the limited extent of the affected area, and declining concentrations of gasoline components in monitoring wells, the County of Sonoma Department of Health Services granted site closure in 2005.

Based on the site inspection and database review, the ISA found that no Recognized Environmental Conditions (REC) were identified on or in the vicinity of the project site, and concluded that the project site was not likely to have the potential for hazardous waste involvement.

In 2010, HDR Engineering, Inc. performed a review of the ISA and requested a new database search of environmental records. Environmental Data Resources, Inc. (EDR) conducted a database search on August 27, 2010. The EDR report identified two sites (Pacific Bell and Angelo Giusti Disposal) that were not identified in the 2007 report. Based on their general location and information provided in the 2010 EDR report, HDR concluded that no new RECs are present on or in the vicinity of the project site.

Exhaust from vehicle traffic on SR 116 and Mirabel Road may have contaminated surface soils within the project limits with aurally deposited lead (ADL). ADL resulted from the use of automotive leaded gasoline until the mid-1980s. This contamination may be present in exposed soils adjacent to SR 116 and Mirabel Road.

Environmental Consequences

The project would require grading and/or excavation into soils potentially contaminated with ADL during project construction. This could result in adverse impacts to workers or the environment if soils are improperly handled or disposed of.

The No Build Alternative would have no impact on hazardous waste or hazardous materials.

Avoidance, Minimization &/or Mitigation Measures

Testing for ADL would be performed at the Plans, Specifications and Estimates (PS&E) stage prior to project construction. If ADL is found, special handling of the contaminated soil would be

required and would include implementing a Health and Safety Plan. Soil that is disturbed by the project would be handled and disposed of in accordance with all local, State, and Federal requirements.

2.2.5 AIR QUALITY

Regulatory Setting

The Federal Clean Air Act (FCAA) as amended in 1990 is the federal law that governs air quality. The California Clean Air Act of 1988 is its companion state law. These laws, and related regulations by U.S. EPA and California Air Resources Board (ARB), set standards for the quantity of pollutants that can be in the air. At the federal level, these standards are called National Ambient Air Quality Standards (NAAQS). NAAQS and State ambient air quality standards have been established for six transportation-related criteria pollutants that have been linked to potential health concerns. The criteria pollutants are: carbon monoxide (CO), nitrogen dioxide (NO₂), ozone (O₃), particulate matter (PM, broken down for regulatory purposes into particles of 10 micrometers or smaller – PM₁₀ and particles of 2.5 micrometers and smaller – PM_{2.5}), lead (Pb), and sulfur dioxide (SO₂). In addition, State standards exist for visibility reducing particles, sulfates, hydrogen sulfide (H₂S), and vinyl chloride. The NAAQS and State standards are set at a level that protects public health with a margin of safety, and are subject to periodic review and revision. Both State and Federal regulatory schemes also cover toxic air contaminants (air toxics); some criteria pollutants are also air toxics or may include certain air toxics within their general definition.

Federal and State air quality standards and regulations provide the basic scheme for project-level air quality analysis under CEQA.

In addition to this type of environmental analysis, a parallel “Conformity” requirement exists under the FCAA. FCAA Section 176(c) prohibits the U.S. Department of Transportation and other Federal agencies from funding, authorizing, or approving plans, programs or projects that are not first found to conform to the State Implementation Plan (SIP) for achieving the goals of Clean Air Act requirements related to the NAAQS. Conformity to the purpose of the SIP means that transportation activities will not cause new air quality violations, worsen existing violations, or delay timely attainment of the relevant national ambient air quality standards. No federal-aid funding is anticipated and no FHWA action is required for the project. Therefore, federal air quality conformity requirements do not apply.

Affected Environment

The project is located in the North Coast Air Basin. Within Sonoma County, the North Coast Air Basin is under the jurisdiction of the Northern Sonoma County Air Pollution Control District (NSCAPCD).

In the Forestville area, December is the coolest month on average, with an average monthly high temperature of 57 degrees F and an average low temperature of 34 degrees F. July is the warmest month on average, with an average monthly high temperature of 84 degrees F and an average low temperature of 49 degrees F (Weather.com, 2010). The average annual rainfall is 45.1 inches. The official rainy season is from October 15 to April 15 (Caltrans, 2003), with the

highest average rainfall occurring in January (Weather.com, 2010). The area is coastally influenced, and is subject to frequent fog.

The NAAQS, State air quality standards, and the attainment status (i.e. whether or not an area meets the prescribed standards) for the NSCAPCD in which the project is located, are included in Table 9. The project area is not located in a non-attainment area or maintenance area¹ for any of the NAAQS or State standards.

Table 9. National and California Ambient Air Quality Standards and NSCAPCD Attainment Status

Pollutant	Averaging Time ¹⁰	State ⁹ Standard	Federal ⁹ Standard	Principal Health and Atmospheric Effects	Typical Sources	Attainment Status
Ozone (O ₃) ²	1 hour 8 hours 8 hours (conformity process ⁵)	0.09 <u>ppm</u> 0.070 <u>ppm</u> ---	--- ⁴ 0.075 <u>ppm</u> ⁶ 0.08 <u>ppm</u> (4 th highest in 3 years)	High concentrations irritate lungs. Long-term exposure may cause lung tissue damage and cancer. Long-term exposure damages plant materials and reduces crop productivity. Precursor organic compounds include many known toxic air contaminants. Biogenic VOC may also contribute.	Low-altitude ozone is almost entirely formed from reactive organic gases/volatile organic compounds (ROG or VOC) and nitrogen oxides (NOx) in the presence of sunlight and heat. Major sources include motor vehicles and other mobile sources, solvent evaporation, and industrial and other combustion processes.	Federal: Unclassifiable/ Attainment State: Attainment
Carbon Monoxide (CO)	1 hour 8 hours 8 hours (Lake Tahoe)	20 <u>ppm</u> 9.0 <u>ppm</u> ¹ 6 <u>ppm</u>	35 <u>ppm</u> 9 <u>ppm</u> ---	CO interferes with the transfer of oxygen to the blood and deprives sensitive tissues of oxygen. CO also is a minor precursor for photochemical ozone.	Combustion sources, especially gasoline-powered engines and motor vehicles. CO is the traditional signature pollutant for on-road mobile sources at the local and neighborhood scale.	Federal: Unclassifiable/ Attainment State: Unclassified
Respirable Particulate Matter (PM ₁₀) ²	24 hours Annual	50 <u>µg/m³</u> 20 <u>µg/m³</u>	150 <u>µg/m³</u> --- ²	Irritates eyes and respiratory tract. Decreases lung capacity. Associated with increased cancer and mortality. Contributes to haze and reduced visibility. Includes some toxic air contaminants. Many aerosol and solid compounds are part of PM ₁₀ .	Dust- and fume-producing industrial and agricultural operations; combustion smoke; atmospheric chemical reactions; construction and other dust-producing activities; unpaved road dust and re-entrained paved road dust; natural sources (wind-blown dust, ocean spray).	Federal: Unclassifiable State: Attainment

¹ An area that was previously designated as a non-attainment area but has now met the standard—with EPA approval of a suitable air quality plan—is called a "maintenance" area.

Pollutant	Averaging Time ¹⁰	State ⁹ Standard	Federal ⁹ Standard	Principal Health and Atmospheric Effects	Typical Sources	Attainment Status
Fine Particulate Matter (PM _{2.5}) ²	24 hours Annual 24 hours (conformity process ⁵)	--- 12 $\mu\text{g}/\text{m}^3$ ---	35 $\mu\text{g}/\text{m}^3$ 15.0 $\mu\text{g}/\text{m}^3$ 65 $\mu\text{g}/\text{m}^3$ (4 th highest in 3 years)	Increases respiratory disease, lung damage, cancer, and premature death. Reduces visibility and produces surface soiling. Most diesel exhaust particulate matter – a toxic air contaminant – is in the PM _{2.5} size range. Many aerosol and solid compounds are part of PM _{2.5} .	Combustion including motor vehicles, other mobile sources, and industrial activities; residential and agricultural burning; also formed through atmospheric chemical (including photochemical) reactions involving other pollutants including NO _x , sulfur oxides (SO _x), ammonia, and ROG.	Federal: Unclassifiable/ Attainment State: Unclassified
Nitrogen Dioxide (NO ₂)	1 hour Annual	0.18 ppm 0.030 ppm	0.100 ppm ⁷ (98 th percentile over 3 years) 0.053 ppm	Irritating to eyes and respiratory tract. Colors atmosphere reddish-brown. Contributes to acid rain. Part of the "NO _x " group of ozone precursors.	Motor vehicles and other mobile sources; refineries; industrial operations.	Federal: Unclassifiable/ Attainment State: Attainment
Sulfur Dioxide (SO ₂)	1 hour 3 hours 24 hours Annual	0.25 ppm --- 0.04 ppm ---	0.075 ppm ⁸ (98 th percentile over 3 years) 0.5 ppm 0.14 ppm 0.030 ppm	Irritates respiratory tract; injures lung tissue. Can yellow plant leaves. Destructive to marble, iron, steel. Contributes to acid rain. Limits visibility.	Fuel combustion (especially coal and high-sulfur oil), chemical plants, sulfur recovery plants, metal processing; some natural sources like active volcanoes. Limited contribution possible from heavy-duty diesel vehicles if ultra-low sulfur fuel not used.	Federal: Unclassifiable State: Attainment
Lead (Pb) ³	Monthly Quarterly Rolling 3-month average	1.5 $\mu\text{g}/\text{m}^3$ --- ---	--- 1.5 $\mu\text{g}/\text{m}^3$ 0.15 $\mu\text{g}/\text{m}^3$	Disturbs gastrointestinal system. Causes anemia, kidney disease, and neuromuscular and neurological dysfunction. Also a toxic air contaminant and water pollutant.	Lead-based industrial processes like battery production and smelters. Lead paint, leaded gasoline. Aerially deposited lead from gasoline may exist in soils along major roads.	Federal: Unclassifiable State: Attainment
Sulfate	24 hours	25 $\mu\text{g}/\text{m}^3$	---	Premature mortality and respiratory effects. Contributes to acid rain. Some toxic air contaminants attach to sulfate aerosol particles.	Industrial processes, refineries and oil fields, mines, natural sources like volcanic areas, salt-covered dry lakes, and large sulfide rock areas.	State Only: Attainment (entire state)
Hydrogen Sulfide (H ₂ S)	1 hour	0.03 ppm	---	Colorless, flammable, poisonous. Respiratory irritant. Neurological damage and premature death. Headache, nausea.	Industrial processes such as: refineries and oil fields, asphalt plants, livestock operations, sewage treatment plants, and mines. Some natural sources like volcanic areas and hot springs.	State Only: Unclassified
Visibility Reducing Particles	8 hours	Visibility of 10 miles or more	---	Reduces visibility. Produces haze.	See particulate matter above.	State Only: Unclassified

Pollutant	Averaging Time ¹⁰	State ⁹ Standard	Federal ⁹ Standard	Principal Health and Atmospheric Effects	Typical Sources	Attainment Status
(VRP)		(Tahoe: 30 miles) at relative humidity less than 70%		NOTE: not related to the Regional Haze program under the Federal Clean Air Act, which is oriented primarily toward visibility issues in National Parks and other "Class I" areas.		
Vinyl Chloride ³	24 hours	0.01 <u>ppm</u>	---	Neurological effects, liver damage, cancer. Also considered a toxic air contaminant.	Industrial processes	State Only: Unclassified (entire state)

Based on the California ARB Air Quality Standards chart (<http://www.arb.ca.gov/research/aaqs/aaqs2.pdf>).

Notes: ppm = parts per million; $\mu\text{g}/\text{m}^3$ = micrograms per cubic meter; ppb=parts per billion (thousand million)

- 1 Rounding to an integer value is not allowed for the State 8-hour CO standard. Violation occurs at or above 9.05 ppm. Violation of the Federal standard occurs at 9.5 ppm due to integer rounding.
- 2 Annual PM_{10} NAAQS revoked October 2006; was 50 $\mu\text{g}/\text{m}^3$. 24-hr. $\text{PM}_{2.5}$ NAAQS tightened October 2006; was 65 $\mu\text{g}/\text{m}^3$. In 9/09 U.S. EPA began reconsidering the $\text{PM}_{2.5}$ NAAQS; the 2006 action was partially vacated by a court decision.
- 3 The ARB has identified vinyl chloride and the particulate matter fraction of diesel exhaust as toxic air contaminants. Diesel exhaust particulate matter is part of PM_{10} and, in larger proportion, $\text{PM}_{2.5}$. Both the ARB and U.S. EPA have identified lead and various organic compounds that are precursors to ozone and $\text{PM}_{2.5}$ as toxic air contaminants. There are no exposure criteria for adverse health effect due to toxic air contaminants, and control requirements may apply at ambient concentrations below any criteria levels specified above for these pollutants or the general categories of pollutants to which they belong. Lead NAAQS are not required to be considered in Transportation Conformity analysis.
- 4 Prior to 6/2005, the 1-hour NAAQS was 0.12 ppm. The 1-hour NAAQS is still used only in 8-hour ozone early action compact areas, of which there are none in California. However, emission budgets for 1-hour ozone may still be in use in some areas where 8-hour ozone emission budgets have not been developed.
- 5 The 65 $\mu\text{g}/\text{m}^3$ $\text{PM}_{2.5}$ (24-hr) NAAQS was not revoked when the 35 $\mu\text{g}/\text{m}^3$ NAAQS was promulgated in 2006. Conformity requirements apply for all NAAQS, including revoked NAAQS, until emission budgets for the newer NAAQS are found adequate or SIP amendments for the newer NAAQS are completed.
- 6 As of 9/16/09, U.S. EPA is reconsidering the 2008 8-hour ozone NAAQS (0.075 ppm); U.S. EPA is expected to tighten the primary NAAQS to somewhere in the range of 60-70 ppb and to add a secondary NAAQS. U.S. EPA plans to finalize reconsideration and promulgate a revised standard by August 2010.
- 7 Final 1-hour NO_2 NAAQS published in the Federal Register on 2/9/2010, effective 3/9/2010. Initial nonattainment area designations should occur in 2012 with conformity requirements effective in 2013. Project-level hot spot analysis requirements, while not yet required for conformity purposes, are expected.
- 8 U.S. EPA finalized a 1-hour SO_2 standard of 75 ppb in June 2010.
- 9 State standards are "not to exceed" unless stated otherwise. Federal standards are "not to exceed more than once a year" or as noted above.
- 10 Averaging time is the time period over which air pollutant concentrations are averaged for the purpose of determining attainment with the standards.

Environmental Consequences

Operations

The project would replace an existing intersection with a single-lane roundabout. It does not provide additional through lanes on SR 116 or Mirabel Road, and does not generate new traffic. The project would improve operations at the SR 116/Mirabel Road intersection and reduce vehicle idling (with an average delay of up to 15 seconds per vehicle in year 2035 compared to 36.3 seconds in the a.m. peak and 17.2 seconds in the p.m. peak for the existing condition; see Table 7 in Section 2.1.7, Traffic and Transportation/Pedestrian and Bicycle Facilities). Therefore, this alternative would not have adverse impacts on air quality during operations.

Under the No Build alternative, the southbound Mirabel approach to the intersection would continue to operate at LOS E in the a.m. peak hour, and is projected to operate at LOS F in the a.m. and p.m. peak hours in the design year of 2035, with delays of over 10 minutes for vehicles at the intersection. Extended vehicle idling may result in adverse air quality impacts.

Construction

During construction, short-term degradation of air quality may occur due to the release of particulate emissions (airborne dust- PM10) generated by excavation, grading, hauling, and other activities related to construction. Construction impacts to air quality are short-term in duration and, therefore, would not result in long-term adverse conditions. Emissions from construction equipment are also anticipated and would include carbon monoxide (CO), nitrogen oxides (NOx), volatile organic compounds (VOCs), directly-emitted particulate matter (PM10 and PM2.5), and toxic air contaminants such as diesel exhaust particulate matter. Ozone is a regional pollutant that is derived from NOx and VOCs in the presence of sunlight and heat.

Sources of fugitive dust would include disturbed soils at the construction site and trucks carrying uncovered loads of soils. Unless properly controlled, vehicles leaving the site would deposit mud on local streets, which could be an additional source of airborne dust. PM10 emissions would vary from day to day, depending on the nature and magnitude of construction activity and local weather conditions. PM10 emissions would depend on soil moisture, silt content of soil, wind speed, and the amount of equipment operating. Larger dust particles would settle near the source, while fine particles would be dispersed over greater distances from the construction site.

Construction activities for large development projects are estimated by the EPA to add 1.2 tons of fugitive dust per acre of soil disturbed per month of activity. If water or other soil stabilizers are used to control dust, the emissions can be reduced by up to 50 percent. The Caltrans Standard Specifications (Section 14-9.03 Dust Control and Section 18 Dust Palliative) pertaining to dust minimization requirements require use of water or dust palliative compounds and would reduce potential fugitive dust emissions during construction. The project would disturb a total of approximately 4.14 acres of soil over the nine- month- to one-year duration of construction activities. The amount disturbed at any one time would vary depending on construction stage.

In addition to dust-related PM10 emissions, heavy trucks and construction equipment powered by gasoline and diesel engines would generate CO, SO₂, NOx, VOCs and some soot particulate (PM10 and PM2.5) in exhaust emissions. Site preparation and roadway construction would involve clearing, cut-and-fill activities, grading, removing existing roadways, and paving roadway surfaces. Construction-related effects on air quality from most highway projects are greatest during the site preparation phase because most engine emissions are associated with the excavation, handling, and transport of soils to and from the site. If not properly controlled, these activities would temporarily generate PM10, PM2.5, and small amounts of CO, SO₂, NOx, and VOCs.

SO₂ is generated by oxidation during combustion of organic sulfur compounds contained in diesel fuel. Off-road diesel fuel meeting Federal Standards can contain up to 5,000 parts per million (ppm) of sulfur, whereas on-road diesel is restricted to less than 15 ppm of sulfur. However, under California law and Air Resources Board regulations, off-road diesel fuel used in California must meet the same sulfur and other standards as on-road diesel fuel, so SO₂-related issues due to diesel exhaust would be minimal. Some phases of construction, particularly asphalt paving, would result in short-term odors in the immediate area of each paving site(s).

Such odors would be quickly dispersed below detectable thresholds as distance from the site(s) increases.

The No Build Alternative would not result in construction-related air quality impacts.

Avoidance, Minimization & or Mitigation Measures

The construction contractor would comply with Caltrans' Standard Specifications in Section 14 (2010).

- Section 14-9.01 specifically requires compliance by the contractor with all applicable laws and regulations related to air quality, including air pollution control district and air quality management district regulations and local ordinances.
- Section 14-9.02 is directed at controlling dust. If dust palliative materials other than water are to be used, material specifications are contained in Section 18.

The contractor would develop a dust control plan documenting sprinkling, temporary paving, speed limits, and expedited revegetation of disturbed slopes as needed to minimize construction impacts to existing communities.

All exposed surfaces (e.g., parking areas, staging areas, graded areas, and unpaved access roads) would be watered two times per day, or more frequently as necessary, to minimize dust. (Alternatively, dust palliative materials may be used.)

The contractor would enclose, cover, water twice daily, or apply nontoxic soil binders to exposed stockpiles (dirt, sand, etc.).

All haul trucks transporting soil, sand, or other loose material off-site would be covered.

All visible mud or dirt track-out onto adjacent public roads would be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.

All vehicle speeds on unpaved roads would be limited to 15 mph.

All roadways, driveways, and sidewalks to be paved would be completed as soon as possible.

Idling times would be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage would be provided for construction workers at all access points.

All construction equipment would be maintained and properly tuned in accordance with manufacturer's specifications. Use low-sulfur fuel in all construction equipment as provided in California Code of Regulations Title 17, Section 93114.

A publicly visible sign would be posted with the telephone number and person to contact at the Lead Agency regarding dust complaints. This person would respond and take corrective action

within 48 hours. The Air District's phone number would also be visible to ensure compliance with applicable regulations.

The contractor would install stabilized construction entrances and/or wheel washes at project access points to minimize dust and mud deposits on roads affected by construction traffic.

The contractor would install permanent erosion control as soon as practical after grading to reduce windblown particulate in the area.

Route and schedule construction traffic to avoid peak travel times as much as possible, to reduce congestion and related air quality impacts caused by idling vehicles along local roads.

2.2.6 NOISE

Regulatory Setting

CALIFORNIA ENVIRONMENTAL QUALITY ACT

CEQA requires a strictly baseline versus build analysis to assess whether a proposed project will have a noise impact. If a proposed project is determined to have a significant noise impact under CEQA, then CEQA dictates that mitigation measures must be incorporated into the project unless such measures are not feasible.

Section 7 of Caltrans' *Traffic Noise Analysis Protocol for New Highway Construction and Reconstruction Project (TNAP)*, May 2011, contains policies for addressing noise impacts under CEQA. According to the TNAP, the increase in noise created by a project, the modeled absolute noise level, and the project setting are all factors that may be considered in determining significance under CEQA.

Construction noise is frequently governed by local noise ordinances. Sonoma County does not have an adopted noise control ordinance.

Figure 11 lists the noise levels of common activities to enable readers to compare the actual and predicted highway noise levels discussed in this section with common activities.

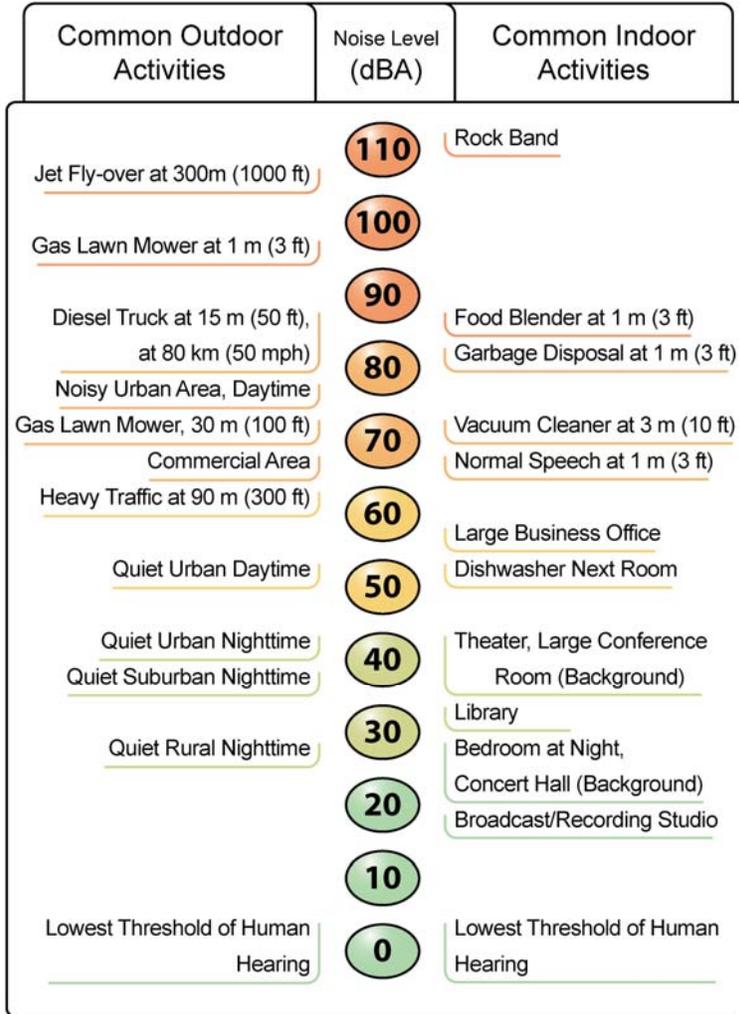


Figure 11. Noise Levels of Common Activities

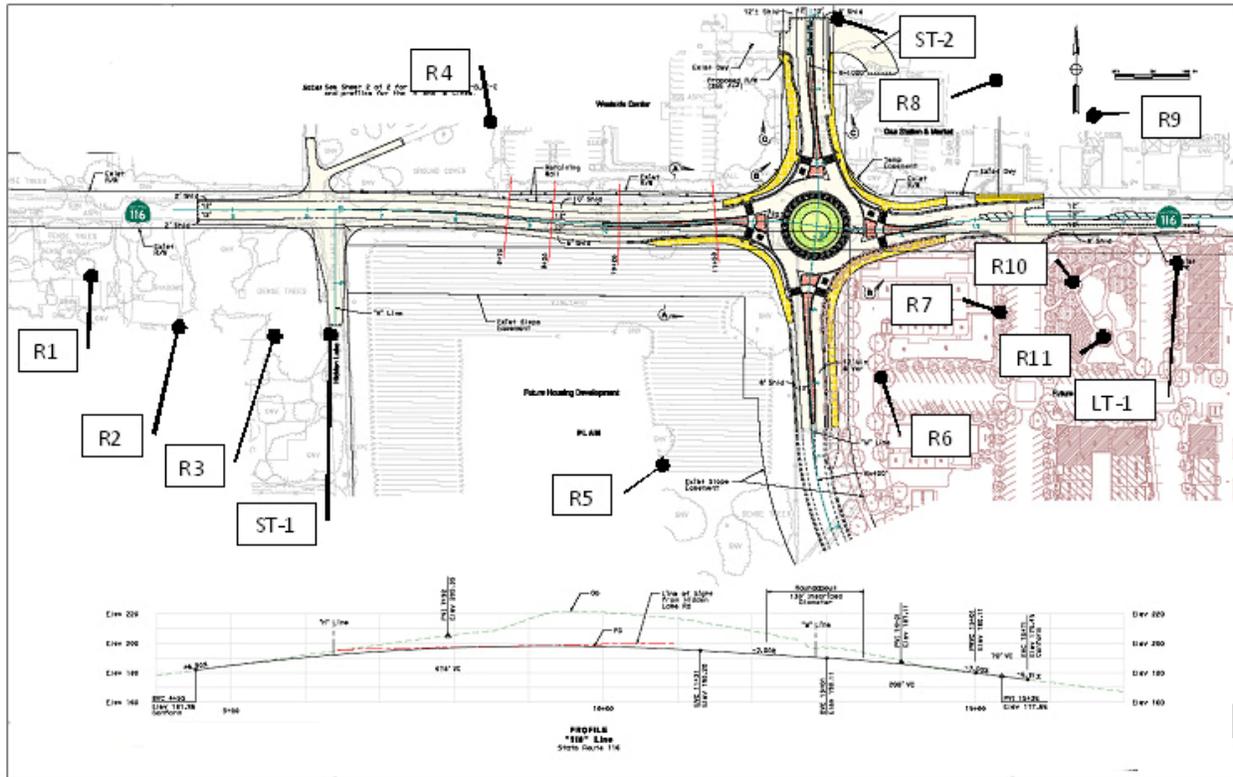
Affected Environment

A Noise Study Report (Illingworth & Rodkin, 2010) has been prepared to address potential noise impacts of the project.

Residential land uses are considered sensitive noise receptors. Residential uses exist north and south of SR 116 in the vicinity of Hidden Lake Road, and behind the commercial development along SR 116 in the vicinity of the proposed roundabout. The approved developments south of SR 116/Mirabel Road intersection also include proposed residential uses. Though not yet constructed, these potential sensitive noise receptors were also considered in the analysis. Commercial uses are located directly north of SR 116 in the vicinity of the proposed roundabout. Commercial uses are not considered noise-sensitive.

Noise measurements were taken at three locations to characterize the existing noise levels and to quantify the daily trend in noise levels. Loudest-hour noise levels were then calculated at identified sensitive receptors (See Figure 12) by adjusting for differences in traffic conditions during the measurements and the loudest existing hourly traffic conditions. Then noise levels

were calculated to characterize the change in noise levels in the project area throughout the day. The Noise Study Report concluded that the existing loudest-hour traffic noise levels at sensitive receptors were between 53 and 62 decibels (dBA).



ST= Short term measurement location, LT=Long term measurement location, R= Receptor

Figure 12. Noise Measurement and Receptor Locations

Environmental Consequences

Operational Impacts

The project does not increase traffic in the project area. Therefore, potential noise impacts from the project are limited to those resulting from project- changes in roadway speeds, roadway alignment, and/or topography. The Noise Study Report used the FHWA computer model known as Traffic Noise Model Version 2.5 to calculate existing and future noise levels. The future noise levels with the project were modeled for year 2013 and are included in Table 10. The maximum increase in noise level at any location within the project limits compared to the existing condition would be one dBA. A noise increase of three dBA is considered the minimum increase that a person can perceive, so a one dBA increase would be imperceptible to receptors. Noise levels are predicted to decrease by one to three dBA at receptors nearest the roundabout as a result of decreased travel speeds in the immediate vicinity of the roundabout. Traffic noise levels would increase by up to one dBA at receptors outside of the splitter islands compared to the existing conditions. Traffic noise levels would increase at only one receptor compared to the No Build Alternative in year 2013.

Table 10. Existing and Predicted Noise Levels

Receiver ID	Loudest Hour Noise Levels, $L_{eq(h)}$ dBA			
	Type of Development	Existing (2009) Noise Level	Predicted (2013) Noise Level without Project	Predicted (2013) Noise Level with Project
R1	SFR	62	62	63
R2	SFR	60	61	61
R3	SFR	61	62	62
R4	SFR	59	59	59
R5	SFR	53	53	50
R6	MFR	57	57	56
R7	MFR	58	59	57
R8	SFR	56	57	55
R9	SFR	54	54	53
R10	Park	62	62	60
R11	Park	58	58	57

SFR-Single Family Residence, MFR-Multi-Family Residence

Source: Illingworth and Rodkin, 2010

Given that the predicted noise increase with the project is less than a person can perceive, the project would not create a substantial noise impact.

The No Build Alternative would not cause an increase in noise levels and would not result in a reduction of noise levels.

Construction Impacts

Noise generated by project-related construction activities would be a function of the noise levels generated by individual pieces of construction equipment, the type and amount of equipment operating at any given time, the timing and duration of construction activities, the proximity of nearby sensitive land uses, and the presence or lack of shielding at these sensitive land uses. Construction noise levels would vary on a day-to-day basis during each phase of construction depending on the specific task being completed.

Construction phases anticipated with the project would include earthwork, construction of temporary and permanent retaining walls, utility relocation, and paving. Each construction phase would require a different combination of construction equipment necessary to complete the task and differing usage factors for such equipment.

Project construction activities would primarily be concentrated in the vicinity of just west of the roundabout, where the majority of earthwork is required. Construction noise would result from the operation of heavy construction equipment and arrival and departure of heavy-duty trucks. FHWA's Roadway Construction Noise Model (RCNM v.1.0) was used to calculate the maximum and average noise levels anticipated during each phase of construction. Construction noise was calculated at a distance of 50 feet from construction activities. Calculated noise levels are shown in Table 11. Noise generated by construction equipment drops off at a rate of six dB per doubling of distance.

Table 11. Construction Noise Levels at 50 feet

Construction Phase	Maximum Noise Level (L_{max} , dBA)	Hourly Average Noise Level ($L_{eq(h)}$, dBA)
Excavation of Road Cut	84	86-87
Temporary Retaining Wall	82	82
Paving – South Side	83	84
Utility Relocation	81	82
Permanent Retaining Wall	81	82
Paving – North Side	83	84
Final Slope Grading	83	83-84

Source: Illingworth and Rodkin, 2010

Highway construction activities typically occur for relatively short periods of time as construction proceeds along the project's alignment. Construction noise would be of most concern in areas where construction activities would be concentrated for extended periods of time or where noise levels from individual pieces of equipment are substantially higher than ambient conditions.

Ambient daytime noise levels at first-row (closest) receivers adjoining the project area range from 61 to 64 dBA $L_{eq(h)}$. Most construction phases would generate average noise levels that would exceed ambient daytime noise levels by 18 to 26 dBA $L_{eq(h)}$. Maximum instantaneous noise levels generated by typical construction activities would generally be at or below existing maximum noise levels generated by truck traffic along the highway.

Effective noise control during the construction of a project means minimizing noise disturbances to the surrounding communities. Combinations of impact minimization techniques, as outlined below, would be implemented during project construction to minimize noise-related impacts to residences and businesses located within or adjacent to the project area.

The No Build Alternative would not cause construction-related noise impacts.

Avoidance, Minimization & or Mitigation Measures

Construction would occur in compliance with the provisions set forth in Section 14-8.02 of Noise Control, included in the 2010 Caltrans Standard Specifications. These Standard Specifications are meant to minimize the impact from short duration construction noise, and include the following requirements:

- Do not exceed 86 dBA L_{max} at 50 feet from the job site activities from 9 p.m. to 6 a.m. (See the measure below for a description of limitations to working hours.)

- Equip internal combustion engines with the manufacturer-recommended muffler. Do not operate internal combustion engines on the job site without the appropriate muffler.

The following additional minimization measures would be implemented:

- The construction contractor would designate a noise disturbance coordinator who would be responsible for responding to complaints regarding construction noise. The coordinator would determine the cause of the complaint and ensure that reasonable measures are implemented to correct the problem. A contact telephone number for the noise disturbance coordinator would be posted conspicuously on construction site fences, and would be included in the notice sent to nearby residents regarding the project's schedule.
- Construction would occur between 7:00 a.m. and 7:00 p.m. on weekdays, and between 9:00 a.m. and 5:00 p.m. on weekends. Exceptions to the work hours may be necessary for limited periods in order to minimize lane closures on SR 116 (such as during activities to conform road and driveway grades in the vicinity of Hidden Lake Road), or to prevent an emergency or respond to an existing emergency. Other than work to prevent or respond to an emergency, exceptions to the construction hours would require prior approval by the County. Residents would be notified five days in advance of work outside the specified hours.
- Unnecessary idling of internal combustion engines within 100 feet of residences would be prohibited.
- Staging of construction equipment within 200 feet of residences would be avoided, and all stationary noise-generating construction equipment, such as air compressors, portable power generators, or self-powered lighting systems would be located as far practical from noise sensitive residences.

2.3 Biological Environment

The existing biological setting and potential for sensitive biological resources to be present at the project site is described in the Natural Environment Study (NES) and Biological Evaluation completed for the project (PRMD 2012b, 2012c). The project impact area includes the project footprint, including the existing right-of-way, proposed right of-way, areas of utility relocation, water quality treatment locations, and the proposed staging area. The staging area is located along the existing County roadway easement extending 200 feet south of the proposed fourth leg of the roundabout, and on a portion of Assessor Parcel Number (APN) 084-031-069 at the southeast quadrant of the intersection. A mitigation planting area at Sunset Beach was also evaluated for potential biological resources.

2.3.1 NATURAL COMMUNITIES

This section of the document discusses natural communities of concern. The focus of this section is on biological communities, not individual plant or animal species. This section also includes information on wildlife corridors and habitat fragmentation. Wildlife corridors are areas of habitat used by wildlife for seasonal or daily migration. Habitat fragmentation involves the potential for dividing sensitive habitat and thereby lessening its biological value.

Habitat for species listed under the Federal Endangered Species Act is discussed below in the Threatened and Endangered Species Section 2.3.5. Wetlands and other waters are also discussed below 2.3.2.

Affected Environment

The potential for sensitive natural communities to be present at the project site is described in the NES. The project site consists primarily of existing roadside right-of-way and small portions of adjacent parcels containing rural residences, a vineyard, an undeveloped parcel, and commercial developments in downtown Forestville. The existing SR 116/Mirabel Road intersection is located directly east of a large hill crest. SR 116 passes through the hill on an existing road cut approximately 10 feet deep with steep side slopes. (See Appendix G for aerial views of the project.)

Roadside ruderal vegetation is the dominant plant community within the project footprint. Vegetation present is described by quadrant relative to the SR 116/Mirabel Road intersection.

Northeast quadrant - Vegetation is limited to lawn and other ornamental landscaping for the gas station that is located there.

Southeast quadrant - The roadside vegetation consists of weedy annual grasses dominated by wild oat (*Avena fatua*), with scattered individuals of coyote brush (*Baccharis pilularis*) and California blackberry (*Rubus ursinus*) on the road cut slopes.

Southwest quadrant - Between Mirabel Road and Hidden Lake Road, this quadrant consists of cut slopes of weedy species such as wild oat, wild radish (*Raphanus sativus*), rattlesnake grass (*Briza maxima*), and Queen Anne's lace (*Daucus carota*),

with scattered coyote brush, California blackberry, and poison oak (*Toxicodendron diversilobum*). At the top of the cut slope is a line of trees and shrubs including Oregon oak (*Quercus garryana*), coast live oak (*Quercus agrifolia*), California black oak (*Quercus kelloggii*), and snowberry (*Symphoricarpos albus*). Beyond the top-of-slope is vineyard. There is one location within the project footprint where a mature Oregon oak, coast live oak and two palm trees have been left standing within the vineyard. Along Hidden Lake Road, and on SR 116 west of Hidden Lake Road, vegetation consists of weedy species in the disturbed road shoulder including rattlesnake grass and wild radish, and landscaped plants and trees on a residential parcel fronting the roadway.

Northwest quadrant – Along the north side of SR 116, vegetation consists of planted manzanita and other ornamental shrubs associated with the shopping center, transitioning to weedy grasses (wild oat, Queen Anne’s lace) on the cut slopes further west. One large Oregon oak and a few smaller Coast live oaks are located along the road shoulder.

The staging area contains a predominantly non-native annual grassland, dominated by wild oat and other weedy species including black mustard (*Brassica nigra*), wild radish and Himalayan blackberry (*Rubus armenicus*). The staging area is subject to mowing and discing.

The Sunset Beach Regional Park mitigation planting area consists of a flat area and roadway embankment between the park’s parking lot driveway and River Road. The planting site was graded and seeded with erosion control mix when the park was constructed in 2008. The planting site is vegetated with primarily non-native grasses/forbs including rose clover (*Trifolium hirtum*), white clover (*Trifolium repens*), purple vetch (*Vicia benghalensis*), and Italian ryegrass (*Lolium multiflorum*). Limited numbers of native species (including poison oak and California poppy (*Eschscholzia californica*)) were present. No trees are located within the planting site.

There are no riparian corridors or streams that cross the project footprint, and the area to the north of SR 116 is developed with rural and urban residential and commercial uses. Therefore, the project site is unlikely to be used as a wildlife migratory corridor.

The only sensitive natural community with the potential to be impacted by the project is oak woodland, as described below. Though not a sensitive natural community, the project would impact roadside trees, which provide some biological value, and are also discussed below.

Oak Woodland

A remnant oak woodland is located largely outside of (to the south of) the proposed staging area. Oak woodlands provide ecological value by providing habitat for wildlife, moderating temperatures, reducing erosion, maintaining water quality, and contributing to nutrient cycling (California Resources Agency, 2001). CEQA requires counties to determine whether projects within their jurisdiction may result in a conversion of oak woodlands that will have a significant effect on the environment (Public Resources Code 21083.4).

There is one oak tree in the staging area, and an oak tree adjacent to the proposed bioswale alignment south of the proposed fourth leg of the intersection. These oak trees are located at the edge of an area to the southeast that was identified as an open oak woodland in a previous biotic study (WRA, 2003). The oak woodland area is comprised of Oregon white oaks and California black oaks that form loose clusters within grassland habitat. Based on a review of

aerial photographs, the staging area in and of itself does not exceed 10% cover of oaks, a standard used for defining oak woodland (UC Integrated Hardwood Range Management Program, 2008). However, the adjacent areas meet this standard. Therefore, the oak tree within the staging area should be considered as part of the adjoining oak woodland.

Though many of the trees located along the top of the SR 116 roadway cut-slopes are oaks, most of them are located in a narrow, isolated strip (about 250 feet long and an average of 25 feet wide) between the existing roadway cut-slopes and a planted vineyard. Other oaks to be removed are isolated specimens at the top of the road cut, and are precluded from functioning as oak woodland. Roadway noise, the proximity of human activities at the intersection, and disturbance from the adjacent agricultural activities limits the habitat value of this strip. Space constraints limit tree regenerative opportunities. These trees will be discussed below.

Roadside Trees

Roadside trees occur along the roadway within or directly adjacent to the road right-of-way. These trees generally occur in narrow and isolated strips that are not contiguous with other habitat types (i.e., riparian woodland, oak woodlands, forest). They can be planted trees associated with the roadway or adjacent private property, natural recruits, or remnants of former habitats that were present prior to development of an area.

Roadside tree species affected by the project include Oregon white oak, California black oak, Coast live oak, palms, fruit trees, Coast redwood, big leaf maple, Monterey Pine, and planted California sycamore. These trees are located along the top of the roadway cut-slopes, in landscaped areas and along the frontages of residential properties.

Environmental Consequences

Oak Woodland

Though removal of oaks within the staging area is not proposed, the project could impact an oak woodland were equipment operated or materials stored within the tree drips lines, resulting in damage to the root structure directly or through compaction. The understory in this area is composed of predominantly non-native grasslands disturbed by mowing and discing. Use of areas outside the drip line would have minimal, temporary impact to woodland habitat values.

The No Build Alternative would not impact oak woodland.

Roadside Trees

Trees with trunks located in the project footprint or with a substantial portion of their root system located within the project footprint cannot be avoided by the project and would be removed. The project footprint cannot be altered to avoid tree removal, as the project requires widening of an existing road and meeting safety-related geometric requirements for the roundabout. The project would remove approximately 36 roadside trees, 27 of which are native tree species, including 23 oak trees. In general, roadside trees tend to have limited habitat value for most wildlife as they are exposed to a high level of disturbance from traffic. Nevertheless, oak trees are declining in number in the county. Oak trees and certain other native trees (including Coast redwood, big leaf maple and California bay) are recognized by the County as important resources in the County's Tree Protection Ordinance. Though compliance with the ordinance is

not required for Caltrans projects or public projects of the County, it is used here to guide identification of trees that may require mitigation upon removal.

The No Build Alternative does not require tree removal.

Avoidance, Minimization & or Mitigation Measures

Oak Woodland

The following measures would be implemented to avoid and minimize impacts to oak woodland within/adjacent to the staging area.

- All trees within the identified staging area would be retained.
- Caltrans would require the contractor to install temporary plastic mesh-type construction fencing (Tensor Polygrid or equivalent) that is a minimum of four-feet tall between the construction zone and trees to be retained to prevent inadvertent damage. Fencing would be located at or outside tree drip lines. Fencing locations would be determined in consultation with PRMD and shown on plans when final design of the project is complete.
- No storage of oil, gasoline, chemicals or other potentially harmful substances would occur within the drip line of any tree, or any other location on the site from which such substances might enter the drip line.
- Following construction, all construction equipment and materials would be removed from the staging area.
- All areas within the staging area where soil has been exposed would be treated with erosion control BMPs to prevent loss of topsoil.

Roadside Trees

The following avoidance and minimization measures would be implemented to reduce impacts to roadside trees.

- Tree removal and pruning would be allowed where needed, but would be limited to that necessary to construct the project. Wherever feasible, vegetation would be tied back in lieu of cutting. Pruning activities would be conducted in conformance with American National Standard Institute (ANSI 2008) and International Society of Arboriculture (ISA 2008) standards.
- When excavating within the root zones of trees to be retained, care would be taken to minimize damage to the tree root system. Whenever feasible, excavation near trees using heavy equipment would be carried out by pulling the bucket or blade away from the tree (parallel to the roots) to minimize cracking and damaging of roots left in the soil. As roots are exposed during excavation, those that are one inch in diameter or greater would be cut cleanly at the surface of the excavation using hand tools. Roots would be cut progressively as they are exposed until the finish grade of the excavation is reached.

- Caltrans would require the contractor to install temporary plastic mesh-type construction fencing (Tensor Polygrid or equivalent) that is a minimum of four-feet tall between the construction zone and remaining street trees to prevent accidental disturbance. Fencing locations would be determined in consultation with PRMD and shown on plans when final design of the project is complete.

The following mitigation measure would be implemented for tree removal that cannot be avoided.

- To mitigate for the permanent loss of 27 native trees, the County would plant a minimum of 49 trees. The mitigation ratio used to determine the number of replacement trees was based on the size the tree (measured by diameter at breast height) and roughly based on the Sonoma Tree Protection Ordinance. Oak trees would be replaced with oak trees, to the maximum extent feasible. Other native species would be replaced with the same species, or native species suitable to the site. The project uses all of the existing right-of-way, and requires acquisition of additional right-of-way. Some replanting is possible within the existing or proposed right-of-way, but may be limited due to traffic sight distance requirements, safety issues, and utility conflicts. Trees would be replanted within one or more of the following locations:
 - In the center island of the roundabout;
 - Within right-of-way near the top of the roadway cut-slope on the south side of SR 116;
 - Around the parking area at Sunset Beach Regional Park in cooperation with Sonoma County Regional Parks;
 - Along the future West County Trail alignment, in cooperation with Sonoma County Regional Parks and private developers; or
 - On private property along the frontage of SR 116 within the project limits, if desired by the property owners. (For each tree planted on private property, a duplicate tree would be planted at Sunset Beach Regional Park to ensure the total required number of trees remain even if a private property owner later removes the tree. These duplicate trees would be in addition to the minimum planting requirement).

Trees would be planted in the late fall/early winter following construction to take advantage of seasonal rains, and would be maintained (i.e., watering, herbivore protection, weed control) for three years after installation, with a minimum survival requirement of 80% at the end of the maintenance period.

No replanting is proposed for loss of non-native trees.

2.3.2 WETLANDS AND OTHER WATERS

Regulatory Setting

Wetlands and other waters are protected under a number of laws and regulations. At the federal level, the Federal Water Pollution Control Act, more commonly referred to as the Clean Water Act (CWA) (33 United States Code [USC] 1344) is the primary law regulating wetlands and surface waters. One purpose of the CWA is to regulate the discharge of dredged or fill material into waters of the U.S., including wetlands. Waters of the U.S. include navigable waters, interstate waters, territorial seas and other waters that may be used in interstate or foreign commerce. To classify wetlands for the purposes of the CWA, a three-parameter approach is used that includes the presence of hydrophytic (water-loving) vegetation, wetland hydrology, and hydric soils (soils formed during saturation/inundation). All three parameters must be present, under normal circumstances, for an area to be designated as a jurisdictional wetland under the CWA.

Section 404 of the CWA establishes a regulatory program that provides that discharge of dredged or fill material cannot be permitted if a practicable alternative exists that is less damaging to the aquatic environment or if the nation's waters would be significantly degraded. The Section 404 permit program is run by the U.S. Army of Engineers (USACE) with oversight by the United States Environmental Protection Agency (U.S. EPA).

USACE issues two types of 404 permits: Standard and General permits. There are two types of General permits, Regional permits and Nationwide permits. Regional permits are issued for a general category of activities when they are similar in nature and cause minimal environmental effect. Nationwide permits are issued to authorize a variety of minor project activities with no more than minimal effects.

There are two types of Standard permits: Individual permits and Letters of Permission. Ordinarily, projects that do not meet the criteria for a Nationwide Permit may be permitted under one of USACE's Standard permits. For Standard permits, the USACE decision to approve is based on compliance with U.S. EPA's Section 404(b)(1) Guidelines (U.S. EPA 40 Code of Federal Regulations [CFR] Part 230), and whether permit approval is in the public interest. The Section 404 (b)(1) Guidelines were developed by the U.S. EPA in conjunction with USACE, and allow the discharge of dredged or fill material into the aquatic system (waters of the U.S.) only if there is no practicable alternative which would have less adverse effects. The Guidelines state that USACE may not issue a permit if there is a least environmentally damaging practicable alternative (LEDPA) to the proposed discharge that would have lesser effects on waters of the U.S., and not have any other significant adverse environmental consequences.

The Executive Order for the Protection of Wetlands (EO 11990) also regulates the activities of federal agencies with regard to wetlands. Essentially, this EO states that a federal agency, such as the FHWA and/or Caltrans, as assigned, cannot undertake or provide assistance for new construction located in wetlands unless the head of the agency finds: 1) that there is no practicable alternative to the construction and 2) the proposed project includes all practicable measures to minimize harm.

At the state level, wetlands and waters are regulated primarily by the California Department of Fish and Game (CDFG), the State Water Resources Control Board (SWRCB) and the Regional Water Quality Control Boards (RWQCB). In certain circumstances, the Coastal Commission (or Bay Conservation and Development Commission or Tahoe Regional Planning Agency) may also be involved. Sections 1600-1607 of the California Fish and Game Code require any agency that proposes a project that will substantially divert or obstruct the natural flow of or substantially change the bed or bank of a river, stream, or lake to notify CDFG before beginning construction. If CDFG determines that the project may substantially and adversely affect fish or

wildlife resources, a Lake or Streambed Alteration Agreement will be required. CDFG jurisdictional limits are usually defined by the tops of the stream or lake banks, or the outer edge of riparian vegetation, whichever is wider. Wetlands under jurisdiction of the USACE may or may not be included in the area covered by a Streambed Alteration Agreement obtained from the CDFG.

The RWQCBs were established under the Porter-Cologne Water Quality Control Act to oversee water quality. The RWQCB also issues water quality certifications for impacts to wetlands and waters in compliance with Section 401 of the CWA. Please see Section 2.2.1, Water Quality and Storm Water Run-off, for additional details.

Affected Environment

The project site is located in an upland area at the top of a hill crest. Based on site surveys performed for the NES, no streams, ponds or other water bodies are present within the project site, and the project site does not contain wetland characteristics.

Short sections of roadside ditch are present on Hidden Lake Road. The shoulder on the north side of SR 116 west of Hidden Lake Road alternatives between dirt shoulder and a poorly defined roadside ditch. These ditches are considered to be entirely in uplands. These ditches are constructed for the purposes of providing road relief for storm water. Roadside ditches constructed in uplands are not regulated by the USACE as Waters of the U.S. Philip Shannin of the USACE concurred that the ditches are not jurisdictional during a site visit on February 11, 2010.

As shallow, constructed road relief ditches with limited to no hydrophytic vegetation and lacking wetland hydrology or a well defined bed or bank, the ditches do not qualify as Waters of the State. Therefore, a State 401/WDR permit would not be obtained for this project. A letter was submitted to the RWQCB on October 4, 2011 requesting concurrence with this determination. Work in these ditches also does not require a 1602 Streambed Alteration Agreement from CDFG.

Water features located downslope of the project, outside of the project limits, include Green Valley Creek approximately 0.5 miles west of the project limits, an unnamed tributary to Green Valley Creek approximately 0.4 miles south of the staging area, a drainage swale paralleling the West County Trail approximately 400 feet southeast of the staging area, and roadside ditches west of the project limits on SR 116.

The Sunset Beach Regional Park planting area consists of a graded, flat area lacking wetland characteristics.

Environmental Consequences

The project would have no direct impacts on wetlands or other waters, as there are no wetlands or other waters present in the work area. Measures have been included in the project to avoid impacts to wetlands or waters from sedimentation from eroded or loose soils generated by construction, or oil, fuel or other pollutants from operation of construction equipment.

The No Build Alternative would not impact wetlands or other waters.

Avoidance, Minimization & or Mitigation Measures

The construction boundary would be marked with high visibility fencing a minimum of 48 inches tall, and all natural areas outside the construction zone would be designated as Environmentally Sensitive Areas (ESAs). Delineating the ESA would be designated as the “First Order of Work” in the project specifications. Location of the ESA fencing would be determined by a qualified biologist in cooperation with PRMD staff and shown on the project plans as a thick, solid black boundary. All work would be contained within the construction zone, and no work would be allowed in any area designated as an ESA. All fencing would be removed upon project completion.

Continuous silt fence would be installed along the construction boundary to prevent sediment or other substances from exiting the work area. The silt fence would be used in conjunction with the ESA fencing.

Spill control absorbent material would be in place under any construction equipment being stored, refueled, or maintained in the staging area.

The avoidance and minimization measures in Section 2.2.1, Water Quality and Storm Water Run-off, including implementation of a SWPPP and revegetation of cut-slopes, would further minimize indirect impacts to wetlands or waters.

2.3.3 PLANT SPECIES

Regulatory Setting

The U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Game (CDFG) have regulatory responsibility for the protection of special-status plant species. “Special-status” species are selected for protection because they are rare and/or subject to population and habitat declines. Special status is a general term for species that are afforded varying levels of regulatory protection. The highest level of protection is given to threatened and endangered species; these are species that are formally listed or proposed for listing as endangered or threatened under the Federal Endangered Species Act (FESA) and/or the California Endangered Species Act (CESA). Please see the Threatened and Endangered Species Section 2.3.5 in this document for detailed information regarding these species.

This section of the document discusses all the other special-status plant species, including CDFG species of special concern, USFWS candidate species, and California Native Plant Society (CNPS) rare and endangered plants.

The regulatory requirements for FESA can be found at United States Code 16 (USC), Section 1531, et seq. See also 50 CFR Part 402. The regulatory requirements for CESA can be found at California Fish and Game Code, Section 2050, et seq. Department projects are also subject to the Native Plant Protection Act, found at California Fish and Game Code, Section 1900-1913, and the California Environmental Quality Act (CEQA), Public Resources Code, Sections 2100-21177.

Affected Environment

The analysis of special status animal species is based on the NES and Biological Evaluation completed for the project. The identification of special status plant species with potential to occur at the project site was based on:

- the USFWS Species List Database and CNDDDB occurrences for the Camp Meeker and Guerneville USGS quadrangles,
- known plant occurrences in the CNDDDB within a 5-mile radius of the project site, and a 5-mile radius of the Sunset Beach Regional Park replanting area,
- the California Native Plant Society's (CNPS) Inventory of Rare and Endangered Plants for the Camp Meeker and Guerneville USGS quadrangles, and
- field reconnaissance surveys and flowering period surveys completed for the project.

Appendix H lists these species and describes their potential presence at the project site.

As described in Section 2.3.1, Natural Communities, the dominant vegetation communities in the project footprint include roadside ruderal vegetation and non-native annual grassland. The project site lacks many of the habitat types required by the special status plants listed in Appendix H, such as serpentine soils, chaparral, coastal scrub, vernal pools, marshes, seeps, wetlands, and bogs. Non-native grassland is present in the staging area and along the alignment of the south leg of the roundabout, and could provide habitat for grassland species. However, due to a high percentage of cover of exotic grasses, habitat quality for these species is low. The Sunset Beach Regional Park replanting area was graded and revegetated with an erosion control mix in 2008, and lacks suitable habitat for special status plants.

No special status plants were identified in flowering surveys of the project site, as documented in the NES. At least one of the plant surveys fell within the blooming period for each of the special status plant species identified from the regional record search.

Environmental Consequences

The project would not directly impact special status plant species. Loss of non-native annual grassland would not result in a substantial adverse impact to special status plant species, due to the low quality of the habitat.

The No Build alternative would not impact special status plant species.

Avoidance, Minimization & or Mitigation Measures

None proposed.

2.3.4 ANIMAL SPECIES

Regulatory Setting

Many state and federal laws regulate impacts to wildlife. The U.S. Fish and Wildlife Service (USFWS), the National Oceanic and Atmospheric Administration (NOAA) Fisheries and the CDFG are responsible for implementing these laws. This section discusses potential impacts and permit requirements associated with wildlife not listed or proposed for listing under the state or federal Endangered Species Act. Species listed or proposed for listing as threatened or endangered are discussed in Section 2.3.5 below. All other special-status animal species are discussed here, including CDFG fully protected species and species of special concern, and USFWS or NOAA Fisheries candidate species.

Federal laws and regulations pertaining to wildlife include the following:

- National Environmental Policy Act
- Migratory Bird Treaty Act
- Fish and Wildlife Coordination Act

State laws and regulations pertaining to wildlife include the following:

- California Environmental Quality Act
- Sections 1600 – 1603 of the Fish and Game Code
- Section 4150 and 4152 of the Fish and Game Code

Affected Environment

The analysis of special status animal species is based on the NES and Biological Evaluation completed for the project. The identification of special status animal species with potential to occur at the project site was based on:

- the USFWS Species List Database and CNDDDB occurrences for the Camp Meeker and Guerneville USGS quadrangles,
- known animal occurrences in the CNDDDB within a 5-mile radius of the project site and a 5-mile radius of the Sunset Beach Regional Park replanting area, and
- field reconnaissance surveys and habitat assessments completed for the project.

Appendix H lists these species and describes whether or not they have the potential to be present at the project site. Of those identified from the database search, western pond turtle (*Emys marmorata*), pallid bat (*Antrozous pallidus*), white-tailed kite (*Elanus leucurus*), and other migratory birds have the potential to be present at the project site.

Western pond turtle

Western pond turtle is a California Species of Special Concern. Individual turtles generally live in ponds, lakes, slow moving streams, or permanent pools alongside streams with abundant vegetation for cover. Pond turtles require basking sites such as partially submerged logs, rocks, floating vegetation, or open mud banks (CDFG, 2000). They build nests in sandy banks on slow moving streams, or away from streams, in friable soil with relatively high humidity. In addition, turtles can use uplands for refugia, digging in friable loam soils and leaf-duff to hide.

No western pond turtle has been observed within the project site during field visits. The nearest occurrence from the CNDDDB is approximately 1.4 miles from the project on the mainstem of the Russian River. Based on site surveys, no aquatic habitat for western pond turtle is present at the project site. As described in the NES, water resources to the south and east of the project site could provide potential turtle habitat, including agricultural ponds, an unnamed tributary to Green Valley Creek, and a drainage swale located along the West County Trail corridor approximately 400 feet southeast of the staging area.

The staging area could be used for an upland refuge or for nesting due to its friable soils, south-facing slopes, and location near the drainage swale.

The permanent project footprint consists of roadway cut slopes, residential yards, vineyard and dry grassland lacking in moisture, and does not provide suitable nesting habitat.

Turtles may try to disperse north across the project area from nearby aquatic habitats, but reach a deterrence to dispersal at the existing SR 116 roadway and cut slopes. There is a lack of aquatic habitats north of SR 116 in the vicinity of the project, so turtles are unlikely to disperse from the north to the south across the project site.

There are CNDDDB occurrences of western pond turtle along the Russian River approximately one mile from the Sunset Beach Regional Park planting site. The planting site is approximately 400 feet from the active channel of the Russian River. For these reasons, there is relatively low potential that turtles could use the planting site for nesting. The site provides friable soils and south-facing sun exposure preferred by turtles, though they would have to cross the parking lot driveway, and encounter potentially disturbance by park users and their pets.

Pallid Bat

The pallid bat is a California Species of Special Concern. Pallid bats occupy a variety of habitats at low elevation including grasslands, shrublands, woodlands and forests. It is most common in open, dry habitats with rocky areas for roosting. Pallid bat day roosts are in caves, crevices, mines, and occasionally hollow trees and buildings. Night roosts can be more open, and can include porches and open buildings. Most pallid bats are social, roosting in groups of 20 to over 100. They are very sensitive to disturbance of roosting sites. Pallid bats may be present in the area at any time of year (Zeiner, et. al, 1990). The precise location of the nearest CNDDDB occurrence (specimens collected in 1954) is unknown, but is mapped as “the general vicinity of Forestville.”

Trees within the project footprint were examined for possible roosting cavities and evidence of bat roosting during site visits for the NES. No cavities or evidence of roosting was observed, however, survey access to trees on APN 084-031-072 was not available. These trees would be inspected prior to removal.

There are no trees or other roosting habitat present at the Sunset Beach mitigation planting site.

Special Status and Migratory Birds

The vegetation at the project site may provide nesting, foraging, and resting habitat for a variety of bird species, including raptors and passerine birds (perching birds, including song birds).

The Migratory Bird Treaty Act of 1918 makes it unlawful at any time, by any means, or in any manner, to pursue, hunt, take, capture, or kill migratory birds. The law applies to the removal of nests occupied by migratory birds during the breeding season.

In addition, some birds in California are recognized as Species of Special Concern, or are Fully Protected Species per Fish and Game Code Section 3511. Of the special status bird species identified from the database search performed for the NES, white-tailed kite has potential habitat present at the project site.

White-tailed kite is a year-round resident of coastal and valley lowlands. White-tailed kite forages in undisturbed, open grasslands, meadows, farmlands and emergent wetlands. It nests near the top of dense oak, willow, or other tree stands, in close proximity to open foraging habitat.

White-tailed kite was not observed at the project site during surveys. However, oak trees located in or adjacent to the project site could provide suitable nesting habitat, and grasslands in and adjacent to the project site could provide foraging habitat.

Environmental Consequences

Western Pond Turtle

Construction equipment and grading activities for the project could harm turtles attempting to disperse north across the site from adjacent aquatic areas. The project would not impact aquatic habitat for western pond turtle, but would have temporary impacts on potential upland nesting/refugia areas located in the staging area. These areas would be unavailable to turtles during construction. However, nesting/refugia habitat would be available downslope of the staging area, in closer proximity to aquatic habitat areas. The permanent project footprint is not suitable habitat for turtles due to a lack of aquatic resources, lack of moisture, and disturbance from residential, commercial, agricultural and roadway uses.

Western pond turtle could be impacted indirectly if pollutants or soils from project construction, temporary soil stockpile, or roadway operation were allowed to wash into aquatic habitats downslope of the project.

The No Build alternative would not impact western pond turtle.

Pallid Bat

The project would not impact any known roosting sites. The project would require removal of trees. Trees in the project limits lack cavities suitable for roosting at this time, though it was not possible to survey all trees. The trees proposed for removal are located along the road right-of-way and the frontages of adjacent parcels. The tree removal areas have a moderate level of disturbance from human activity associated with roadway use, farming activity and residential use. Due to the lack of cavities and presence of human disturbance, the trees to be removed have very limited potential to be used by pallid bat. Trees located outside of, but adjacent to, the staging area could provide potential roosting habitat for pallid bat. Construction activities (i.e., noise, human activity) adjacent to these trees could disturb roosting bats.

The No Build alternative would not impact pallid bat.

Special Status and Migratory Birds

The project would require removal of 36 trees within and adjacent to the existing right-of-way. No trees would be removed within the staging area. Trees along the road shoulder generally have low value for nesting due to disturbance from vehicles and human activity. Other trees in the vicinity of the project provide alternative nesting habitat.

However, there is the potential that nesting birds use vegetation that would be removed for the project. Vegetation removal during times of nesting, or construction activities in the immediate vicinity of active nests, could impact white-tailed kite or other protected migratory birds.

The No Build Alternative would not impact special status or migratory birds.

Avoidance, Minimization & or Mitigation Measures

Western Pond Turtle

- Twenty-four hours prior to the start of construction, a qualified biologist would survey the work area and move any turtles to suitable nearby habitat. Exclusionary fencing would be installed along the southern work limits and around the staging area to prevent turtles from entering the work area. Location of the exclusionary fencing would be determined by the qualified biologist in cooperation with Sonoma County PRMD staff and shown on the project plans. (Exclusionary fencing may be silt fence as described in Section 2.3.2, Wetlands and Other Waters).
- Construction workers shall be briefed on the potential presence of western pond turtle in work area and be informed of avoidance measures to be employed. If turtles are found in the project limits, work would be temporarily stopped in the area of the find until a qualified biologist moves the individual(s) to suitable habitat away from the project.
- Prior to tree planting at the Sunset Beach planting mitigation site, a qualified biologist shall survey the area for pond turtle nests. Identified nests would be avoided.

The measures in 2.2.1, Water Quality and Storm Water Run-off, and 2.3.2, Wetlands and Other Waters, would minimize indirect water quality impacts that could affect western pond turtle.

Pallid Bat

- Prior to construction activities within 100 feet of trees with potential to support special-status bats, a qualified biologist would survey for bats. If no evidence of bats (i.e., visual or acoustic detection, guano, staining, strong odors) is present, tree removal activities may be conducted using the two-phased tree removal system described below
 - The two-phased tree removal system would be conducted over two consecutive days. The first day (in the afternoon), limbs and branches would be removed by a tree cutter using chainsaws or other hand tools only. Limbs with cavities, crevices or deep bark fissures would be avoided, and only limbs without those features would be removed. On the second day, the entire tree would be removed.

- If a maternity roost is identified within 100 feet of the project activities during preconstruction surveys, a no-disturbance buffer acceptable in size to the CDFG would be created around the bat roost until the roost is no longer occupied. Bat roosts initiated within 100 feet of the project area after construction has begun are presumed to be unaffected by project-related disturbance, and no buffer would be necessary. However, the “take” of individuals (e.g., direct mortality of individuals, or destruction of roosts while bats are present) is prohibited.
- If a non-breeding hibernacula is found in a tree scheduled to be removed, the County would apply for a MOU with CDFG. The bats would be safely evicted within the guidelines of the MOU under the direction of a qualified bat biologist by opening the roosting area at dusk to allow air flow through the cavity, or by an alternative measure that does not result in adverse impacts. Tree removal would occur no later than the following day (i.e., there would be not less than one night between initial disturbance for airflow and the removal) using the two-phase removal system described above. This action should allow bats to leave during dark hours, thus increasing their chance of finding new roosts with a minimum of potential predation during daylight.
- Trees being used as a night roost would only be removed during daylight hours, at least one hour after sunrise and one hour before sunset using the two-phase removal system described above.

Special Status and Migratory Birds

- Caltrans would only allow vegetation to be removed from the project site after August 31, and before February 15 of the following year, when bird nesting is most likely avoided, unless a qualified biologist has inspected the site and determined that there are no nesting birds present.
- If work is conducted during the nesting season, pre-construction surveys for nesting birds within the project site (including staging area) would be conducted no more than three days prior to tree removal/ground disturbing activities. If an active nest is found, a qualified biologist, in conjunction with CDFG and the USFWS, shall determine the appropriate buffer size and delineate the buffer using ESA fencing, pin flags, yellow caution tape, and etc. During construction, the qualified biologist would conduct regular monitoring (at agency approved intervals) to evaluate the nest(s) for potential disturbances associated with construction activities. Construction within the buffer would be prohibited until the qualified biologist determines the nest is no longer active. If an active nest is found after the completion of the pre-construction surveys and after construction begins, all construction activities would stop until a qualified biologist has evaluated the nest and erected the appropriate buffer around the nest. If establishment of the buffer is not feasible, CDFG and the USFWS would be contacted for further avoidance and minimization guidelines.

2.3.5 THREATENED AND ENDANGERED SPECIES

Regulatory Setting

The primary federal law protecting threatened and endangered species is the Federal Endangered Species Act (FESA): 16 United States Code (USC) Section 1531, et seq. See also 50 Code of Federal Regulations (CFR) Part 402. This act and subsequent amendments provide for the conservation of endangered and threatened species and the ecosystems upon which they depend. Under Section 7 of this act, federal agencies, such as the Federal Highway Administration (FHWA), are required to consult with the U.S. Fish and Wildlife Service (USFWS) and the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NOAA Fisheries Service) to ensure that they are not undertaking, funding, permitting or authorizing actions likely to jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat. Critical habitat is defined as geographic locations critical to the existence of a threatened or endangered species. The outcome of consultation under Section 7 may include a Biological Opinion with an Incidental Take statement, a Letter of Concurrence and/or documentation of a no effect finding. Section 3 of FESA defines take as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect or any attempt at such conduct."

California has enacted a similar law at the state level, the California Endangered Species Act (CESA), California Fish and Game Code Section 2050, et seq. CESA emphasizes early consultation to avoid potential impacts to rare, endangered, and threatened species and to develop appropriate planning to offset project caused losses of listed species populations and their essential habitats. The California Department of Fish and Game (CDFG) is the agency responsible for implementing CESA. Section 2081 of the Fish and Game Code prohibits "take" of any species determined to be an endangered species or a threatened species. Take is defined in Section 86 of the Fish and Game Code as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." CESA allows for take incidental to otherwise lawful development projects; for these actions an incidental take permit is issued by CDFG. For species listed under both FESA and CESA requiring a Biological Opinion under Section 7 of the FESA, CDFG may also authorize impacts to CESA species by issuing a Consistency Determination under Section 2080.1 of the California Fish and Game Code.

Another federal law, the Magnuson-Stevens Fishery Conservation and Management Act of 1976, was established to conserve and manage fishery resources found off the coast, as well as anadromous species and Continental Shelf fishery resources of the United States, by exercising (A) sovereign rights for the purposes of exploring, exploiting, conserving, and managing all fish within the exclusive economic zone established by Presidential Proclamation 5030, dated March 10, 1983, and (B) exclusive fishery management authority beyond the exclusive economic zone over such anadromous species, Continental Shelf fishery resources, and fishery resources in special areas.

Affected Environment

The analysis of threatened and endangered species is based on the NES and Biological Evaluation completed for the project. The identification of threatened and endangered species with potential to occur at the project site was based on a search of the USFWS Species List Database and CNDDDB occurrences for the Camp Meeker and Guerneville USGS quadrangles, a search of known occurrences in the CNDDDB within a five-mile radius of the project site and a

five-mile radius of the Sunset Beach Regional Park replanting area, the California Native Plant Society's (CNPS) Inventory of Rare and Endangered Plants for the Camp Meeker and Guerneville USGS quadrangles, field reconnaissance surveys, and plant surveys completed for the project. Appendix H lists the species identified from the database search. Species lacking nearby occurrences and/or lacking potential habitat within or adjacent to the project site are addressed in the appendix. Additionally, no threatened and endangered plants were identified during plant surveys completed for the project, as described in Section 2.3.3, Plant Species.

Species requiring further explanation are discussed below, including Sonoma alopecurus (*Alopecurus aequalis* var. *sonomensis*), California red-legged frog (*Rana draytonii*), and California tiger salamander (*Ambystoma californiense*).

Sonoma alopecurus

Sonoma alopecurus is federally listed as endangered. It is found in freshwater marshes, swamps, and riparian scrub with other wetland species. The nearest occurrence of Sonoma alopecurus from the CNDDDB is from 1972 at the Forestville Marsh, about 0.5 miles east of Forestville. The exact location is unknown, and is mapped as a "best guess" by the CNDDDB. The occurrence is mapped 0.8 miles from the project footprint. Another nearby occurrence, at Ross Marsh, approximately 1.2 miles from the project and staging area, is believed extirpated (removed from the area). Due to the proximity and imprecise nature of the first occurrence, the project area was evaluated for potential presence of the species.

The main project footprint, Staging Area 1, and the Sunset Beach Regional Park replanting site do not contain any wetland, freshwater marsh, swamp, or riparian scrub habitat suitable for Sonoma alopecurus. No individuals of Sonoma alopecurus were found during plant surveys for the project. Based on the surveys and lack of suitable habitat, Sonoma alopecurus is not expected to be present on site.

California Red-legged Frog

The California red-legged frog (CRLF) (*Rana draytonii*) is federally listed as threatened under FESA throughout Sonoma County, and is a California Species of Special Concern. Federally designated Critical habitat was established for CRLF on March 17, 2010 and resides entirely outside of the project vicinity. The project is located approximately 11.3 miles away from the nearest designated critical habitat area, located in coastal Marin County.

For CRLF, essential habitat must contain the Primary Constituent Elements (PCEs), which generally include breeding aquatic habitat, non-breeding upland dispersal habitat. Breeding habitat consists of ponds with adequate depth and hydrology, as well as slow moving streams with pond-like vegetation. CRLF requires 11-20 weeks of permanent water for larval development. Since breeding in this region is generally late January to late February, depending upon weather conditions, streams with high seasonal flows are not used for breeding by CRLF due to high stream velocities.

Non-breeding habitat typically includes riparian habitat with adequate moisture for survival during the summer months, cover to provide protection from high temperatures during extremes in the local climate, and protection from predators with features like deep pools, and/or dense vegetation. CRLF may use riparian habitat and uplands adjacent to aquatic habitat for foraging, shelter, cover, and non-dispersal movement (USFWS, 2010a). Studies have found CRLF using upland habitats ranging between 50 and approximately 300 feet away from aquatic habitat for

prolonged periods (USFWS, 2010a). Upland habitat used by CRLF includes structures that provide shade, moisture, and cooler temperatures. Examples of structures include rocks or boulders, organic debris, and manmade features (e.g., drains, troughs) (USFWS, 2010a). CRLF may aestivate (become dormant) in summer or dry weather in mammal burrows or leaf litter (USFWS, 2010b).

While migration/dispersal corridors for CRLF are not necessarily restricted to specific landscape features, roadways and areas that lack cover are obvious hazards to CRLF movement. Typically, forested riparian communities, grasslands, open meadows, and agricultural fields are known to be used as migration corridors by CRLF.

There are no occurrences of CRLF listed in the CNDDDB within five miles of the project site. The closest known occurrence is approximately 7.9 miles northwest of the project site, and 5 miles northwest of the Sunset Beach replanting area. Maximum dispersal distances for CRLF are not well documented in scientific literature. However, the farthest movement reported to date is 1.7 miles in coastal Santa Cruz County (Bulger, et.al 2003). One recent study (Fellers and Kleeman, 2007) found that adult CRLF individuals in Marin County moved a median distance of 0.09 mile away from breeding ponds, roughly the distance to the nearest suitable habitat area (i.e., most didn't move further than they needed to). The greatest presumed distance traveled was estimated at 1.7 miles. Although 1.7 miles is not a universally accepted maximum dispersal distance for the species, it can supply a useful benchmark to help determine the likelihood that CRLF might migrate through the project area. Due to the great distance between known occurrences and the project area, and the lack of suitable habitat within the project area, it is very unlikely CRLF would move through the project area. Nevertheless, CRLF was identified on the USFWS quadrangle list for the project area, so the project was evaluated for potential CRLF habitat on November 6, 2009.

The permanent project footprint and staging area do not provide suitable breeding habitat for CRLF, as there are no ponds or streams within these areas.

Additionally, the permanent project footprint and staging area do not provide summer holding (non-breeding) habitat for CRLF. They are located well upslope of the nearest aquatic features (see below), and are lacking in moisture. The staging area is subject to mowing (which limits available cover), and had been recently mowed during an August 2009 site visit.

Water resources in the general vicinity, but outside of the project area were analyzed for their potential to provide aquatic breeding and/or summer holding habitat for CRLF. The following features may provide habitat for CRLF:

- Agricultural ponds located approximately 0.3 miles south of the project footprint and Staging Area 1. Based on aerial photograph review and a previous study for an adjacent development (WRA, 2003), these features are surrounded by emergent and/or scrubby riparian vegetation and may provide suitable breeding habitat for CRLF;
- An unnamed tributary to Green Valley Creek located approximately 0.3 miles from the project footprint and Staging Area 1 could provide summer holding habitat, and could serve as a migratory corridor for CRLF; and

- The riparian vegetation and shallow drainage swale parallel to the West County Trail (approximately 400 feet southeast of Staging Area 1), and adjacent wetland habitat to the east could serve as summer holding habitat for CRLF.

The area to the north of SR 116 within the project limits is developed with a mix of urban and rural residences, and lacks aquatic features that would provide suitable breeding or summer holding habitat for CRLF. Therefore, CRLF is not expected to use the project impact area as a seasonal movement or dispersal corridor.

The Sunset Beach replanting area lacks aquatic resources and does not provide CRLF breeding habitat. It does not provide summer holding habitat for CRLF because it lacks cover and moisture. It is unlikely the site would be used for foraging or dispersal due to a lack of breeding ponds or streams suitable for breeding in the vicinity.

California Tiger Salamander

The Sonoma County population of the California tiger salamander (CTS) is federally listed as endangered and State listed as threatened. The Sonoma population of CTS is geographically isolated from other CTS populations, and is thought to be centered in the Santa Rosa Plain (as mapped by the Santa Rosa Plain Conservation Strategy [Strategy] and the Programmatic Biological Opinion [PBO]). This regulatory boundary was determined to represent the probable remaining potential habitat range of the Sonoma County population (as agreed by the agencies involved in development of the Strategy and PBO); outside of this boundary, CTS are not expected to occur in the county. The salamander occurs in long-lasting vernal pools and seasonal ponds, and associated uplands within about 1.3 miles of suitable breeding pools.

The project is located approximately three miles west of designated CTS critical habitat. There are no known occurrences of CTS within five miles of the project site, staging area, or the Sunset Beach Regional Park replanting site (CNDDDB, 2011). The nearest occurrence is approximately 5.9 miles away from the project site, which is well beyond the 1.3-mile distance that CTS are known to disperse from breeding sites (Sweet, 1998). There is no suitable vernal pool or other seasonal pond habitat present in any areas impacted by the project. The roadside ditches in the vicinity of Hidden Lake Road are ephemeral do not hold water long enough to provide breeding habitat.

Environmental Consequences

Sonoma Alopecurus

Sonoma alopecurus and suitable habitat are not present and the project would have no effect on Sonoma alopecurus.

California Red-legged frog

Due to the distances to known occurrences that could be potential source populations for CRLF and lack of habitat connectivity to these populations, lack of suitable habitat in the project impact area, and lack of suitable aquatic features and habitat connectivity north of SR 116, CRLF is not expected to be present in the project impact area. The project would have no effect on CRLF.

California Tiger Salamander

No suitable habitat for CTS is present at the project site, and the site is outside the known range of the Sonoma County population of CTS. The project would have no effect on CTS.

Summary

The project would not affect any threatened or endangered plant or animal species.

The No Build alternative would not affect threatened or endangered plant or animal species.

Avoidance, Minimization & or Mitigation Measures

None proposed.

2.3.6 INVASIVE SPECIES

Regulatory Setting

On February 3, 1999, President Clinton signed Executive Order 13112 requiring federal agencies to combat the introduction or spread of invasive species in the United States. The order defines invasive species as “any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem whose introduction does or is likely to cause economic or environmental harm or harm to human health.” Federal Highway Administration guidance issued August 10, 1999 directs the use of the state’s noxious weed list to define the invasive plants that must be considered as part of the NEPA analysis for a proposed project. Though this project is not subject to NEPA, the noxious weed list can provide guidance in determining whether the project may result in the spread of invasive species.

Affected Environment

Two species from the noxious weed list were identified at the project site (USDA, 2010a), and are listed Table 12.

The California Invasive Plant Council’s Invasive Plant Inventory (<http://www.cal-ipc.org/ip/inventory/index.php>) lists plants categorized as having high, moderate, or low impacts based on their documented impacts, potential to spread, and the range of habitats they tolerate. Multiple species with a moderate ranking are present in varying amounts at the project site, and are listed in the NES. The staging area is already dominated by non-native grassland species on the Cal-IPC list, including wild oat (*Avena fatua*). No species with a “high” Cal-IPC ranking were observed at the project site.

Table 12. Invasive Species Present at the Project Site

Common Name	Scientific Name	Location	CA Noxious Weed List Ranking	Cal-IPC Ranking	Ecological Impact
Italian thistle	<i>Carduus pycnocephalus</i>	Roadside ditch	C*	Moderate	Invades forest, scrub, grasslands, woodland. Very widespread. Can increase fire frequency and inhibit seedling recruitment (Cal-IPC, 2006)
field bindweed	<i>Convolvulus arvensis</i>	Staging Area	C	None	Primarily an agricultural weed.

* The California Department of Food and Agriculture (CDFA) formal definition of a “C list” plant is: A pest of known economic or environmental detriment and, if present in California, it is usually widespread. C-rated organisms are eligible to enter the state as long as the commodities with which they are associated conform to pest cleanliness standards when found in nursery stock shipments. If found in the state, they are subject to regulations designed to retard spread or to suppress at the discretion of the individual county agricultural commissioner. There is no state enforced action other than providing for pest cleanliness. (CDFA, 2010)

Environmental Consequences

Invasive species frequently colonize areas disturbed by human activity, such as construction areas. The invasive non-native species present at the project site are widespread throughout the state, are common along disturbed roadside areas, and are prevalent in areas adjacent to the project footprint. Therefore, it is not feasible to prevent these species from re-establishing in areas disturbed by the project over the long-term. However, the avoidance and minimization measures included below would prevent the spread of invasive species to new areas outside the project limits and minimize reinfestation of areas disturbed by the project while native landscaping is being established.

The No Build alternative would have no impact related to invasive species.

Avoidance, Minimization & or Mitigation Measures

Caltrans shall require the contractor to regularly inspect and clean construction equipment to prevent spread of plant materials and/or seeds.

Erosion and sediment control seed mix shall not contain species listed as noxious weeds.

In replanting areas, Caltrans would implement a three-year plant establishment period to allow native species to become established. Control methods for invasive species and maintenance intervals shall be established based on recommendations of a person/company qualified in ecological restoration and invasive species control.

Chemical control methods, if needed, would be limited to those considered non-toxic to aquatic life.

2.4 Cumulative Impacts

Regulatory Setting

Cumulative impacts are those that result from past, present, and reasonably foreseeable future actions, combined with the potential impacts of this project. A cumulative effect assessment looks at the collective impacts posed by individual land use plans and projects. Cumulative impacts can result from individually minor, but collectively substantial impacts taking place over a period of time.

Cumulative impacts to resources in the project area may result from residential, commercial, industrial, and highway development, as well as from agricultural development and the conversion to more intensive types of agricultural cultivation. These land use activities can degrade habitat and species diversity through consequences such as displacement and fragmentation of habitats and populations, alteration of hydrology, contamination, erosion, sedimentation, disruption of migration corridors, changes in water quality, and introduction or promotion of predators. They can also contribute to potential community impacts identified for the project, such as changes in community character, traffic patterns, housing availability, and employment.

CEQA Guidelines, Section 15130, describes when a cumulative impact analysis is warranted and what elements are necessary for an adequate discussion of cumulative impacts. The definition of cumulative impacts, under CEQA, can be found in Section 15355 of the CEQA Guidelines.

Projects Considered for Cumulative Impacts

To evaluate the potential for cumulative impacts, a list of projects was defined through review of private development applications at Sonoma County PRMD and public works projects at DTPW. The Governor's Office of Planning and Research CEQAnet database was also reviewed to identify projects for which notices of preparation or completion of an environmental document were filed with the State Clearinghouse. The study area for the cumulative impacts assessment varies based on the resource affected and considers planned, approved and recently completed projects.

The following projects were considered in the analysis. The analysis is based on the environmental effects of the proposed project as described in their approved CEQA documents, aerial photograph review and general knowledge of the project site:

- Forestville Square mixed use development (parcels 084-031-069, 084-031-070, and 083-080-001). A Mitigated Negative Declaration was adopted for the project, and the project was approved by the Sonoma County Board of Supervisors on June 8, 2010. This development, located at the southeast quadrant of the SR 116/Mirabel Road intersection, would include a town green, commercial space, high density residential housing, and a boutique hotel. Although the future of this development is uncertain due to a change in property ownership, as a project that has received approval from the County, it is included in the analysis.

- Crinella tentative subdivision map (parcels 084-031-072 and 084-031-071). A Mitigated Negative Declaration was adopted for the project, and the project was approved by the Sonoma County Board of Supervisors on May 15, 2007. This project, located at the southeast quadrant of the SR 116/Mirabel Road intersection, would create an 11-lot subdivision consisting of clustered residential parcels, one large vineyard parcel (the area is already planted in vines), and a lot zoned for limited commercial development.
- Mirabel Road Shoulder Widening Phase I (SR 116 to Davis Road) (County of Sonoma). This project would construct shoulder improvements on Mirabel Road to improve pedestrian and bicycle access. The project is funded and included in the County's current capital project plan list. The County has recently begun preliminary design activities, but detailed design is not available, environmental review has not been initiated, and the project is not yet approved. Future phases of shoulder widening are identified in Measure M, but are not yet funded nor included in the capital project plan list.
- Canyon Rock Quarry Expansion Project. Canyon Rock Quarry is located approximately 0.5 miles west of the western project limits. This project consists of a 20-year use permit and reclamation plan to expand existing quarry operations on 35 ± acres to allow the quarry to annually export a maximum of 562,500 cubic yards (cy) of aggregate material, of which 500,000 cy could consist of material mined on-site, and annually import up to 62,500 cy of material, including recycled material. An EIR was completed for the project. The use permit was approved by the Sonoma County Board of Supervisors in 2008 subsequent to litigation, but the quarry is not yet operating under the terms of the new permit.
- Blue Rock Quarry Expansion Project. Blue Rock is located approximately 0.75 miles west of the western project limits. This project, approved by the Sonoma County Board of Supervisors in January of 2007, consists of a use permit and reclamation plan to expand the quarry operation by approximately 24 acres and to increase annual production quantities from 150,000 cubic yards to 400,000 cy. An EIR was completed for the project. The quarry is currently operating under the terms of the new permit.

The roundabout project includes a fourth leg that could connect to the Forestville Bypass (Bypass) in the future. The Bypass project is identified in the Sonoma County General Plan 2020 and Measure M. However, it is not included in the County's current capital project plan list, and substantial funding is not currently available. Design and environmental review for the project has not been initiated. The Bypass was considered in traffic modeling for the project in order to determine whether the roundabout design would function properly both with and without the Bypass in place for the design year 2035. However, it is not otherwise included in the current cumulative analysis, as the Bypass construction is not reasonably foreseeable at this time.

Environmental Consequences

The projects listed above were considered together with the project for the potential for cumulative impacts. Only those resource areas for which the project has the potential to contribute to a cumulative impact are discussed.

Farmlands

The project, the approved Forestville Square project, and the Crinella Subdivision would convert mapped Farmland of Local Importance to non-agricultural use. However, as described in Section 2.1.3, Farmlands, CEQA describes farmland as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, none of which would be converted by these projects. In addition, the primary general plan land use designation and zoning of impacted parcels for the project and the two development projects is not agriculture. Therefore, there is not a cumulative impact to farmlands.

Visual/Aesthetics

Projects with the potential to impact the same viewshed as the project were considered in the visual analysis.

The two quarry projects are not within the project viewshed.

Due to intervening topography, the building envelopes associated with the Crinella subdivision are minimally visible to not visible from the roundabout project viewshed. Mitigation measures in the adopted Mitigated Negative Declaration (MND) for the subdivision, including height restrictions on structures and retention of existing trees, further reduce visibility of subdivision project features. Therefore, the subdivision project would not contribute to cumulative impacts with the project, and is not considered further in the analysis.

A short section of the Mirabel Road Shoulder Widening project would be visible from the project and vice versa. Although detailed design is not available, work would likely include limited grading, the addition of asphalt shoulders, and some limited tree removal. Based on a review of the existing right-of-way, substantial tree removal for the Mirabel Road Shoulder Widening project in the vicinity of the roundabout is not required. In addition, opportunities may exist for replacement tree planting within the County owned right-of-way.

The Forestville Square development, located at the southeast quadrant of the intersection, would be visible in the project viewshed. As determined in the adopted MND, the Forestville Square Project would not have a significant impact to visual resources, as it would be required to go through the County Design Review process, replace existing trees per the County's tree protection ordinance, and comply with the adopted mitigation measure to implement an exterior lighting plan requiring downward directed/shielded lighting that does not spill on to adjacent properties.

The proposed roofline of Building A of the Forestville Square development is shown in Figure 7 of this Initial Study. Building A is the structure closest to and most prominently visible from the roundabout. The roofline is depicted in red to provide a sense of scale of the two projects together. The façade, as well as landscaping proposed as part of the development, is shown as semi-transparent in order to allow for analysis of the visual impacts of the roundabout project both with and without the development.

Landscaping proposed as part of Forestville Square would screen portions of the buildings from view for people approaching the roundabout from the west. Landscaping within the center circle of the roundabout would also screen portions of the building. The two projects together would

increase the appearance of a transition from the rural surroundings to the developed downtown area. However, the Forestville Square MND and conditions of approval include the aesthetic requirements described above, and the roundabout would also include landscaping and aesthetic treatment suitable to the surroundings as described in the avoidance, minimization, and mitigation measures in Section 2.1.8 of this Initial Study.

Based on the above, cumulative impacts to visual resources would be less than significant.

Noise

The project does not generate new traffic. Therefore, any changes in roadway noise attributable to the project are the result of changes in roadway alignment or traffic speeds. The maximum increase in noise at any receptor with the project is one dBA. While the noise modeling did not include specific local projects in the analysis, a conservative growth rate of 3.7% per year was applied to the existing traffic data to reflect projected growth and development in the project area. When the 2013 noise levels with the project are compared to the 2013 No Build (i.e. when growth is factored in), the noise levels with the project are higher (by one dBA) at only one receptor compared to the No Build. Noise impacts from the project are not cumulatively considerable.

Biological Resources

Affected Environment

The Forestville Square project and Crinella subdivision impact similar habitat types as the project (i.e. ruderal vegetation and non-native grassland), as well as oak woodland. The staging area for the project would be located on a portion of the same parcel that would be developed for the Forestville Square project. The Canyon Rock Quarry Expansion is located in different habitat types than the project, including conifer forest, chaparral, and riparian habitat, and in general would have the potential to impact a different range of species than are present at the project site. Similarly, the Blue Rock Quarry Expansion is located in mixed evergreen forest habitat, which would also generally have a different assemblage of species present. The Mirabel Road Shoulder Widening Project would impact roadway frontage and is surrounded by residential development.

The biological impacts of the project include primarily temporary impacts to wildlife that would cease on project completion, along with loss of roadside trees. Individual resources for which the project could contribute to a cumulative impact are discussed below.

Oak Woodland

The Forestville Square project would require removing oak trees in what has been identified as a remnant oak woodland (WRA, 2003). The MND for the Forestville Square project requires replanting of trees per the Sonoma County Tree Protection Ordinance. The roundabout project staging area is located largely outside of this woodland, no trees would be removed from the oak woodland as part of the project, and trees would be fenced to protect them during construction. Building envelopes for the Crinella Subdivision have been sited to minimize tree removal, and any removal would also require replanting per the Tree Protection Ordinance. Given that the roundabout project has only temporary impacts to oak woodland, the project's contribution to oak woodland impacts is not cumulatively considerable.

Roadside Trees

As described in Section 2.3.1, Natural Communities, the project would require the removal of 36 trees located along the road right-of-way and adjoining property frontages. These trees provided limited habitat value due to traffic related disturbance, and are not generally considered a sensitive natural community type. Forty-nine trees would be planted to replace those removed. The Crinella Subdivision project does not require removal of roadside trees. The Forestville Square project would not require removal of trees along the roadside, with the exception of a non-native eucalyptus tree, and includes planting of new trees along the roadway frontage. Based on a review of the existing right-of-way, substantial tree removal for the Mirabel Road Shoulder Widening project in the vicinity of the roundabout would not be required. In addition, opportunities may exist for replacement tree planting within the County owned right-of-way for any trees that may be removed. Tree removal associated with the quarry mining projects is related to specific habitat types not impacted by the project (conifer forest, mixed evergreen woodland) and is subject to the revegetation and reclamation standards of the Sonoma County Mining and Reclamation Ordinance (SMARO). The tree removal impacts of the project have been mitigated by the proposed replanting and the project would not result in a cumulative impact to roadside trees.

Wildlife Species

The project may result in impacts to western pond turtle, pallid bat, white-tailed kite and migratory birds.

The impacts to western pond turtle from the project would be temporary, construction-related impacts, and measures would be included in the project to avoid harming western pond turtle. Therefore, the project would not contribute to a cumulative impact to western pond turtle.

The Forestville Square project requires the removal of trees that could potentially be used by pallid bat. The Forestville Square project requires replacement of oak trees in accordance with the County's Tree Protection Ordinance (applicable to private projects only), which require preservation on-site and/or replanting of trees. The Canyon Rock and Blue Rock EIRs identified disturbance of roosting or nesting pallid bats due to tree removal for mining activities as a potential impact, but included preconstruction surveys similar to those proposed by the project to prevent harming or killing bats during tree removal. Measures would be included in the project to avoid impacts to bats during construction. Trees removed by the project, though they do not currently provide bat habitat, would be replaced. Therefore, the project would not contribute to cumulative effects to pallid bats.

All of the projects considered in the cumulative analysis include removal of trees that may be used by migratory birds. The Crinella Subdivision and Forestville Square project would impact similar habitat as the project which could be used by white-tailed kite. The quarry expansion projects are not expected to impact white-tailed kite due to a lack of suitable habitat. The Forestville Square and Crinella Subdivision projects are required to comply with the County's Tree Protection Ordinance which requires preservation on-site and/or replanting of trees. The quarry projects must comply with the reclamation and revegetation requirements in SMARO. The roundabout project would also include replanting of trees, and includes measures to prevent impacts to nesting or white-tailed kite or migratory birds during construction. The

project would not result in a cumulative impact to white-tailed kite or migratory birds from loss of trees or construction-related disturbance.

Construction Impacts (Traffic, Air Quality, Noise)

Based on the uncertain future of the Forestville Square project, the current economic climate, and numerous conditions of approval that would have to be fulfilled prior to construction, it is assumed that the Forestville Square Project (or another development project on the same parcel) would not be under construction at the same time as the project. For similar reasons, it is also assumed that the Crinella subdivision project would not be under construction. Quarry operations are regulated under the County's use permit as an ongoing operation, are separated by distance from the project, and are not considered in this discussion of construction impacts.

Based on the current programming and funding schedule, it is possible that construction of the project and the Mirabel Road Shoulder Widening project would overlap. The preliminary estimated duration for the Mirabel Road Shoulder Widening project is 60-80 days. This could result in temporary cumulative construction impacts to traffic, air quality, and noise.

Though the roundabout project is on the State Route and Caltrans is the Lead Agency, the County would manage the construction contracts for both projects. Therefore, it would be possible for the County to coordinate the projects in order to minimize traffic disruptions, and cumulative impacts of the projects would be less than significant.

Construction of the two projects simultaneously could result in short term emissions of fugitive dust and construction vehicle exhaust. The roundabout project includes multiple measures to minimize construction emissions. Local projects such as the Mirabel Road Shoulder Widening project are required to comply with NSCAPCD rules related to construction, including, but not limited Rule 430 – Fugitive Dust Emissions. Cumulative impacts of the projects would be less than significant.

Construction activities could result in cumulative noise if construction activities at the southern end of the Mirabel Road Shoulder Widening project occur simultaneously with work on the Mirabel Road leg of the roundabout. However, the properties adjacent to where the two projects come together have commercial zoning, and are not considered sensitive receptors. The nearest sensitive receptor (a residence) is located approximately 230 feet to the north. Any cumulative noise would be of very short duration and would not result in a significant impact. Nevertheless, measures are included below to minimize the impact.

Avoidance, Minimization &/or Mitigation Measures

Caltrans and the County would coordinate construction activities for the project and the Mirabel Road Shoulder Widening project to minimize traffic disruption and cumulative construction noise to the maximum extent feasible.

Section 14-8.02, Noise Control, of the Caltrans Standard Specifications would be applied to the project and the Mirabel Road Shoulder Widening Project.

2.5 Climate Change (CEQA)

Climate change refers to long-term changes in temperature, precipitation, wind patterns, and other elements of the earth's climate system. An ever-increasing body of scientific research attributes these climatological changes to greenhouse gas (GHG) emissions, particularly those generated from the production and use of fossil fuels.

While climate change has been a concern for several decades, the establishment of the Intergovernmental Panel on Climate Change (IPCC) by the United Nations and World Meteorological Organization in 1988, has led to increased efforts devoted to GHG emissions reduction and climate change research and policy. These efforts are primarily concerned with the emissions of GHGs generated by human activity including carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), tetrafluoromethane, hexafluoroethane, sulfur hexafluoride (SF₆), HFC-23 (fluoroform), HFC-134a (s, s, s, 2-tetrafluoroethane), and HFC-152a (difluoroethane).

In the U.S., the main source of GHG emissions is electricity generation, followed by transportation. In California, however, transportation sources (including passenger cars, light duty trucks, other trucks, buses, and motorcycles make up the largest source (second to electricity generation) of GHG emitting sources. The dominant GHG emitted is CO₂, mostly from fossil fuel combustion.

There are typically two terms used when discussing the impacts of climate change. "Greenhouse Gas Mitigation" is a term for reducing GHG emissions in order to reduce or "mitigate" the impacts of climate change. "Adaptation," refers to the effort of planning for and adapting to impacts resulting from climate change (such as adjusting transportation design standards to withstand more intense storms and higher sea levels)².

There are four primary strategies for reducing GHG emissions from transportation sources: 1) improving the transportation system and operational efficiencies, 2) reducing growth of vehicle miles traveled (VMT), 3) transitioning to lower GHG emitting fuels, and 4) improving vehicle technologies. To be most effective all four strategies should be pursued collectively. The following Regulatory Setting section outlines state and federal efforts to comprehensively reduce GHG emissions from transportation sources.

Regulatory Setting

State

With the passage of several pieces of legislation including State Senate and Assembly bills and Executive Orders, California launched an innovative and pro-active approach to dealing with GHG emissions and climate change.

Assembly Bill 1493 (AB 1493), Pavley. Vehicular Emissions: Greenhouse Gases, 2002: requires the California Air Resources Board (ARB) to develop and implement regulations to reduce automobile and light truck GHG emissions. These stricter emissions standards were designed to apply to automobiles and light trucks beginning with the 2009-model year. In June

² http://climatechange.transportation.org/ghg_mitigation/

2009, the U.S. Environmental Protection Agency (U.S. EPA) Administrator granted a Clean Air Act waiver of preemption to California. This waiver allowed California to implement its own GHG emission standards for motor vehicles beginning with model year 2009. California agencies will be working with federal agencies to conduct joint rulemaking to reduce GHG emissions for passenger cars model years 2017-2025.

Executive Order (EO) S-3-05: (signed on June 1, 2005, by former Governor Arnold Schwarzenegger) the goal of this EO is to reduce California's GHG emissions to: 1) year 2000 levels by 2010, 2) year 1990 levels by the 2020, and 3) 80 percent below the year 1990 levels by the year 2050. In 2006, this goal was further reinforced with the passage of Assembly Bill 32.

AB 32, the Global Warming Solutions Act of 2006, Núñez and Pavley: AB 32 sets the same overall GHG emissions reduction goals as outlined in EO S-3-05, while further mandating that ARB create a scoping plan, (which includes market mechanisms) and implement rules to achieve "real, quantifiable, cost-effective reductions of greenhouse gases."

Executive Order S-20-06: (signed on October 18, 2006 by former Governor Arnold Schwarzenegger) further directs state agencies to begin implementing AB 32, including the recommendations made by the California's Climate Action Team.

Executive Order S-01-07: (signed on January 18, 2007 by former Governor Arnold Schwarzenegger) set forth the low carbon fuel standard for California. Under this EO, the carbon intensity of California's transportation fuels is to be reduced by at least ten percent by the year 2020.

Senate Bill 97 (SB 97) Chapter 185, 2007: required the Governor's Office of Planning and Research (OPR) to develop recommended amendments to the California Environmental Quality Act (CEQA) Guidelines for addressing GHG emissions. The amendments became effective on March 18, 2010.

Caltrans Director's Policy 30 (DP-30) Climate Change (approved June 22, 2012): is intended to establish a Department policy that will ensure coordinated efforts to incorporate climate change into Departmental decisions and activities. This policy contributes to the Department's stewardship goal to preserve and enhance California's resources and assets.

Federal

Although climate change and GHG reduction is a concern at the federal level; currently there are no regulations or legislation that have been enacted specifically addressing GHG emissions reductions and climate change at the project level. Neither the United States Environmental Protection Agency (U.S. EPA) nor the Federal Highway Administration (FHWA) has promulgated explicit guidance or methodology to conduct project-level GHG analysis. As stated on FHWA's climate change website (<http://www.fhwa.dot.gov/hep/climate/index.htm>), climate change considerations should be integrated throughout the transportation decision-making process—from planning through project development and delivery. Addressing climate change mitigation and adaptation up front in the planning process will facilitate decision-making and improve efficiency at the program level, and will inform the analysis and stewardship needs of project level decision-making. Climate change considerations can easily be integrated into many planning factors, such as supporting economic vitality and global efficiency, increasing safety and mobility, enhancing the environment, promoting energy conservation, and improving the quality of life.

The four strategies set forth by FHWA to lessen climate change impacts do correlate with efforts that the state has undertaken and is undertaking to deal with transportation and climate change; the strategies include improved transportation system efficiency, cleaner fuels, cleaner vehicles, and a reduction in the growth of vehicle hours travelled.

Climate change and its associated effects are also being addressed through various efforts at the federal level to improve fuel economy and energy efficiency, such as the “National Clean Car Program” and EO 13514 - *Federal Leadership in Environmental, Energy and Economic Performance*.

Executive Order 13514 is focused on reducing greenhouse gases internally in federal agency missions, programs and operations, but also direct federal agencies to participate in the Interagency Climate Change Adaptation Task Force, which is engaged in developing a national strategy for adaptation to climate change.

On April 2, 2007, in *Massachusetts v. EPA*, 549 U.S. 497 (2007), the Supreme Court found that greenhouse gases are air pollutants covered by the Clean Air Act and that the U.S. EPA has the authority to regulate GHG. The Court held that the U.S. EPA Administrator must determine whether or not emissions of greenhouse gases from new motor vehicles cause or contribute to air pollution which may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision.

On December 7, 2009, the U.S. EPA Administrator signed two distinct findings regarding greenhouse gases under section 202(a) of the Clean Air Act:

- **Endangerment Finding:** The Administrator found that the current and projected concentrations of the six key well-mixed greenhouse gases—carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆)—in the atmosphere threaten the public health and welfare of current and future generations.
- **Cause or Contribute Finding:** The Administrator found that the combined emissions of these well-mixed greenhouse gases from new motor vehicles and new motor vehicle engines contribute to the GHG pollution which threatens public health and welfare.

Although these findings did not themselves impose any requirements on industry or other entities, this action was a prerequisite to finalizing the U.S. EPA’s *Proposed Greenhouse Gas Emission Standards for Light-Duty Vehicles*, which was published on September 15, 2009³. On May 7, 2010 the final *Light-Duty Vehicle Greenhouse Gas Emissions Standards and Corporate Average Fuel Economy Standards* was published in the Federal Register.

U.S. EPA and the National Highway Traffic Safety Administration (NHTSA) are taking coordinated steps to enable the production of a new generation of clean vehicles with reduced GHG emissions and improved fuel efficiency from on-road vehicles and engines. These next steps include developing the first-ever GHG regulations for heavy-duty engines and vehicles, as well as additional light-duty vehicle GHG regulations. These steps were outlined by President Obama in a Presidential Memorandum on May 21, 2010.⁴

³ <http://www.epa.gov/oms/climate/regulations.htm#1-1>

⁴ <http://epa.gov/otaq/climate/regulations.htm>

The final combined U.S. EPA and NHTSA standards that make up the first phase of this national program apply to passenger cars, light-duty trucks, and medium-duty passenger vehicles, covering model years 2012 through 2016. The standards require these vehicles to meet an estimated combined average emissions level of 250 grams of carbon dioxide (CO₂) per mile, (the equivalent to 35.5 miles per gallon [MPG] if the automobile industry were to meet this CO₂ level solely through fuel economy improvements. Together, these standards will cut GHG emissions by an estimated 960 million metric tons and 1.8 billion barrels of oil over the lifetime of the vehicles sold under the program (model years 2012-2016).

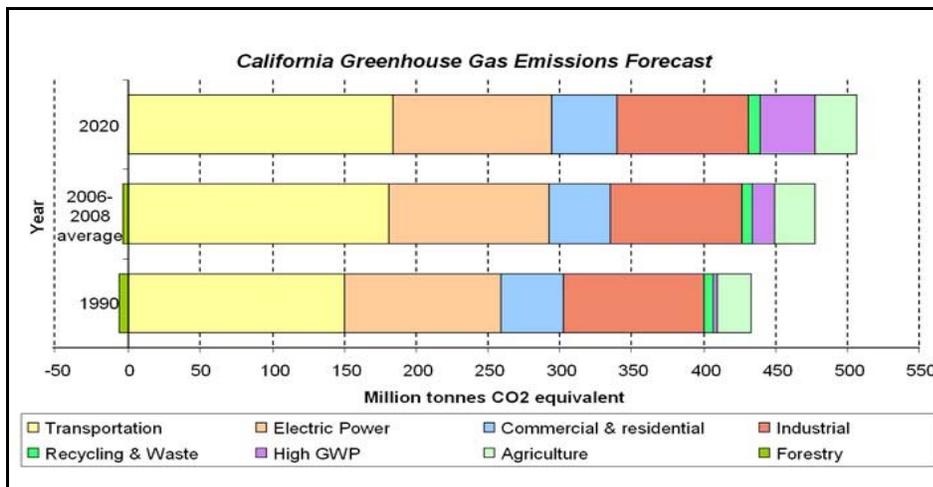
On November 16, 2011, U.S. EPA and NHTSA issued their joint proposal to extend this national program of coordinated greenhouse gas and fuel economy standards to model years 2017 through 2025 passenger vehicles.

Project Analysis

An individual project does not generate enough GHG emissions to significantly influence global climate change. Rather, global climate change is a cumulative impact. This means that a project may participate in a potential impact through its incremental contribution combined with the contributions of all other sources of GHG.⁵ In assessing cumulative impacts, it must be determined if a project's incremental effect is "cumulatively considerable." See CEQA Guidelines sections 15064(h)(1) and 15130. To make this determination the incremental impacts of the project must be compared with the effects of past, current, and probable future projects. To gather sufficient information on a global scale of all past, current, and future projects in order to make this determination is a difficult if not impossible task.

The AB 32 Scoping Plan contains the main strategies California will use to reduce GHG. As part of its supporting documentation for the Draft Scoping Plan, ARB released the GHG inventory for California (Forecast last updated: 28 October 2010). The forecast is an estimate of the emissions expected to occur in the year 2020 if none of the foreseeable measures included in the Scoping Plan were implemented. The base year used for forecasting emissions is the average of statewide emissions in the GHG inventory for 2006, 2007, and 2008.

⁵ This approach is supported by the AEP: *Recommendations by the Association of Environmental Professionals on How to Analyze GHG Emissions and Global Climate Change in CEQA Documents* (March 5, 2007), as well as the SCAQMD (Chapter 6: : *The CEQA Guide*, April 2011) and the US Forest Service (*Climate Change Considerations in Project Level NEPA Analysis*, July 13, 2009).



Source: <http://www.arb.ca.gov/cc/inventory/data/forecast.htm>

Figure 13. California Greenhouse Gas Forecast

Caltrans and its parent agency, the Business, Transportation, and Housing Agency, have taken an active role in addressing GHG emission reduction and climate change. Recognizing that 98 percent of California’s GHG emissions are from the burning of fossil fuels and 40 percent of all human made GHG emissions are from transportation, Caltrans has created and is implementing the Climate Action Program at Caltrans that was published in December 2006.⁶

Operational Emissions

The project involves replacement of an existing stop-controlled intersection with a single-lane roundabout. The purpose of the project is to improve traffic flow at the Mirabel Rd/ SR 116 intersection as well as accommodate traffic from planned future growth.

One of the main strategies in Caltrans’ Climate Action Program to reduce GHG emissions is to make California’s transportation system more efficient. The highest levels of carbon dioxide from mobile sources, such as automobiles, occur at stop-and-go speeds. At the existing intersection, traffic is subject to peak hour congestion. The project intends to relieve traffic congestion. The roundabout would reduce congestion by allowing continuous traffic flow through the intersection, reducing stop-and-go movements and the resulting vehicle back-ups along Mirabel Road. To the extent that the roundabout leads to decreased intersection delays and decreased vehicle idling, vehicle emissions of greenhouse gases are expected to decrease. In addition, the roundabout would not require the energy consumption and GHG emissions associated with operation of an electrical traffic signal.

Under the No Build Alternative, traffic operations would worsen due to increased traffic volumes over the coming years, resulting in increased delays. In year 2035, the stop-controlled movement from Mirabel Road onto SR 116 is projected to experience more than 10 minutes of delay per vehicle in the a.m. and p.m. peak hours, resulting in substantial back-ups and vehicle

⁶ Caltrans Climate Action Program is located at the following web address: http://www.dot.ca.gov/hq/tpp/offices/ogm/key_reports_files/State_Wide_Strategy/Caltrans_Climate_Action_Program.pdf

idling, leading to increased greenhouse gas emissions. In comparison, for year 2035, the roundabout is projected to have a maximum delay of 15 seconds. (See Table 7 in Section 2.1.7.1, Motor Vehicle Traffic.)

Construction Emissions

Construction GHG emissions include emissions produced as a result of material processing, emissions produced by onsite construction equipment, trucks hauling construction materials, and emissions arising from traffic delays due to construction. These emissions would be produced at different levels throughout the construction phase of the project; their frequency and occurrence can be reduced through innovations in plans and specifications and by implementing better traffic management during construction phases. In addition, with innovations such as longer pavement lives, improved traffic management plans, and changes in materials, the GHG emissions produced during construction can be mitigated to some degree by longer intervals between maintenance and rehabilitation events.

As described in Section 1.4.1, Build Alternative, the construction has been sequenced in order to maintain two-way traffic on SR 116 and Mirabel Road with only brief and limited exception, which would reduce traffic delays and associated vehicle emissions during construction. Additional measures that would be included in the project to address construction emissions are listed below under “Greenhouse Gas Reduction Strategies.”

The No Build Alternative would not result in construction-related GHG emissions.

CEQA Conclusion

It is Caltrans’ determination that in the absence of further regulatory or scientific information related to greenhouse gas emissions and CEQA significance, it is too speculative to make a determination regarding the project’s direct impact and its contribution on the cumulative scale to climate change. Caltrans is taking further measures to help reduce energy consumption and greenhouse gas emissions. These measures are outlined in the following section.

Greenhouse Gas Reduction Strategies

AB 32 Compliance

Caltrans continues to be actively involved on the Governor’s Climate Action Team as ARB works to implement Executive Orders S-3-05 and S-01-07 and help achieve the targets set forth in AB 32. Many of the strategies the Department is using to help meet the targets in AB 32 come from the California Strategic Growth Plan, which is updated each year. Former Governor Arnold Schwarzenegger’s Strategic Growth Plan calls for a \$222 billion infrastructure improvement program to fortify the state’s transportation system, education, housing, and waterways, including \$100.7 billion in transportation funding during the next decade. The Strategic Growth Plan targets a significant decrease in traffic congestion below today’s level and a corresponding reduction in GHG emissions. The Strategic Growth Plan proposes to do this while accommodating growth in population and the economy. A suite of investment options has been created that combined together are expected to reduce congestion. The Strategic Growth Plan relies on a complete systems approach to attain CO₂ reduction goals: system monitoring and evaluation, maintenance and preservation, smart land use and demand management, and operational improvements as depicted in Figure 14: The Mobility Pyramid.



Figure 14. Mobility Pyramid

Caltrans is supporting efforts to reduce vehicle miles traveled by planning and implementing smart land use strategies: job/housing proximity, developing transit-oriented communities, and high density housing along transit corridors. Caltrans works closely with local jurisdictions on planning activities but does not have local land use planning authority. Caltrans assists efforts to improve the energy efficiency of the transportation sector by increasing vehicle fuel economy in new cars, light and heavy-duty trucks; Caltrans is doing this by supporting on-going research efforts at universities, by supporting legislative efforts to increase fuel economy, and by its participation on the Climate Action Team. It is important to note, however, that the control of the fuel economy standards is held by U.S. EPA and ARB.

Table 13 summarizes Caltrans' and statewide efforts that Caltrans is implementing in order to reduce GHG emissions. More detailed information about each strategy is included in the [Climate Action Program at Caltrans](#) (December 2006).

Table 13. Climate Change/CO₂ Reduction Strategies

Climate Change/CO ₂ Reduction Strategies						
Strategy	Program	Partnership		Method/Process	Estimated CO ₂ Savings (MMT)	
		Lead	Agency		2010	2020
Smart Land Use	Intergovernmental Review (IGR)	Caltrans	Local governments	Review and seek to mitigate development proposals	Not Estimated	Not Estimated
	Planning Grants	Caltrans	Local and regional agencies & other stakeholders	Competitive selection process	Not Estimated	Not Estimated
	Regional Plans and Blueprint Planning	Regional Agencies	Caltrans	Regional plans and application process	.975	7.8
Operational Improvements & Intelligent Transportation System (ITS) Deployment	Strategic Growth Plan	Caltrans	Regions	State ITS; Congestion Management Plan	.07	2.17
Mainstream Energy & GHG into Plans and Projects	Office of Policy Analysis & Research; Division of Environmental Analysis	Interdepartmental effort		Policy establishment, guidelines, technical assistance	Not Estimated	Not Estimated
Educational & Information Program	Office of Policy Analysis & Research	Interdepartmental, CalEPA, ARB, CEC		Analytical report, data collection, publication, workshops, outreach	Not Estimated	Not Estimated
Fleet Greening & Fuel Diversification	Division of Equipment	Department of General Services		Fleet Replacement B20 B100	.0045	.0065 .045 .0225
Non-vehicular Conservation Measures	Energy Conservation Program	Green Action Team		Energy Conservation Opportunities	.117	.34
Portland Cement	Office of Rigid Pavement	Cement and Construction Industries		2.5 % limestone cement mix 25% fly ash cement mix > 50% fly ash/slag mix	1.2 .36	4.2 3.6
Goods Movement	Office of Goods Movement	Cal EPA, ARB, BT&H, MPOs		Goods Movement Action Plan	Not Estimated	Not Estimated
Total					2.72	18.18

To the extent that it is applicable or feasible for the project and through coordination with the project development team, the following measures would also be included in the project to reduce the GHG emissions and potential climate change impacts from the project:

- According to the Caltrans Standard Specifications, the contractor must comply with all local Air Pollution Control District's rules, ordinances, and regulations in regards to air quality restrictions.
- Idling times would be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.
- All construction equipment would be maintained and properly tuned in accordance with manufacturer's specifications. Use low-sulfur fuel in all construction equipment as provided in California Code of Regulations Title 17, Section 93114.
- The project would incorporate the use of energy efficient lighting, such as LED lights to the extent feasible. LED bulbs cost \$60 to \$70 apiece but last five to six years, compared to the one-year average lifespan of the incandescent bulbs previously used. The LED bulbs themselves consume 10 percent of the electricity of traditional lights, which would also help reduce the project's CO₂ emissions.⁷
- Construction traffic would be routed and scheduled to avoid peak travel times as much as possible, to reduce congestion and related air quality impacts caused by idling vehicles along local roads
- Landscaping reduces surface warming, and through photosynthesis, decreases CO₂. The project proposes planting in the roundabout, road slopes, retaining wall bench, and bioswales. The County would plant a minimum of 49 trees in the project area or off-site to replace native trees removed during construction.

Adaptation Strategies

"Adaptation strategies" refer to how Caltrans and others can plan for the effects of climate change on the state's transportation infrastructure and strengthen or protect the facilities from damage. Climate change is expected to produce increased variability in precipitation, rising temperatures, rising sea levels, variability in storm surges and intensity, and the frequency and intensity of wildfires. These changes may affect the transportation infrastructure in various ways, such as damage to roadbeds from longer periods of intense heat; increasing storm damage from flooding and erosion; and inundation from rising sea levels. These effects will vary by location and may, in the most extreme cases, require that a facility be relocated or redesigned. There may also be economic and strategic ramifications as a result of these types of impacts to the transportation infrastructure.

⁷ Knoxville Business Journal, "LED Lights Pay for Themselves," May 19, 2008 at <http://www.knoxnews.com/news/2008/may/19/led-traffic-lights-pay-themselves/>.

At the federal level, the Climate Change Adaptation Task Force, co-chaired by the White House Council on Environmental Quality (CEQ), the Office of Science and Technology Policy (OSTP), and the National Oceanic and Atmospheric Administration (NOAA), released its interagency report on October 14, 2010 outlining recommendations to President Obama for how Federal Agency policies and programs can better prepare the U.S. to respond to the impacts of climate change. The Progress Report of the Interagency Climate Change Adaptation Task Force recommends that the federal government implement actions to expand and strengthen the nation's capacity to better understand, prepare for, and respond to climate change.

Climate change adaptation must also involve the natural environment as well. Efforts are underway on a statewide-level to develop strategies to cope with impacts to habitat and biodiversity through planning and conservation. The results of these efforts will help California agencies plan and implement mitigation strategies for programs and projects.

On November 14, 2008, former Governor Arnold Schwarzenegger signed EO S-13-08 which directed a number of state agencies to address California's vulnerability to sea level rise caused by climate change. This EO set in motion several agencies and actions to address the concern of sea level rise.

The California Natural Resources Agency (Resources Agency) was directed to coordinate with local, regional, state and federal public and private entities to develop. The California Climate Adaptation Strategy (Dec 2009)⁸, which summarizes the best known science on climate change impacts to California, assesses California's vulnerability to the identified impacts, and then outlines solutions that can be implemented within and across state agencies to promote resiliency.

The strategy outline is in direct response to EO S-13-08 that specifically asked the Resources Agency to identify how state agencies can respond to rising temperatures, changing precipitation patterns, sea level rise, and extreme natural events. Numerous other state agencies were involved in the creation of the Adaptation Strategy document, including the California Environmental Protection Agency; Business, Transportation and Housing; Health and Human Services; and the Department of Agriculture. The document is broken down into strategies for different sectors that include: Public Health; Biodiversity and Habitat; Ocean and Coastal Resources; Water Management; Agriculture; Forestry; and Transportation and Energy Infrastructure. As data continues to be developed and collected, the state's adaptation strategy will be updated to reflect current findings.

The Resources Agency was also directed to request the National Academy of Science to prepare a Sea Level Rise Assessment Report by December 2010⁹ to advise how California should plan for future sea level rise. The report is to include:

- Relative sea level rise projections for California, Oregon and Washington taking into account coastal erosion rates, tidal impacts, El Niño and La Niña events, storm surge and land subsidence rates.
- The range of uncertainty in selected sea level rise projections.

⁸ <http://www.energy.ca.gov/2009publications/CNRA-1000-2009-027/CNRA-1000-2009-027-F.PDF>

⁹ Pre-publication copies of the report, *Sea Level Rise for the Coasts of California, Oregon, and Washington: Past, Present, and Future*, were made available from the National Academies Press on June 22, 2012. For more information, please see http://www.nap.edu/catalog.php?record_id=13389.

- A synthesis of existing information on projected sea level rise impacts to state infrastructure (such as roads, public facilities and beaches), natural areas, and coastal and marine ecosystems.
- A discussion of future research needs regarding sea level rise.

Prior to the release of the final Sea Level Rise Assessment Report, all state agencies that are planning to construct projects in areas vulnerable to future sea level rise were directed to consider a range of sea level rise scenarios for the years 2050 and 2100 in order to assess project vulnerability and, to the extent feasible, reduce expected risks and increase resiliency to sea level rise. Sea level rise estimates should also be used in conjunction with information regarding local uplift and subsidence, coastal erosion rates, predicted higher high water levels, storm surge and storm wave data

Interim guidance has been released by The Coastal Ocean Climate Action Team (CO-CAT) as well as the Department as a method to initiate action and discussion of potential risks to the states infrastructure due to projected sea level rise.

All projects that have filed a Notice of Preparation as of the date of EO S-13-08, and/or are programmed for construction funding from 2008 through 2013, or are routine maintenance projects may, but are not required to, consider these planning guidelines. The project is programmed for construction in 2013.

Executive Order S-13-08 also directed the Business, Transportation, and Housing Agency to prepare a report to assess vulnerability of transportation systems to sea level rise affecting safety, maintenance and operational improvements of the system, and economy of the state. Caltrans continues to work on assessing the transportation system vulnerability to climate change, including the effect of sea level rise.

Currently, Caltrans is working to assess which transportation facilities are at greatest risk from climate change effects. However, without statewide planning scenarios for relative sea level rise and other climate change effects, Caltrans has not been able to determine what change, if any, may be made to its design standards for its transportation facilities. Once statewide planning scenarios become available, Caltrans will be able review its current design standards to determine what changes, if any, may be warranted in order to protect the transportation system from sea level rise.

Climate change adaptation for transportation infrastructure involves long-term planning and risk management to address vulnerabilities in the transportation system from increased precipitation and flooding; the increased frequency and intensity of storms and wildfires; rising temperatures; and rising sea levels. Caltrans is an active participant in the efforts being conducted in response to EO S-13-08 and is mobilizing to be able to respond to the National Academy of Science Sea Level Rise Assessment Report.

Chapter 3 - COMMENTS AND COORDINATION

Early and continuing coordination with the general public and appropriate public agencies is an essential part of the environmental process to determine the necessary scope of environmental documentation, the level of analysis required, potential impacts and mitigation measures, and related environmental requirements. Agency consultation and public participation for this project have been accomplished through a variety of methods, including: project development team meetings, interagency coordination meetings, and a public meeting. This chapter summarizes the results of Caltrans' efforts to fully identify, address and resolve project-related issues through early and continuing coordination.

Project Development Team (PDT)

The Project Development Team is comprised of the Project Manager and representatives from the various functional units within Caltrans involved in the project development process. This includes, but is not limited to, representatives from the project design group, environmental, traffic, construction, surveys, and right-of-way. It also includes representatives of Sonoma County DTPW, Sonoma County PRMD, and SCTA.

The PDT advises and assists the Project Manager in directing the course of studies, makes recommendations to the Project Manager and district management, and works to carry out the project work plan. Members of the PDT participate in major meetings, public hearings and community involvement. The PDT is responsible for conducting studies and accumulating data throughout the project development and then implementing this data and information into Plans, Specifications and Estimates (PS&E) phase.

Agency Coordination

A "Notice of Project to Receive Environmental Review" was mailed to public agencies that may have an interest in the project on September 21, 2010. The letter requested input on environmental issues that should be considered in this environmental document. Agency correspondence is included in Appendix I.

Staff from Sonoma County PRMD met on-site with staff from the U.S. Army Corps of Engineers (USACE) on February 11, 2010. The USACE verified the extent of their jurisdiction in a jurisdictional determination dated November 3, 2010.

Public Participation

A public information meeting was held on February 26, 2009 at the Forestville Elementary School. Meeting notices were mailed to adjacent property owners, selected state and local agencies, local citizen groups, local papers, and environmental organizations. During the meeting, conceptual alternatives (a roundabout and signal) were presented to the public, along with information regarding the project goals, funding, and schedule. Sonoma County Supervisor Efred Carrillo welcomed people to the meeting. The meeting functioned as a "town hall," in which staff from the Sonoma County DTPW responded to questions from community members. An "open house" format followed the question and answer session, during which community members were able to ask one-on-one questions of County, Caltrans, and SCTA staff, and to view exhibits showing the project alternatives. Community members were also encouraged to submit written comments on comment cards provided at the meeting. Approximately 60 community

members and public agency representatives attended the meeting. Twenty-three people submitted written comments. A majority of those in attendance expressed support for the roundabout alternative. Multiple issues were discussed, including roundabout and retaining wall aesthetics, pedestrian and bicyclist safety, truck movements, air quality benefits, and sight distance at Hidden Lake Road.

The County mailed a “Notice of Project to Receive Environmental Review” to residents within 0.5 miles of the project on September 21, 2010, as well as to other parties or organizations that may have an interest in the project. The letter requested input on environmental issues that should be considered in this environmental document. Six telephone comments and eight written comments were received.

The following is a general summary of questions/comments/concerns from the public meeting and mailed notice:

- Is the project needed?
- The project may be too costly. Does a traffic signal cost less? I prefer that money be spent on other improvement projects, such as the bypass.
- Roundabouts cause confusion for motorists.
- There were concerns about ability for oversize vehicles to navigate the roundabout.
- The mobility of fire trucks entering the roundabout from the north leg if a vehicle is disabled or pulled over to the right side is a concern. The splitter/median island will confine fire trucks and not allow them to pass.
- A traffic signal at the Covey Road/SR 116 intersection is more urgently needed than a roundabout at the Mirabel Road/SR 116 intersection.
- Will traffic on SR 116 (after project is built) be worse than the existing condition?
- Curb cuts should be flush with the pavement to make them bicycle friendly.
- Keep bicyclists in mind when designing signage.
- There is a need to coordinate the roundabout project with the planned trail projects in the area.
- Consider a “bypass lane” (provide a free right turn) for the eastbound SR 116 to the southbound Mirabel Rd (bypass) maneuver.
- The project should address adequate sight distance at Hidden Lake Road.
- There was preference for short (lower than five-foot) retaining walls.
- There was preference for a tiered retaining wall (versus a single/taller wall).

- There were concerns about changes to gas station access.
- There were concerns related to right-of-way acquisition.

Circulation and Review of this Draft Environmental Document

A printed or electronic copy of this Initial Study has been distributed to agencies listed in Chapter 5 of this document. In addition, the availability of this document is also being advertised through direct mail to residences and business within one-quarter mile of the project, to other local agencies and organizations that may have interest in the project, and to those who have requested to be included on the project mailing list, as well as by an advertisement in the newspaper. A public meeting will be held for the project on February 6, 2013 between 6:00 and 8:00 p.m. at the Forestville Elementary School.

Chapter 4 - LIST OF PREPARERS

This document and its related technical studies were prepared under the supervision of Caltrans, District 4. The Project Development Team (PDT) was responsible for oversight of the project and consists of representatives from Caltrans, the Sonoma County Transportation Authority and the County of Sonoma.

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 Agha Bakht, Project Engineer, California Department of Transportation
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Contribution: Preparation of environmental document, Visual Impact Assessment, Farmland Conversion Assessment, and Natural Environment Study. Review of other technical studies.

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Vicki Beard. Tom Origer & Associates. Contribution: Preparation of Historical Resources Compliance Report.

Michael Burns. Kleinfelder. Contribution: Preparation of the Initial Site Assessment.

Chris Sewell. WRECO. Contribution: Preparation of the Storm Water Data Report.

Michael Thill. Illingworth & Rodkin, Inc. Contribution: Preparation of Noise Study Report.

Pamela Wee. Kleinfelder. Contribution: Review of the Initial Site Assessment.

Jeanette Winter. HDR. Contribution: Hazardous Materials Database Search Memorandum

Chapter 5 - DISTRIBUTION LIST

The following agencies, organizations, and individuals received printed or electronic copies of this document. Other agencies, organizations, and individuals on the project mailing list were notified of the availability of this document and public meetings as described in Chapter 3.

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Chapter 6 - REFERENCES

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Appendix A: CEQA Checklist

CEQA Environmental Checklist

04-SON-116

19.2/19.5

1A2410

Dist.-Co.-Rte.

P.M/P.M.

E.A.

This checklist identifies physical, biological, social and economic factors that might be affected by the proposed project. In many cases, background studies performed in connection with the projects indicate no impacts. A NO IMPACT answer in the last column reflects this determination. Where there is a need for clarifying discussion, the discussion is included either following the applicable section of the checklist or is within the body of the environmental document itself. The words "significant" and "significance" used throughout the following checklist are related to CEQA, not NEPA, impacts. The questions in this form are intended to encourage the thoughtful assessment of impacts and do not represent thresholds of significance.

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
I. AESTHETICS: Would the project:				
a) Have a substantial adverse effect on a scenic vista	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
II. AGRICULTURE AND FOREST RESOURCES: In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and the forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

III. AIR QUALITY: Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:

a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non- attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

IV. BIOLOGICAL RESOURCES: Would the project:

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

V. CULTURAL RESOURCES: Would the project:

a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

VI. GEOLOGY AND SOILS: Would the project:

a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

VII. GREENHOUSE GAS EMISSIONS: Would the project:

- a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?
- b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

An assessment of the greenhouse gas emissions and climate change is included in the body of environmental document. While Caltrans has included this good faith effort in order to provide the public and decision-makers as much information as possible about the project, it is Caltrans determination that in the absence of further regulatory or scientific information related to GHG emissions and CEQA significance, it is too speculative to make a significance determination regarding the project's direct and indirect impact with respect to climate change. Caltrans does remain firmly committed to implementing measures to help reduce the potential effects of the project. These measures are outlined in the body of the environmental document.

VIII. HAZARDS AND HAZARDOUS MATERIALS: Would the project:

- a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?
- b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?
- c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

IX. HYDROLOGY AND WATER QUALITY: Would the project:

a) Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
j) Inundation by seiche, tsunami, or mudflow	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

X. LAND USE AND PLANNING: Would the project:

a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

XI. MINERAL RESOURCES: Would the project:

a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

XII. NOISE: Would the project result in:

a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

XIII. POPULATION AND HOUSING: Would the project:

a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

XIV. PUBLIC SERVICES:

a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
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XV. RECREATION:

- a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?
- b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

XVI. TRANSPORTATION/TRAFFIC: Would the project:

- a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?
- b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?
- c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?
- d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?
- e) Result in inadequate emergency access?
- f) Conflict with adopted policies, plans or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?

XVII. UTILITIES AND SERVICE SYSTEMS: Would the project:

- a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?
- b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Comply with federal, state, and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

XVIII. MANDATORY FINDINGS OF SIGNIFICANCE

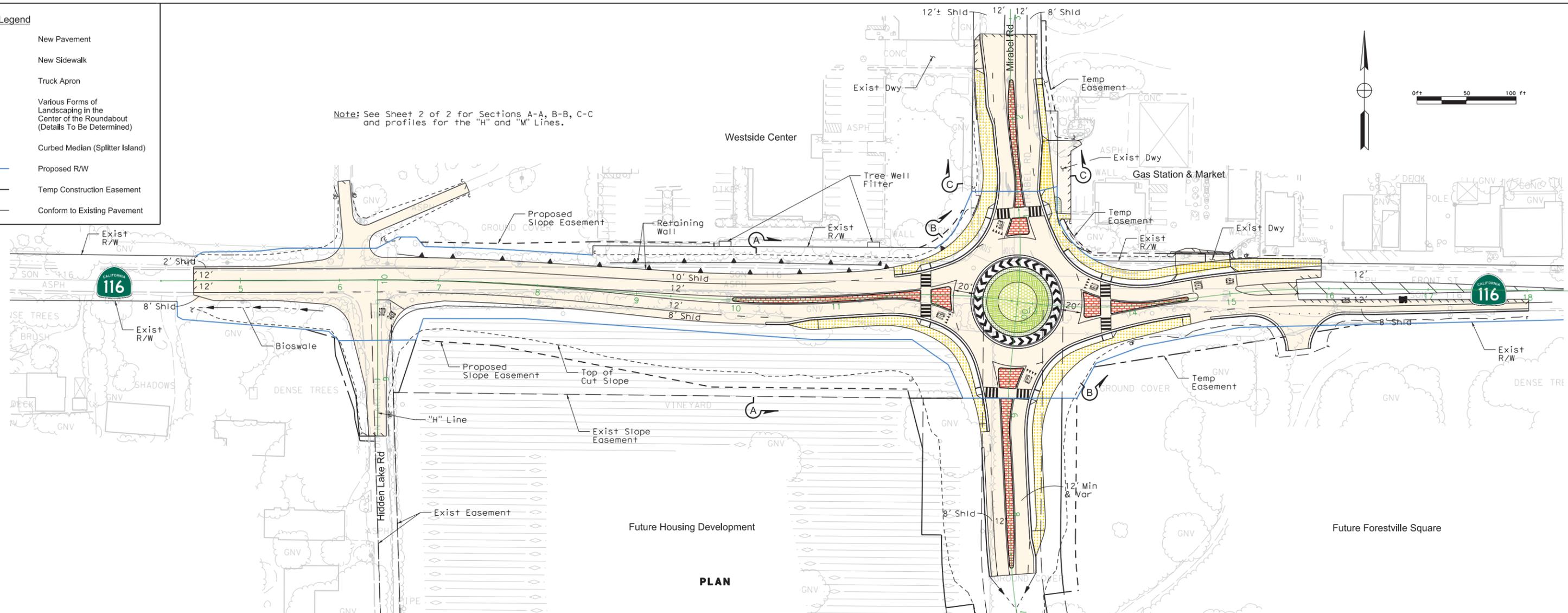
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Appendix B: Project Plans, Cross Sections, and Profiles

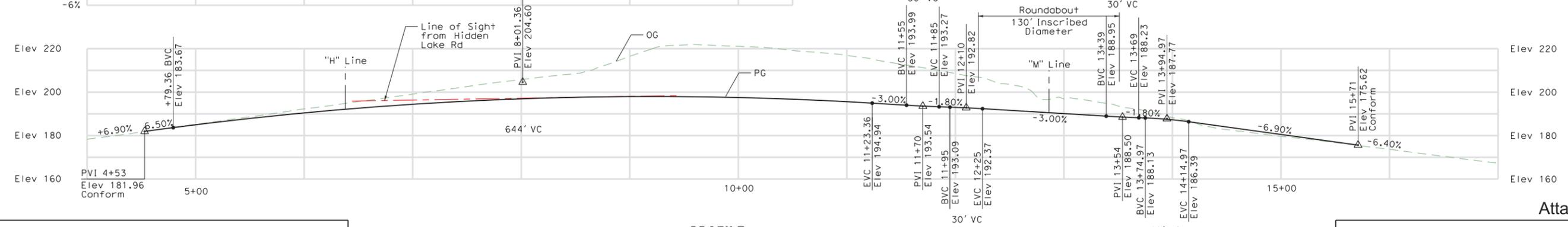
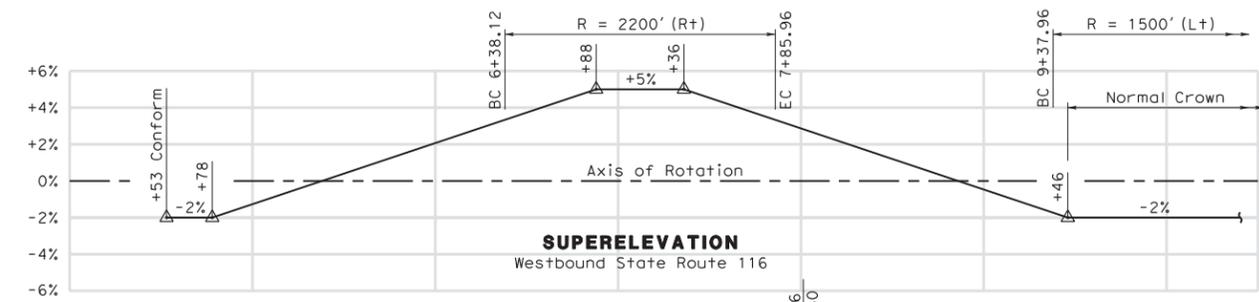
Legend

-  New Pavement
-  New Sidewalk
-  Truck Apron
-  Various Forms of Landscaping in the Center of the Roundabout (Details To Be Determined)
-  Curbed Median (Splitter Island)
-  Proposed R/W
-  Temp Construction Easement
-  Conform to Existing Pavement

Note: See Sheet 2 of 2 for Sections A-A, B-B, C-C and profiles for the "H" and "M" Lines.



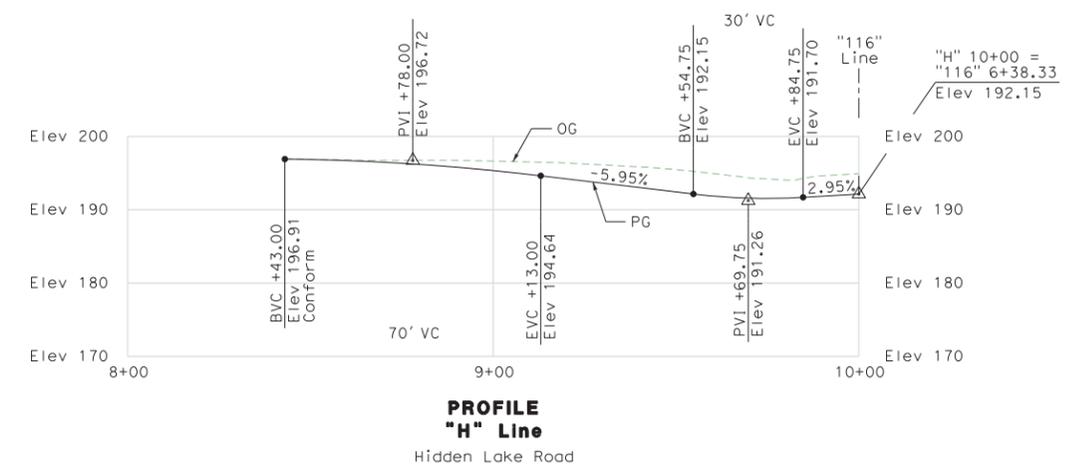
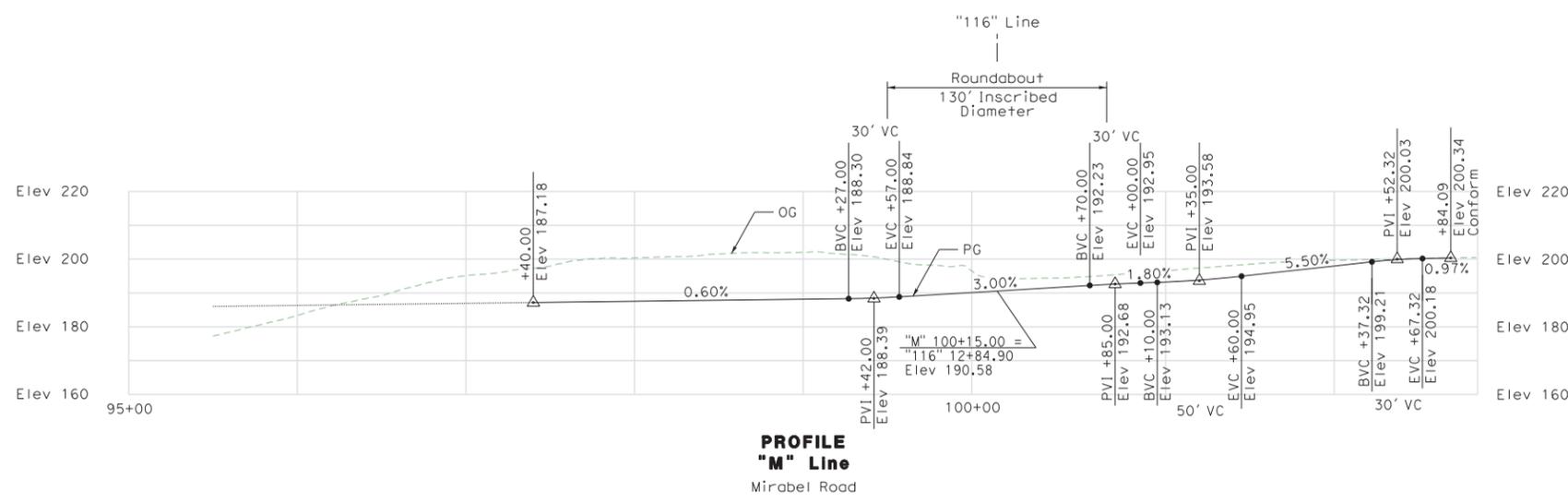
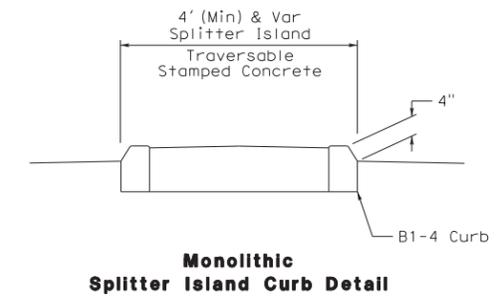
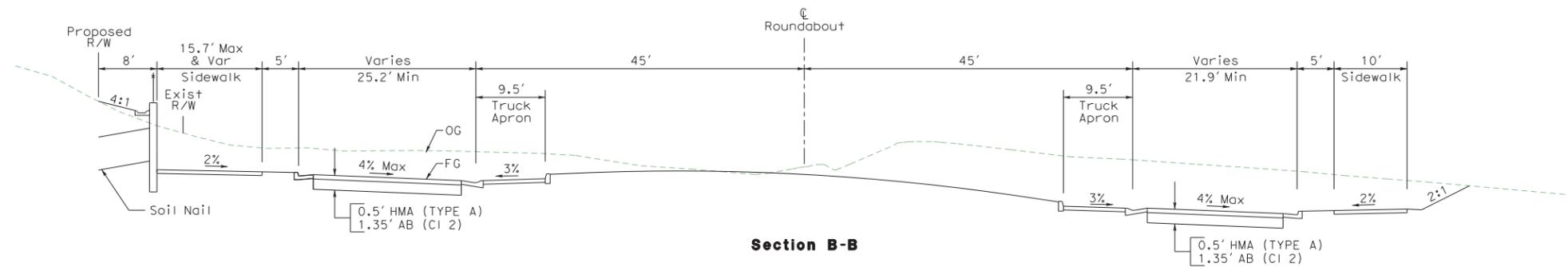
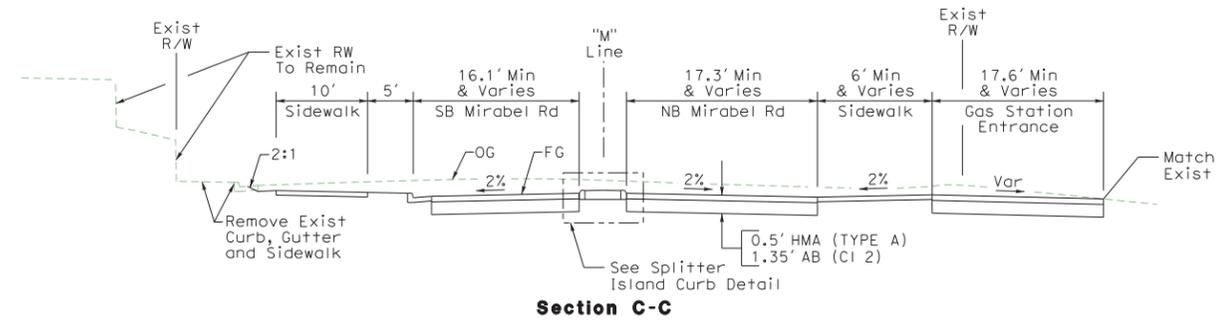
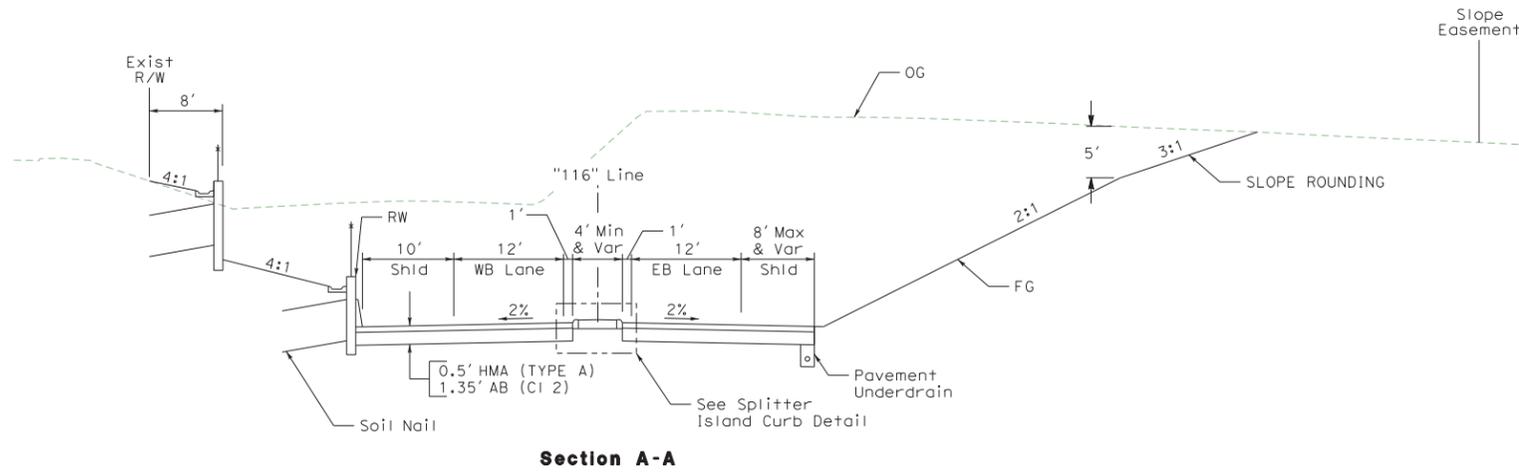
PLAN



Attachment A1



Roundabout Alternative
Plan, Profiles & Cross Sections
Sheet 1 of 2
September 2012



Appendix C: Construction Sequencing Plans

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
 CONSULTANT FUNCTIONAL SUPERVISOR: ADRIAN A. GUNDERSON
 CALCULATED/DESIGNED BY: S. PATEL
 CHECKED BY: B. STEWART
 REVISED BY: IK
 DATE REVISED: 04/16/12

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Son	116	19.2/19.5		

REGISTERED CIVIL ENGINEER DATE _____
 PLANS APPROVAL DATE _____

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

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 SUITE 475
 WALNUT CREEK, CA 94596

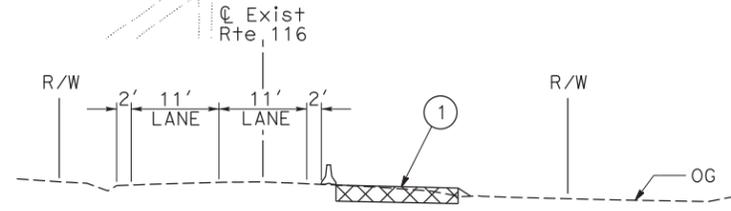
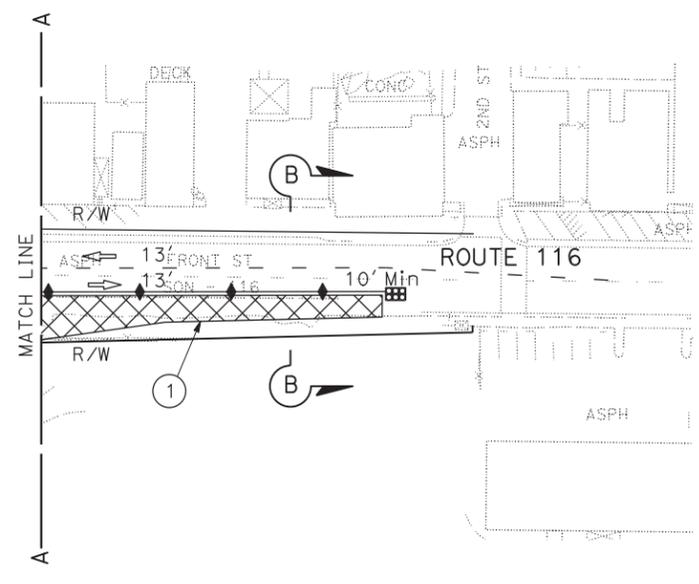
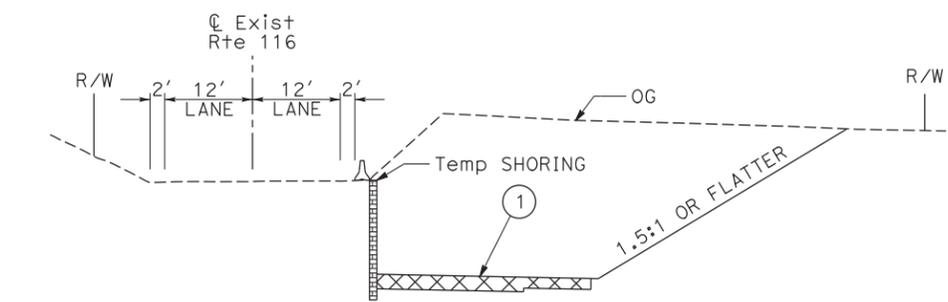
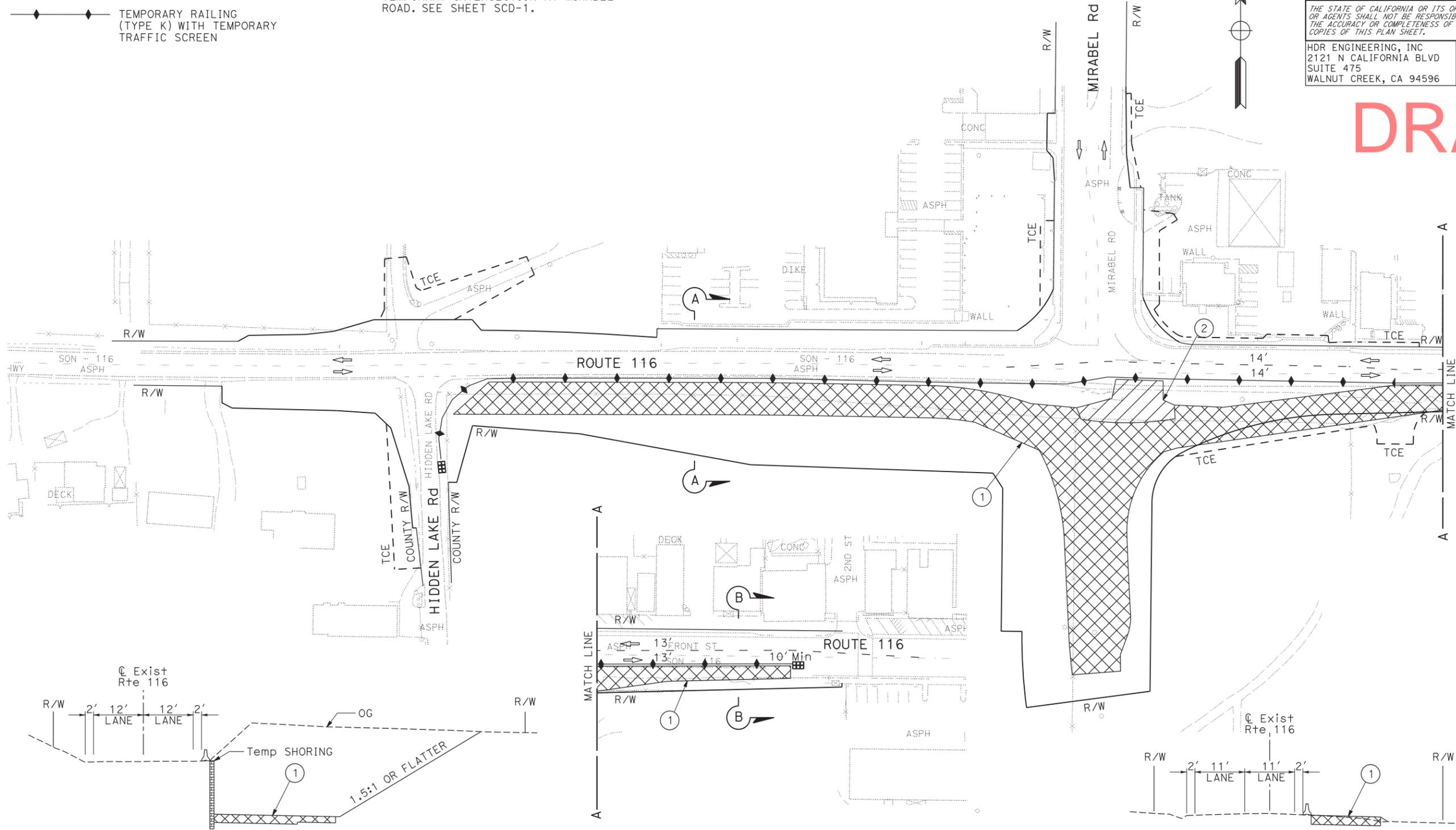
COUNTY OF SONOMA DTPW
 2300 COUNTY CENTER DRIVE
 SUITE B100
 SANTA ROSA, CA 95403

- LEGEND:**
- WORK TO BE DONE THIS STAGE
 - WORK TO BE DONE THIS STAGE
 - TEMPORARY RAILING (TYPE K) WITH TEMPORARY TRAFFIC SCREEN

- STAGE 1 CONSTRUCTION ITEMS:**
- 1 CONSTRUCT SOUTH PORTION OF ROUTE 116 AND SOUTH LEG OF MIRABEL ROAD.
 - 2 CONSTRUCT TEMPORARY PAVEMENT FOR TEMPORARY INTERSECTION AT MIRABEL ROAD. SEE SHEET SCD-1.

STAGE 1 TRAFFIC NOTES:

- TRAFFIC TO REMAIN ON EXISTING ROUTE 116 AND EXISTING MIRABEL ROAD.



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STAGE CONSTRUCTION (STAGE 1)

SCALE: 1" = 50'

SC-1

APPROVED FOR STAGE CONSTRUCTION WORK ONLY

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
 CONSULTANT FUNCTIONAL SUPERVISOR: ADRIAN A. GUNDERSON
 CALCULATED-DESIGNED BY: S. PATEL
 CHECKED BY: B. STEWART
 REVISED BY: IK
 DATE REVISED: 04/16/12

STAGE 2 CONSTRUCTION ITEMS:
 ① CONSTRUCT TEMPORARY DETOUR FOR HIDDEN LAKE ROAD.

STAGE 2 TRAFFIC NOTES:
 - TRAFFIC TO REMAIN ON EXISTING ROUTE 116 AND EXISTING MIRABEL ROAD.
 - TRAFFIC CONTROL TO DIRECT TRAFFIC FROM HIDDEN LAKE ROAD.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Son	116	19.2/19.5		

REGISTERED CIVIL ENGINEER DATE _____
 PLANS APPROVAL DATE _____

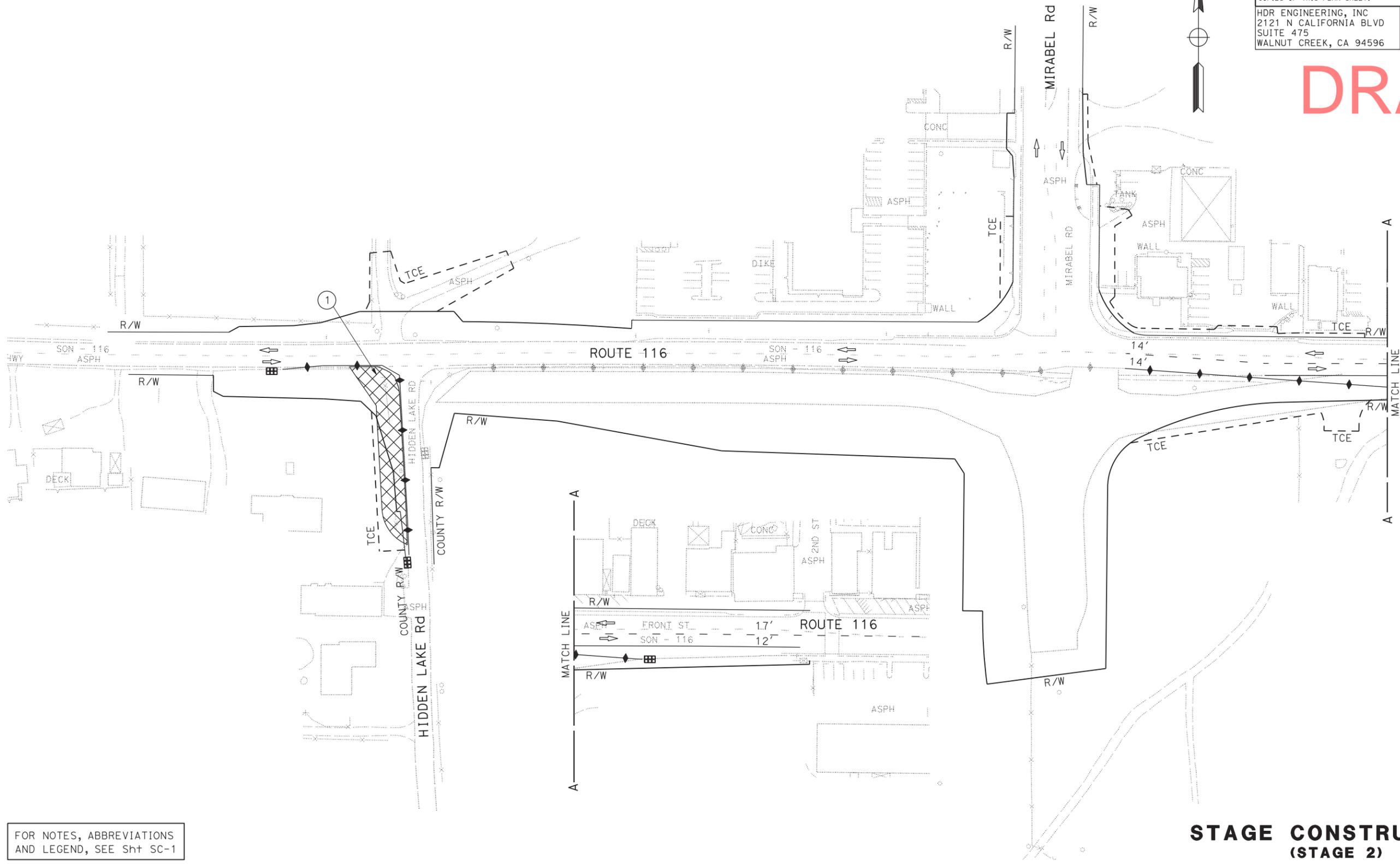
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COUNTY OF SONOMA DTPW
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 SUITE B100
 SANTA ROSA, CA 95403



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FOR NOTES, ABBREVIATIONS AND LEGEND, SEE Sht SC-1

STAGE CONSTRUCTION (STAGE 2)

SCALE: 1" = 50'

SC-2

APPROVED FOR STAGE CONSTRUCTION WORK ONLY

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Son	116	19.2/19.5		

REGISTERED CIVIL ENGINEER DATE _____

PLANS APPROVAL DATE _____

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COUNTY OF SONOMA DTPW
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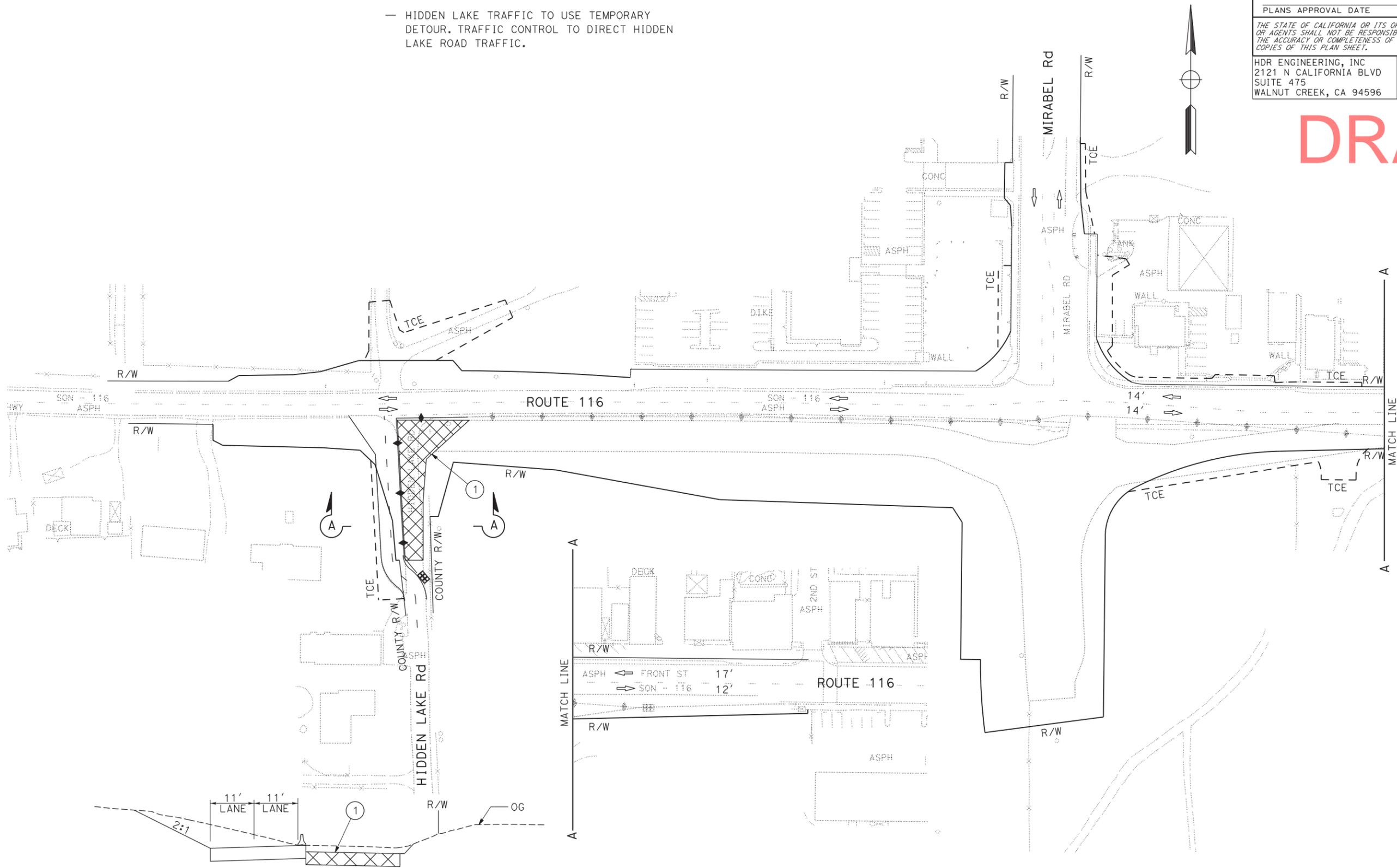


STAGE 3 CONSTRUCTION ITEMS:

- 1 CONSTRUCT HIDDEN LAKE ROAD.

STAGE 3 TRAFFIC NOTES:

- TRAFFIC TO REMAIN ON EXISTING ROUTE 116 AND EXISTING MIRABEL ROAD.
- HIDDEN LAKE TRAFFIC TO USE TEMPORARY DETOUR. TRAFFIC CONTROL TO DIRECT HIDDEN LAKE ROAD TRAFFIC.



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FOR NOTES, ABBREVIATIONS AND LEGEND, SEE Sht SC-1

SECTION A-A

APPROVED FOR STAGE CONSTRUCTION WORK ONLY

STAGE CONSTRUCTION (STAGE 3)

SCALE: 1" = 50'

SC-3

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
 S. PATEL
 B. STEWART
 ADRIAN A. GUNDERSON
 IK
 04/16/12

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Son	116	19.2/19.5		

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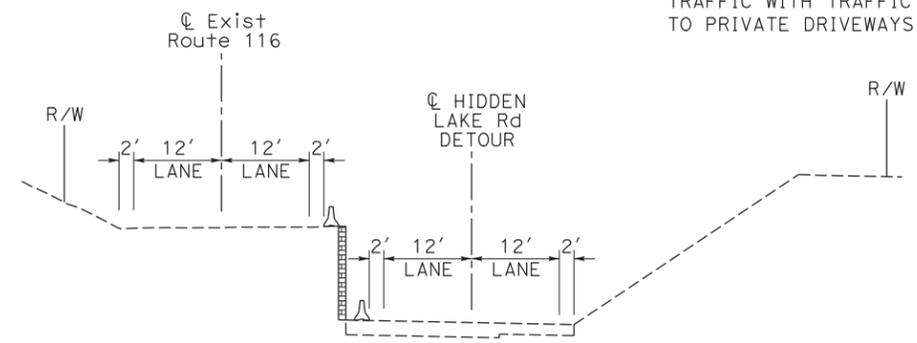
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STAGE 4 CONSTRUCTION ITEMS:

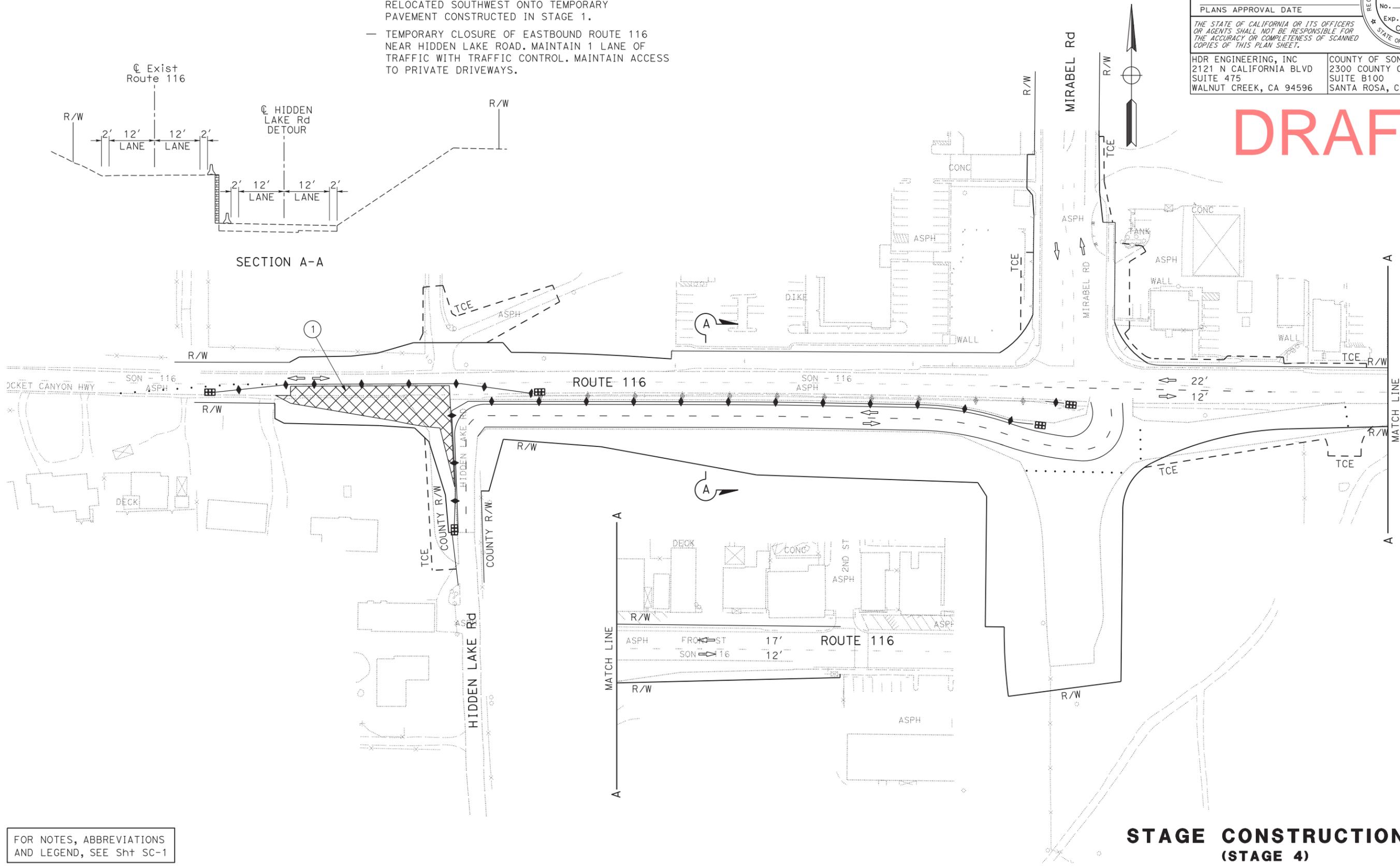
- 1 CONSTRUCT WEST TIE IN OF TEMPORARY DETOUR.

STAGE 4 TRAFFIC NOTES:

- HIDDEN LAKE TRAFFIC ON TEMPORARY DETOUR.
- ROUTE 116/HIDDEN LAKE ROAD INTERSECTION RELOCATED SOUTHWEST ONTO TEMPORARY PAVEMENT CONSTRUCTED IN STAGE 1.
- TEMPORARY CLOSURE OF EASTBOUND ROUTE 116 NEAR HIDDEN LAKE ROAD. MAINTAIN 1 LANE OF TRAFFIC WITH TRAFFIC CONTROL. MAINTAIN ACCESS TO PRIVATE DRIVEWAYS.



SECTION A-A



FOR NOTES, ABBREVIATIONS AND LEGEND, SEE Sht SC-1

STAGE CONSTRUCTION (STAGE 4)

SCALE: 1" = 50'

SC-4

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04	Son	116	19.2/19.5		

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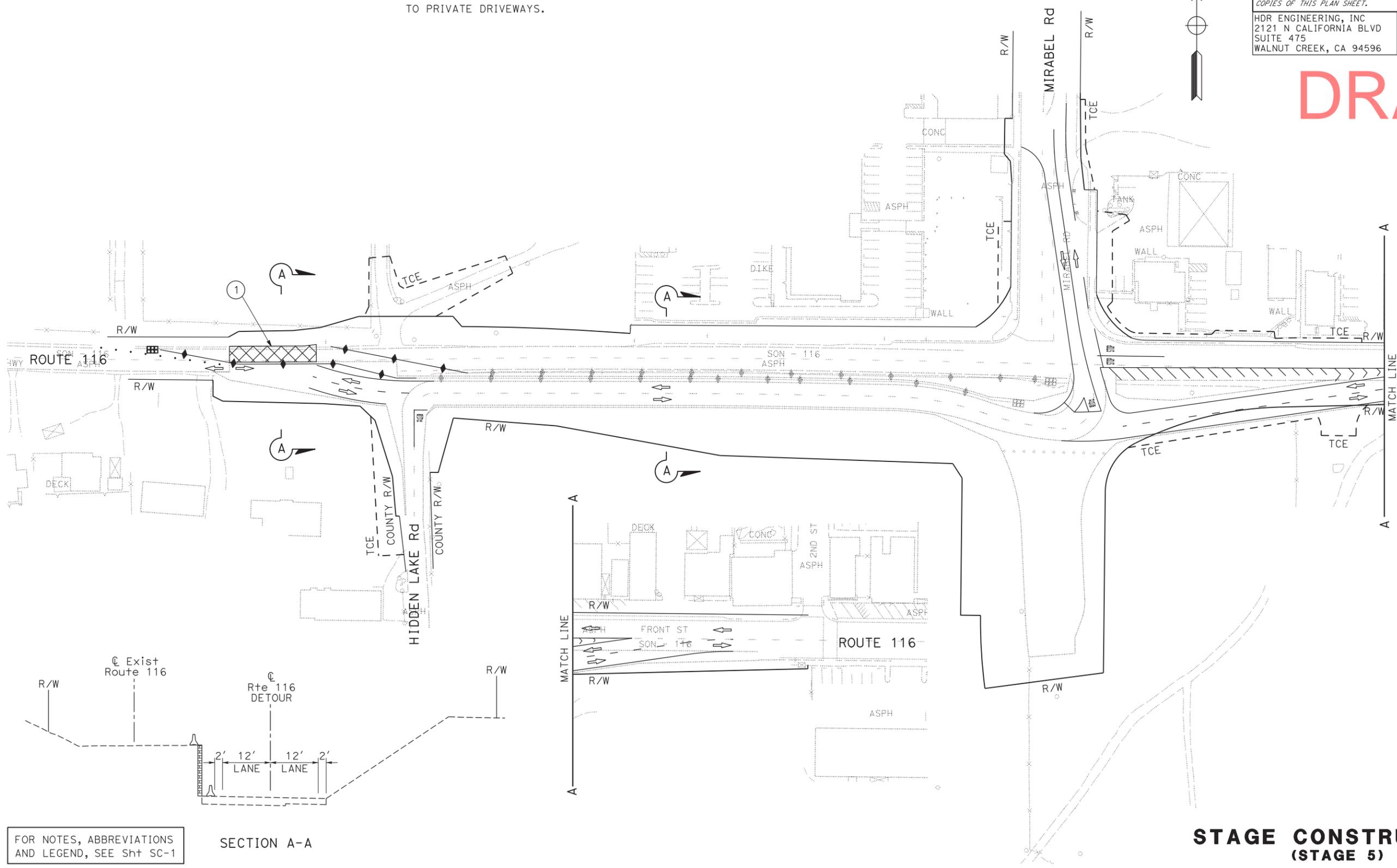
STAGE 5 CONSTRUCTION ITEMS:

- ① CONSTRUCT NORTHWEST TIE IN OF ROUTE 116.

STAGE 5 TRAFFIC NOTES:

- TRAFFIC ON TEMPORARY DETOUR.
- TEMPORARY CLOSURE OF WESTBOUND ROUTE 116 NEAR HIDDEN LAKE ROAD. MAINTAIN 1 LANE OF TRAFFIC WITH TRAFFIC CONTROL. MAINTAIN ACCESS TO PRIVATE DRIVEWAYS.

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	CONSULTANT FUNCTIONAL SUPERVISOR	DESIGNED BY	REVISOR	DATE
Caltrans	ADRIAN A. GUNDERSON	S. PATEL	IK	04/16/12
		B. STEWART		



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SECTION A-A

APPROVED FOR STAGE CONSTRUCTION WORK ONLY

STAGE CONSTRUCTION (STAGE 5)

SCALE: 1" = 50'

SC-5

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STAGE 6 CONSTRUCTION ITEMS:

- ① CONSTRUCT PRIVATE DRIVEWAYS.

STAGE 6 TRAFFIC NOTES:

- TRAFFIC ON TEMPORARY DETOUR.
- MAINTAIN ACCESS TO PRIVATE DRIVEWAYS.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Son	116	19.2/19.5		

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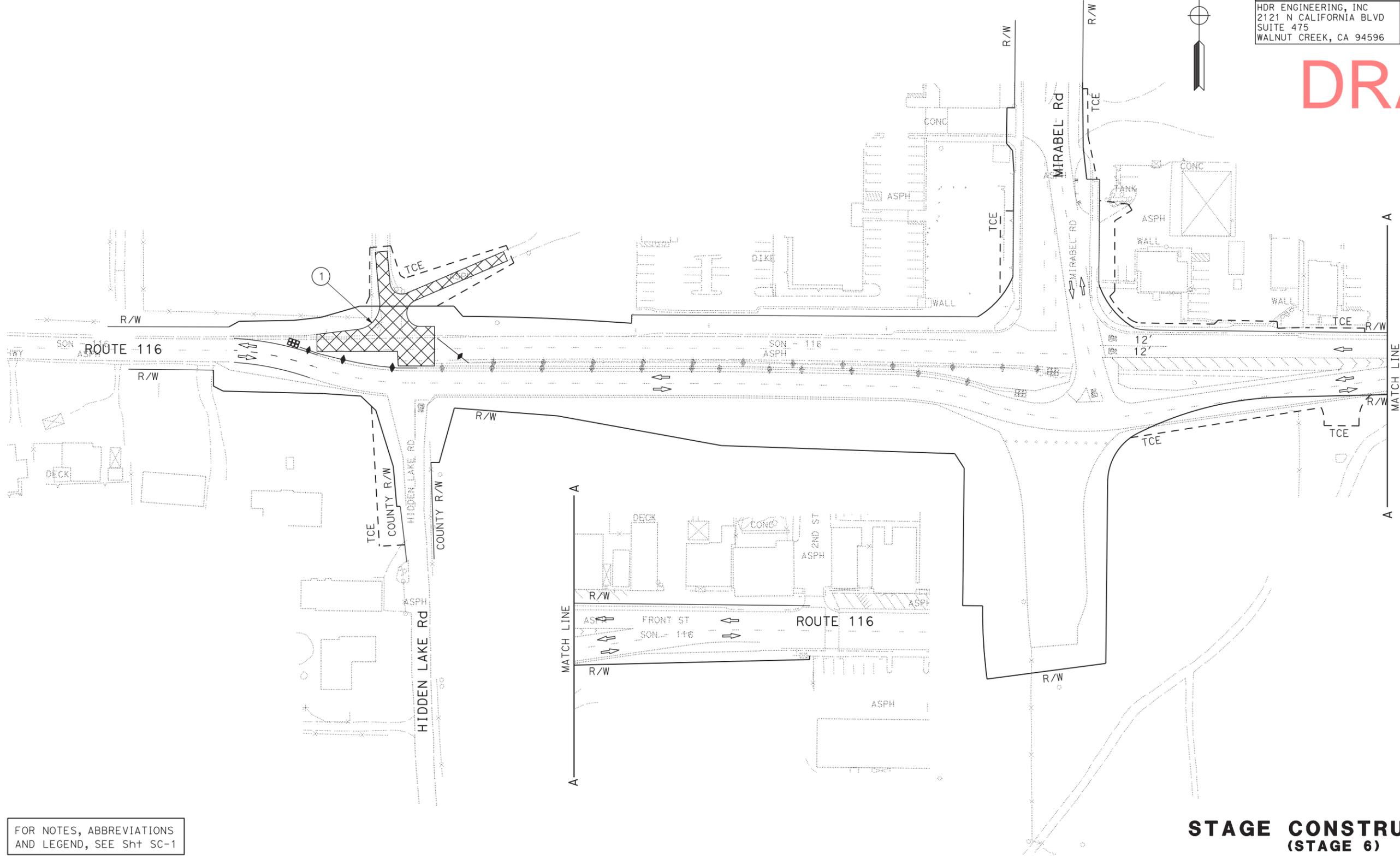
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APPROVED FOR STAGE CONSTRUCTION WORK ONLY

STAGE CONSTRUCTION (STAGE 6)

SCALE: 1" = 50'

SC-6

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STAGE 7 CONSTRUCTION ITEMS:

- 1 CONSTRUCT NORTHWEST QUADRANT OF ROUNDABOUT AND THE NORTH SIDE OF ROUTE 116.

STAGE 7 TRAFFIC NOTES:

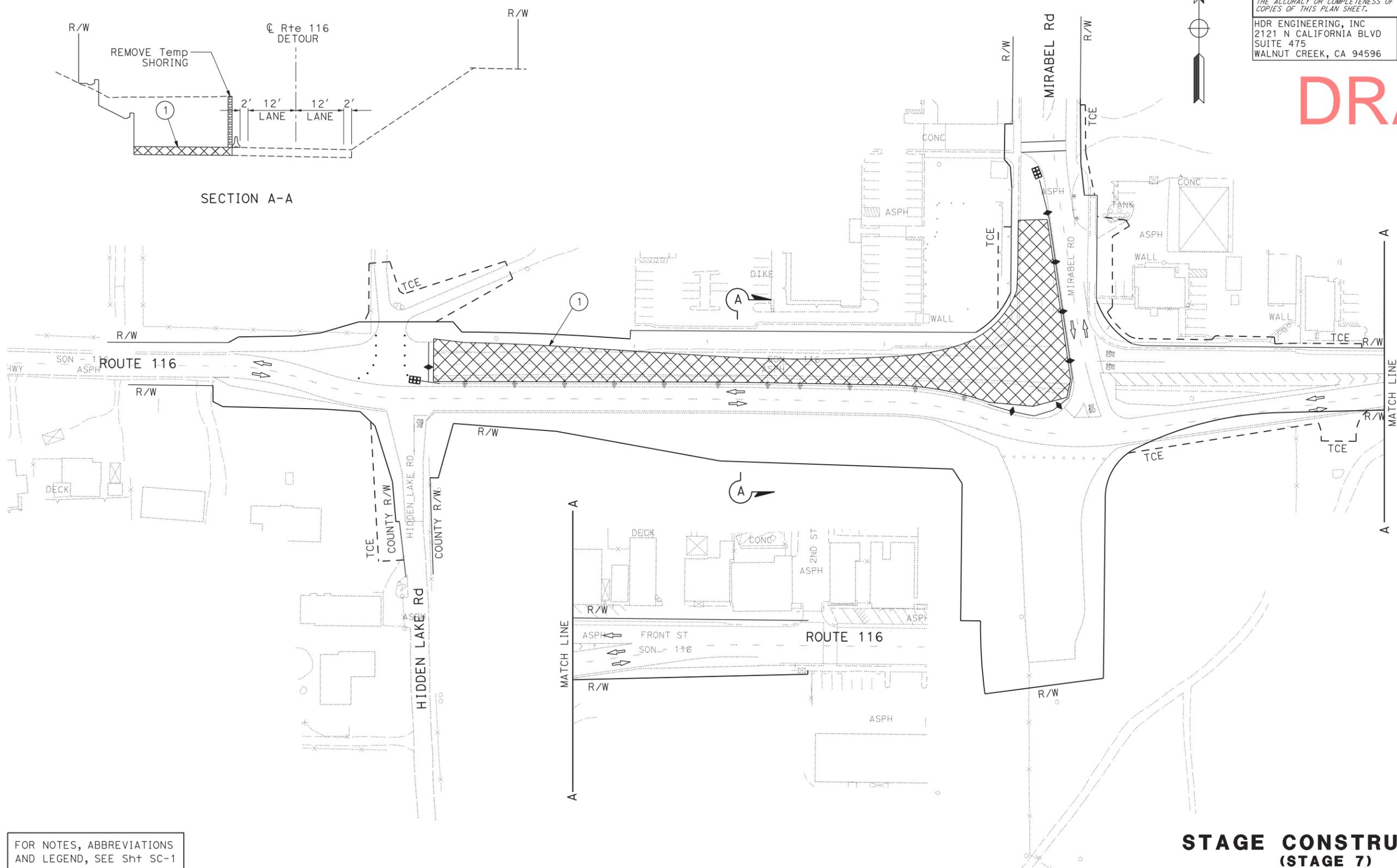
- TRAFFIC ON TEMPORARY DETOUR.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Son	116	19.2/19.5		

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STAGE CONSTRUCTION (STAGE 7)

SCALE: 1" = 50'

SC-7

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STAGE 8 CONSTRUCTION ITEMS:

- ① CONSTRUCT SHOPPING CENTER DRIVEWAY.
- ② CONSTRUCT EAST TIE IN OF ROUTE 116 AND GAS STATION DRIVEWAY.

STAGE 8 TRAFFIC NOTES:

- TRAFFIC ON TEMPORARY DETOUR.
- MAINTAIN 1-LANE OF TRAFFIC ON MIRABEL ROAD WITH TRAFFIC CONTROL DURING CONSTRUCTION OF SHOPPING CENTER DRIVEWAY.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Son	116	19.2/19.5		

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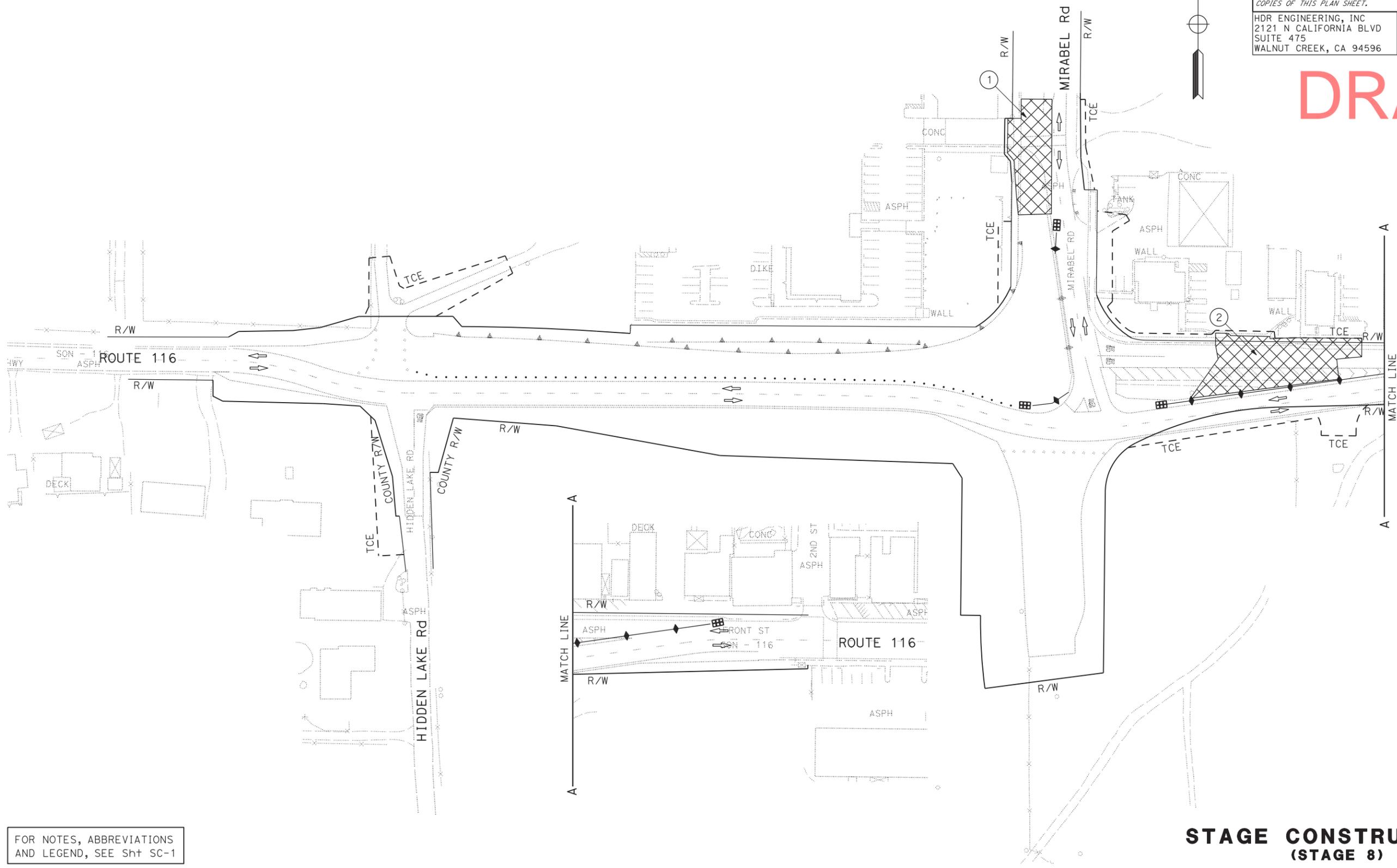
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APPROVED FOR STAGE CONSTRUCTION WORK ONLY

STAGE CONSTRUCTION (STAGE 8)

SCALE: 1" = 50'

SC-8

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STAGE 9 CONSTRUCTION ITEMS:

- ① CONSTRUCT GAS STATION DRIVEWAY.

STAGE 9 TRAFFIC NOTES:

- TEMPORARY INTERSECTION RELOCATED WEST.
- TRAFFIC ON TEMPORARY DETOUR.
- TRAFFIC TO ACCESS GAS STATION FROM DRIVEWAY ON ROUTE 116.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Son	116	19.2/19.5		

REGISTERED CIVIL ENGINEER DATE _____
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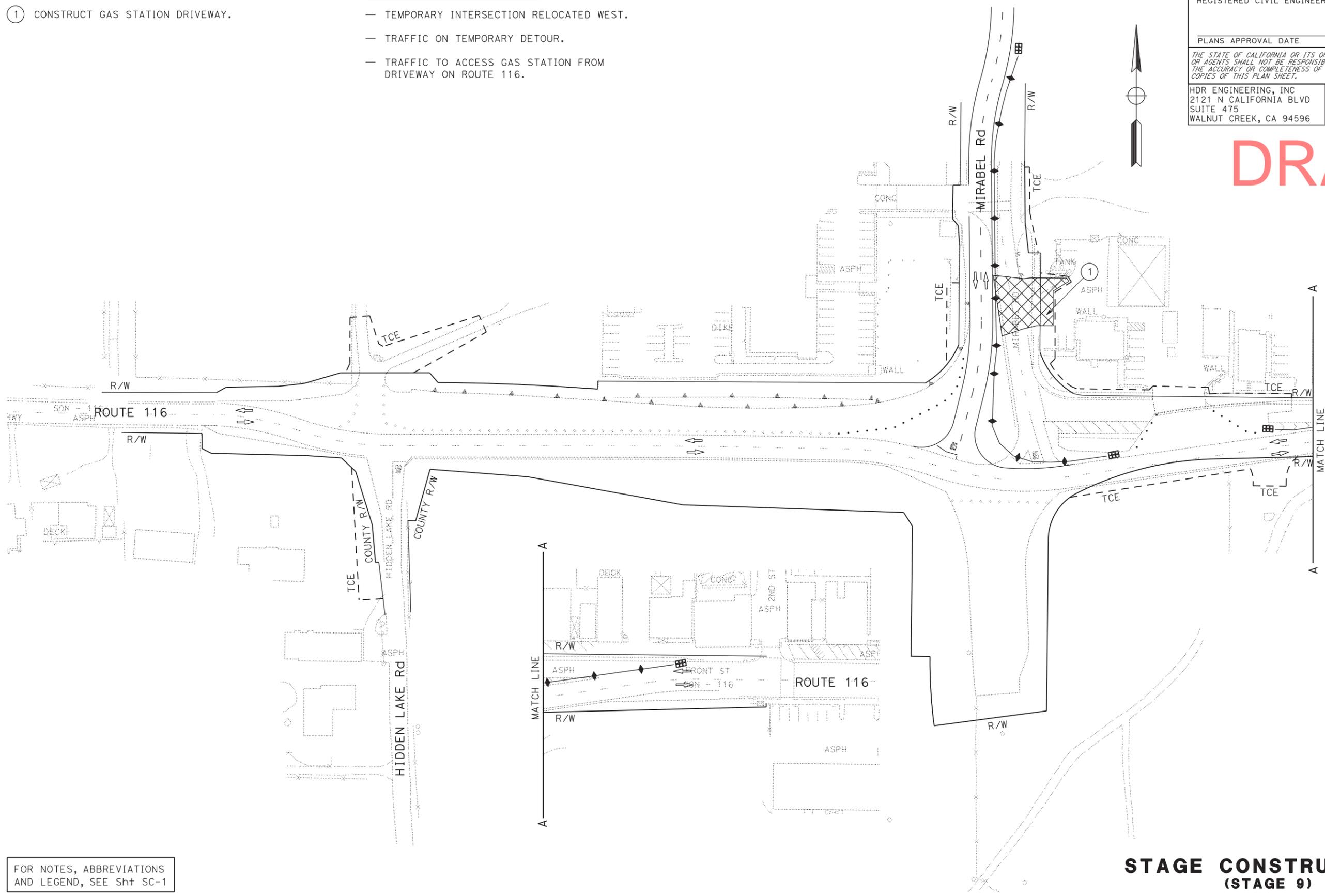
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STAGE CONSTRUCTION (STAGE 9)

SCALE: 1" = 50'

SC-9

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- STAGE 10 CONSTRUCTION ITEMS:**
- CONSTRUCT NORTHEAST QUADRANT OF ROUNDABOUT, INCLUDING SIDEWALK AND CURB & GUTTER.
 - CONSTRUCT NORTHEAST TIE IN OF MIRABEL ROAD, INCLUDING SIDEWALK AND CURB & GUTTER.

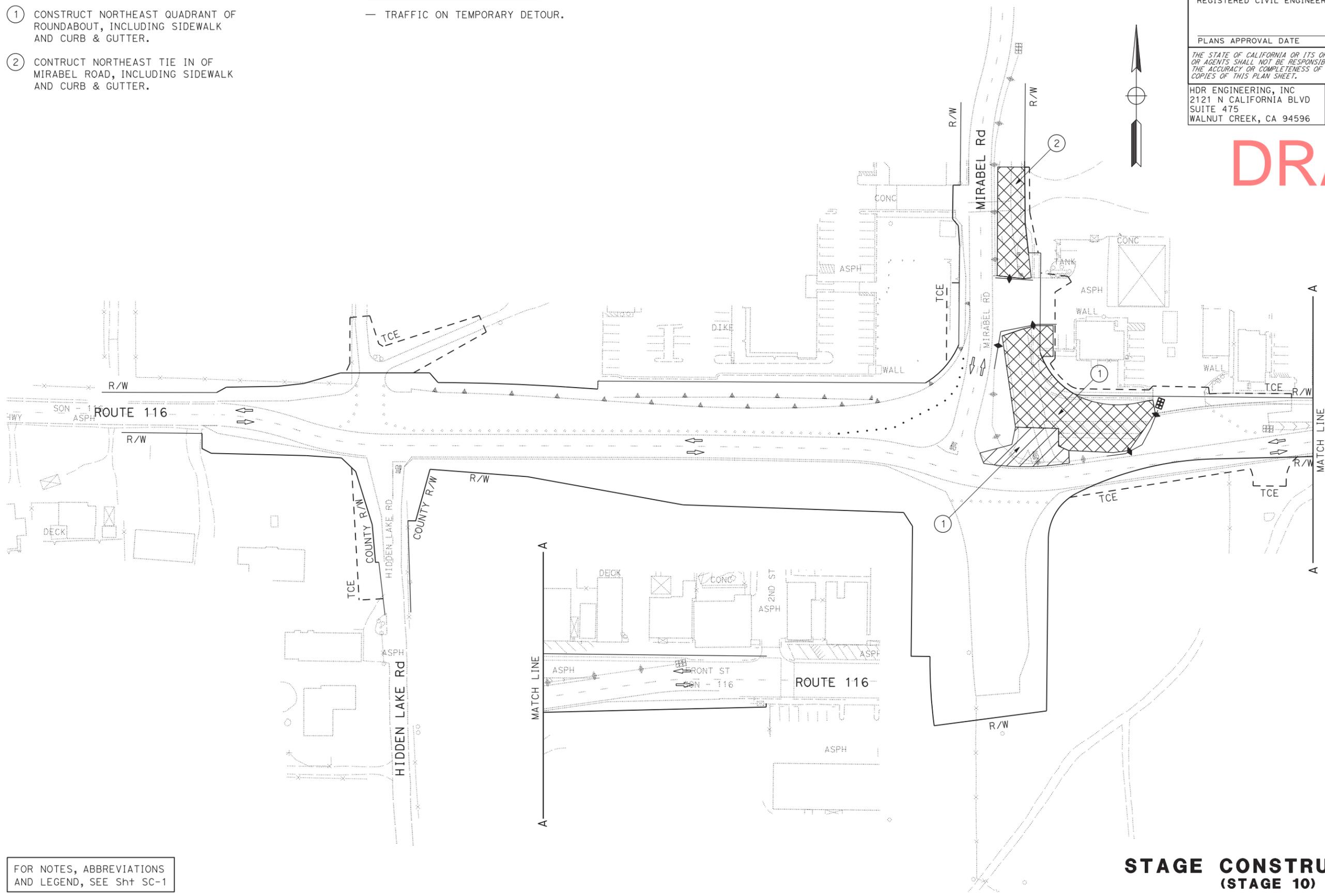
STAGE 10 TRAFFIC NOTES:
 - TRAFFIC ON TEMPORARY DETOUR.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
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STAGE CONSTRUCTION (STAGE 10)

SCALE: 1" = 50'

SC-10

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 CHECKED BY: B. STEWART
 REVISED BY: IK
 DATE REVISED: 04/16/12

STAGE 11 CONSTRUCTION ITEMS:

- ① CONSTRUCT SIDEWALK, CURB & GUTTER AND NECESSARY GRADING.
- ② CONSTRUCT SPITTER ISLANDS ON SOUTH LEG OF MIRABEL ROAD.
- ③ REMOVE TEMPORARY PAVEMENT.

STAGE 11 TRAFFIC NOTES:

- SHIFT TRAFFIC TO CENTER OF ROUTE 116 AND MIRABEL ROAD.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Son	116	19.2/19.5		

REGISTERED CIVIL ENGINEER DATE _____

PLANS APPROVAL DATE _____

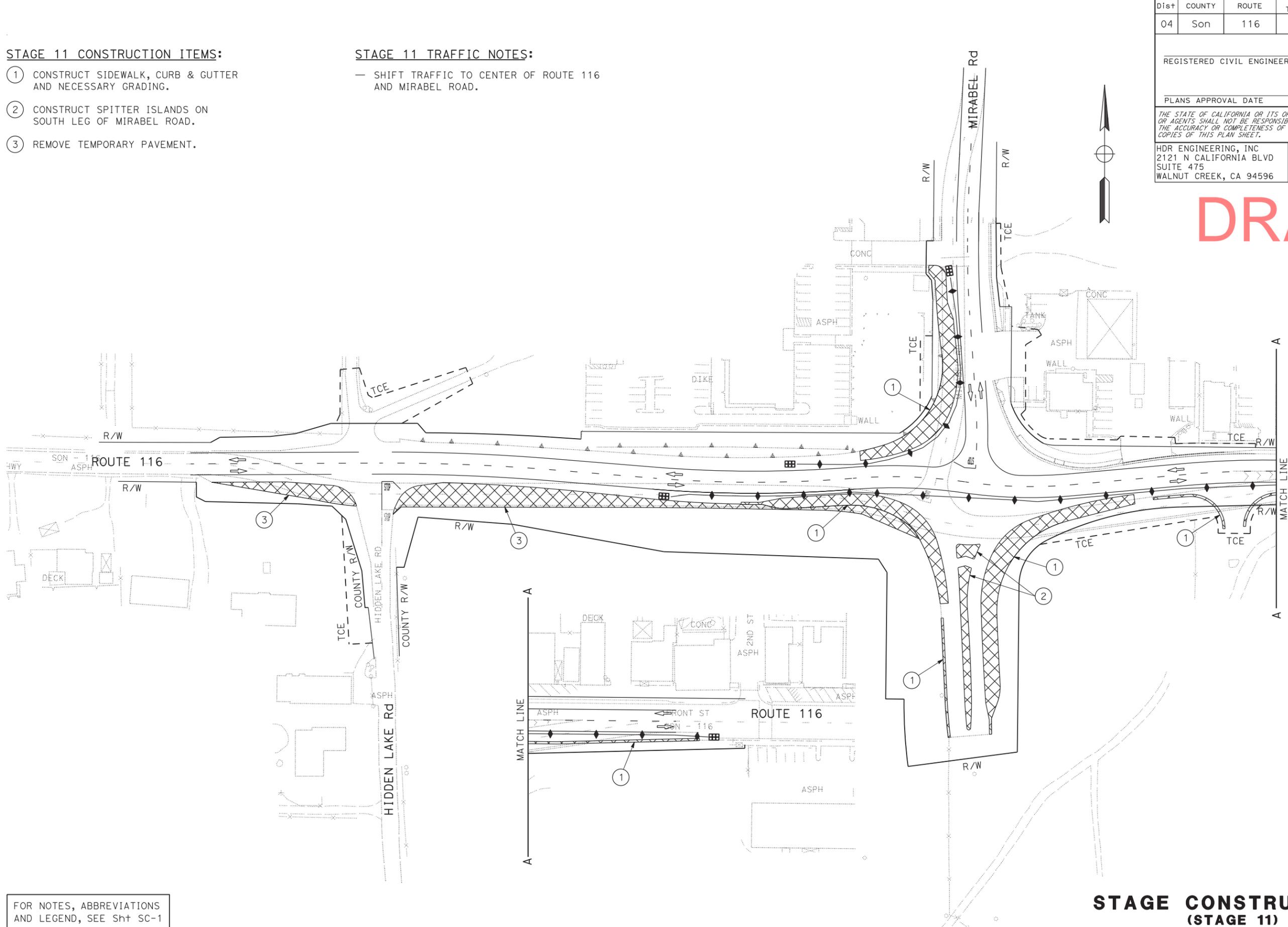
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STAGE CONSTRUCTION (STAGE 11)

SCALE: 1" = 50'

SC-11

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Son	116	19.2/19.5		

REGISTERED CIVIL ENGINEER	DATE
PLANS APPROVAL DATE	

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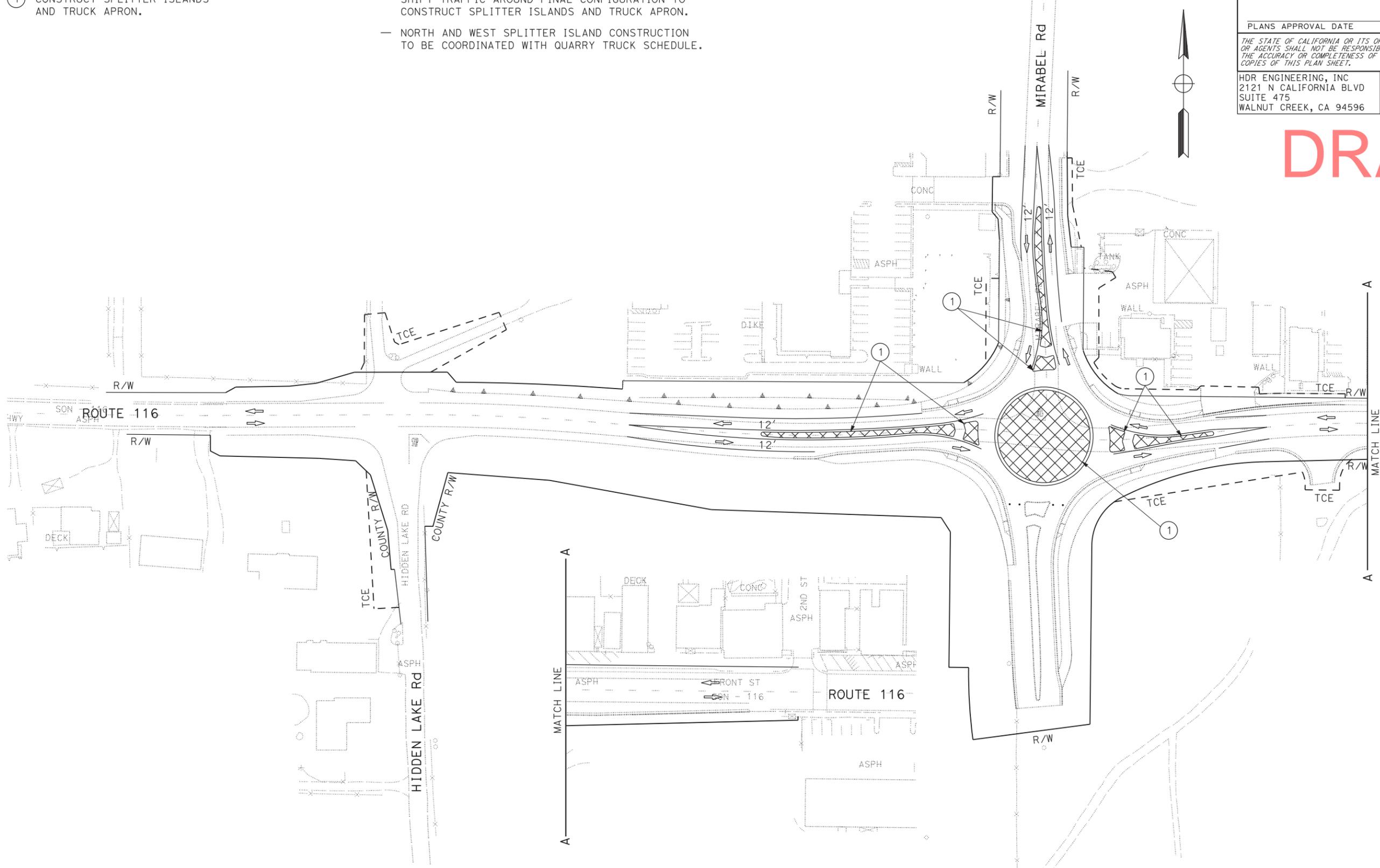


STAGE 12 CONSTRUCTION ITEMS:

- ① CONSTRUCT SPLITTER ISLANDS AND TRUCK APRON.

STAGE 12 TRAFFIC NOTES:

- SHIFT TRAFFIC AROUND FINAL CONFIGURATION TO CONSTRUCT SPLITTER ISLANDS AND TRUCK APRON.
- NORTH AND WEST SPLITTER ISLAND CONSTRUCTION TO BE COORDINATED WITH QUARRY TRUCK SCHEDULE.



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STAGE CONSTRUCTION (STAGE 12)

SCALE: 1" = 50'

SC-12

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STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	ADRIAN A. GUNDERSON	S. PATEL	REVISOR	IK
CONSULTANT FUNCTIONAL SUPERVISOR	CHECKED BY	B. STEWART	DATE REVISED	04/13/12
DESIGNED BY				



Appendix D: Title VI Policy Statement

STATE OF CALIFORNIA—BUSINESS, TRANSPORTATION AND HOUSING AGENCY

EDMUND G. BROWN Jr., Governor

DEPARTMENT OF TRANSPORTATION

OFFICE OF THE DIRECTOR
P.O. BOX 942873, MS-49
SACRAMENTO, CA 94273-0001
PHONE (916) 654-5266
FAX (916) 654-6608
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March 16, 2012

NON-DISCRIMINATION POLICY STATEMENT

The California Department of Transportation, under Title VI of the Civil Rights Act of 1964 and related statutes, ensures that no person in the State of California shall, on the grounds of race, color, national origin, sex, disability, religion, sexual orientation, or age, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity it administers.

For information or guidance on how to file a complaint based on the grounds of race, color, national origin, sex, disability, religion, sexual orientation, or age, please visit the following web page: http://www.dot.ca.gov/hq/bep/title_vi/t6_violated.htm.

Additionally, if you need this information in an alternate format, such as in Braille or in a language other than English, please contact Mario Solis, Manager, Title VI and Americans with Disabilities Act Program, California Department of Transportation, 1823 14th Street, MS-79, Sacramento, CA 95811. Phone: (916) 324-1353, TTY 711, fax (916) 324-1869, or via email: mario_solis@dot.ca.gov.

A handwritten signature in blue ink that reads "Malcolm Dougherty".

MALCOLM DOUGHERTY
Acting Director

"Caltrans improves mobility across California"

Appendix E: United States Department of Agriculture Form AD 1006

U.S. Department of Agriculture

FARMLAND CONVERSION IMPACT RATING

PART I (To be completed by Federal Agency)		Date Of Land Evaluation Request 8/2/12			
Name Of Project SR 116 at Mirabel Road Intersection Improvement		Federal Agency Involved Federal Highway Administration/Caltrans			
Proposed Land Use Roadway		County And State Sonoma County, CA			
PART II (To be completed by NRCS)		Date Request Received By NRCS 8/2/12			
Does the site contain prime, unique, statewide or local important farmland? (If no, the FPPA does not apply -- do not complete additional parts of this form).		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Acres Irrigated 78,265	Average Farm Size 155
Major Crop(s) Wine grape, milk, livestock, poultry	Farmable Land In Govt. Jurisdiction Acres: 11,973 % 4	Amount Of Farmland As Defined In FPPA Acres: 160,339 % 16			
Name Of Land Evaluation System Used CA Storie Index	Name Of Local Site Assessment System N/A	Date Land Evaluation Returned By NRCS 8/20/12			
PART III (To be completed by Federal Agency)		Alternative Site Rating			
		Site A	Site B	Site C	Site D
A. Total Acres To Be Converted Directly		1.8			
B. Total Acres To Be Converted Indirectly		0.3			
C. Total Acres In Site		2.1	0.0	0.0	0.0
PART IV (To be completed by NRCS) Land Evaluation Information					
A. Total Acres Prime And Unique Farmland		1.4			
B. Total Acres Statewide And Local Important Farmland		0.7			
C. Percentage Of Farmland In County Or Local Govt. Unit To Be Converted		0.0			
D. Percentage Of Farmland In Govt. Jurisdiction With Same Or Higher Relative Value					
PART V (To be completed by NRCS) Land Evaluation Criterion Relative Value Of Farmland To Be Converted (Scale of 0 to 100 Points)		63	0	0	0
PART VI (To be completed by Federal Agency) Site Assessment Criteria (These criteria are explained in 7 CFR 658.5(b))		Maximum Points			
1. Area In Nonurban Use		15	13		
2. Perimeter In Nonurban Use		10	7		
3. Percent Of Site Being Famed		20	13		
4. Protection Provided By State And Local Government		20	0		
5. Distance From Urban Builtup Area		0	0		
6. Distance To Urban Support Services		0	0		
7. Size Of Present Farm Unit Compared To Average		10	0		
8. Creation Of Nonfarmable Farmland		25	15		
9. Availability Of Fam Support Services		5	5		
10. On-Farm Investments		20	13		
11. Effects Of Conversion On Farm Support Services		25	0		
12. Compatibility With Existing Agricultural Use		10	0		
TOTAL SITE ASSESSMENT POINTS		160	66	0	0
PART VII (To be completed by Federal Agency)					
Relative Value Of Farmland (From Part V)		100	63	0	0
Total Site Assessment (From Part VI above or a local site assessment)		160	66	0	0
TOTAL POINTS (Total of above 2 lines)		260	129	0	0

Site Selected: A Date Of Selection Was A Local Site Assessment Used? Yes No

Reason For Selection: No alternative sites are possible since the project involves improving an existing intersection and improving sight distance of an existing roadway. Because Site A alternative has a less than significant impact to farmland (total score of 129), the project need not be halted to protect farmland resources.

(See Instructions on reverse side)

Form AD-1006 (10-83)

This form was electronically produced by National Production Services Staff

Appendix F: Preliminary Landscape Concepts Developed by the Citizens' Committee

NOTE: Preliminary landscape concepts are provided for information only and have not been approved by Caltrans. Final landscape concepts would be required to comply with Department Standards and Policies.







Appendix G: Aerial Views



Source: Sonoma County, 2007

Aerial Overview



Source: Sonoma County, 2007

▲ = Approximate
Project Limits

Aerial View Intersection Improvement Area

Appendix H: Species Potentially Present in the Project Region

Common Name	Scientific Name	Status	General Habitat Description	Habitat Present/ Absent	Rationale
PLANTS					
Baker's larkspur	<i>Delphinium bakeri</i>	FE SE CNPS 1B.1	Coastal scrub, grasslands. Historically known from grassy areas along fencelines. Sonoma Co occurrence extirpated. Only known extant site occurs in Marin Co on NW facing slope along Salmon Cr, on decomposed shale. 90-305 m. Blooms Mar-May.	A	Requires strong coastally influenced habitat that is absent from the BSA.
Baker's manzanita	<i>Arctostaphylos bakeri ssp. bakeri</i>	SR CNPS 1B.1	Broadleafed upland forest, chaparral. Often on serpentine. 75-300 m. Blooms Feb-Apr.	A	No broadleafed upland forest or chaparral present. No serpentine soils present.
Baker's navarretia	<i>Navarretia leucocephala ssp. bakeri</i>	CNPS 1B.1	Cismontane woodland, meadows and seeps, vernal pools, valley and foothill grassland, lower montane coniferous forest. Vernal pools and swales; adobe or alkaline soils. 5-950M. Blooms Apr-Jul.	A	No wetlands present. Not seen during surveys.
bristly sedge	<i>Carex comosa</i>	CNPS 2.1	Marshes & swamps, lake margins, wet places. -5-1005 m. Blooms May-Sept.	A	No wetlands present. Not seen during surveys.
brownish beaked-rush	<i>Rhynchospora capitellata</i>	CNPS 2.2	Lower montane coniferous forest, meadows & seeps, marshes & swamps, upper montane coniferous forest/mesic sites. Occurs nearby in Pitkin Marsh 455-2000 m. Blooms Jul-Aug.	A	Not found during plant surveys and is not known to occur in BSA.
Burke's goldfields	<i>Lasthenia burkei</i>	FE SE CNPS 1B.1	Vernal pools & swales, meadows & seeps. 15-580m. Blooms Apr-Jun.	A	No suitable vernal pool habitat present within the BSA.
California beaked-rush	<i>Rhynchospora californica</i>	CNPS 1B.1	Bogs & fens, marshes & swamps, lower montane coniferous forest, meadows & seeps. Freshwater seeps & open marshy areas. 45-1000 m. Blooms May-Jul.	A	Not found during plant surveys and is not known to occur in BSA.

Common Name	Scientific Name	Status	General Habitat Description	Habitat Present/Absent	Rationale
Crystal Springs lessingia	<i>Lessingia arachnoidea</i>	CNPS 1B.2	Coastal sage scrub, valley & foothill grassland, cismontane woodland, grassy slopes on serpentine; sometimes on roadsides. 60-200 m. Blooms Jul-Oct.	A	Serpentine soils not present within the BSA or project vicinity.
fragrant fritillary	<i>Fritillaria liliacea</i>	CNPS 1B.2	Coastal scrub, valley & foothill grassland, coastal prairie. Often on serpentine; various soils reported though usually clay, in grassland. 3-410 m. Blooms Feb-Apr.	A	Serpentine soils not present within the BSA or project vicinity.
golden larkspur	<i>Delphinium luteum</i>	FE SR CNPS 1B.1	Chaparral, coastal prairie, coastal scrub on N. facing, rocky slopes. 0-100 m. Blooms Mar-May.	A	No chaparral, coastal prairie or coastal scrub present.
Greene's narrow-leaved daisy	<i>Erigeron greenei</i>	CNPS 1B.2	Chaparral. Serpentine & volcanic substrates, generally in shrubby vegetation. 75-1060m. Blooms May-Sept.	A	No chaparral present.
holly-leaved ceanothus	<i>Ceanothus purpureus</i>	CNPS 1B.2	Chaparral on rocky, volcanic slopes. 120-640 m. Blooms Feb-Jun.	A	No chaparral present and lack of volcanic soils.
Napa false indigo	<i>Amorpha californica var. napensis</i>	CNPS 1B.2	Broadleafed upland forest, chaparral, cismontane woodland. Openings in forest or woodland or in chaparral. 150-2000m. Blooms Apr-Jul.	A	No broadleafed upland forest, chaparral, or cismontane woodland present.
North coast semaphore grass	<i>Pleuropogon hooverianus</i>	ST CNPS 1B.1	Broadleafed upland forest, meadows & seeps, north coast coniferous forest. Wet grassy, usually shady areas, sometimes freshwater marsh; associated with forest environments. 10-1150 m. Blooms Apr-Aug.	A	Not found during plant surveys and is not known to occur in BSA.
Pennell's bird's-beak	<i>Cordylanthus tenuis ssp. capillaris</i>	FE SR CNPS 1B.2	Closed-cone coniferous forest, chaparral. In open or disturbed areas on serpentine w/in forest or chaparral. 45-305 m. Blooms Jun-Sept.	A	No closed-cone coniferous forest or chaparral present. No serpentine present.
Pitkin Marsh Indian paintbrush	<i>Castilleja uliginosa</i>	SE CNPS 1A	Freshwater marsh. Last known remaining plant died 1987. 60 m. Blooms Jun-Jul.	A	No wetlands present. Not found during plant surveys and is not known to occur in BSA.
Pitkin Marsh lily	<i>Lilium pardalinum ssp. pitkinense</i>	FE SE CNPS 1B.1	Cismontane woodland, meadows & seeps, freshwater marsh on saturated sandy soils w/ grasses & shrubs. 35-65 m. Blooms Jun-Jul.	A	No wetlands present. Not found during plant surveys and is not known to occur in BSA.

Common Name	Scientific Name	Status	General Habitat Description	Habitat Present/Absent	Rationale
Rincon Ridge ceanothus	<i>Ceanothus confusus</i>	CNPS 1B.1	Closed-cone coniferous forest, chaparral, cismontane woodland. Known from volcanic or serpentine soils, dry shrubby slopes. 75-1065 m. Blooms Feb-Jun.	A	No closed-cone coniferous forest, chaparral or cismontane woodland present. Soil types on site dissimilar to those listed for species.
Rincon Ridge manzanita	<i>Arctostaphylos stanfordiana</i> ssp. <i>decumbens</i>	CNPS 1B.1	Chaparral. Highly restricted-endemic to red rhyolites in Sonoma Co. 75-370 m. Blooms Feb-Apr.	A	No chaparral present. No red rhyolite soils.
round-headed beaked-rush	<i>Rhynchospora globularis</i> var. <i>globularis</i>	CNPS 2.1	Freshwater marshes & swamps. 45-60 m. Blooms Jul-Aug.	A	No wetlands present. Not found during plant surveys and is not known to occur in BSA.
saline clover	<i>Trifolium depauperatum</i> var. <i>hydrophilum</i>	CNPS 1B.2	Marshes & swamps, valley & foothill grassland, vernal pools, mesic, alkaline sites. 0-300 m. Blooms Apr-Jun.	A	Not found during plant surveys and is not known to occur in BSA.
seaside tarplant	<i>Hemizonia congesta</i> ssp. <i>congesta</i>	CNPS 1B.2	Coastal scrub, valley and foothill grassland. Grassy valleys and hills, often in fallow fields. 25-200M. Blooms Apr-Nov.	A	Not found during plant surveys and is not known to occur in BSA.
Sebastopol meadowfoam	<i>Limnanthes vinculans</i>	FE SE CNPS 1B.1	Vernal pools, wet meadows & seeps, marshy areas in valley oak savannah & valley & foothill grassland, poorly drained soils (clays & sandy loams). 15-305 m. Blooms Apr-May.	A	The BSA contains no vernal pools. Plant was not found during plant surveys and is not known to occur in BSA.
serpentine daisy	<i>Erigeron serpentinus</i>	CNPS 1B.3	Seeps in chaparral, serpentine shrubland. 60-670 m. Blooms May-Aug.	A	No chaparral or serpentine shrubland present.
Sonoma alopecurus	<i>Alopecurus aequalis</i> var. <i>sonomensis</i>	FE CNPS 1B.1	Freshwater marshes & swamps, riparian scrub. Wet areas, marshes & riparian banks w/ other wetland species. 5-360 m. Blooms May-Jul.	A	No wetlands present. Not found during plant surveys and is not known to occur in BSA.
swamp harebell	<i>Campanula californica</i>	CNPS 1B.2	Bogs & fens, closed cone coniferous forest, coastal prairie, meadows, freshwater marsh, North Coast coniferous forest. Bogs & marshes in a variety of habitats; uncommon where it occurs. 1-504 m. Blooms Jun-Oct.	A	No wetlands present. Not found during plant surveys and is not known to occur in BSA.

Common Name	Scientific Name	Status	General Habitat Description	Habitat Present/Absent	Rationale
The Cedars Manzanita	<i>Arctostaphylos bakeri ssp. sublaevis</i>	SR CNPS 1B.2	Chaparral, closed-cone coniferous forest. Entire species listed State Rare. In serpentine chaparral and Sargent cypress woodland; typically in canyons and on slopes. 275-600m.	A	No chaparral or closed-cone coniferous forest present.
thin-lobed horkelia	<i>Horkelia tenuiloba</i>	CNPS 1B.2	Coastal scrub, chaparral. Sandy soil; mesic openings. 45-500 m. Blooms May-Jul.	A	No coastal scrub or chaparral present.
Thurber's reed grass	<i>Calamagrostis crassiglumis</i>	CNPS 2.1	Coastal scrub, freshwater marsh. Usually in marshy swales surrounded by grassland or coastal scrub. 10-45 m. Blooms May-Jul.	A	Not found during plant surveys and is not known to occur in BSA.
two-fork clover	<i>Trifolium amoenum</i>	FE CNPS 1B.1	Valley & foothill grassland, coastal bluff scrub. Sometimes on serpentine soil, open, sunny sites, swales. Most recently sighted on roadside & eroding cliff face. 5-560m. Blooms Apr-Jun.	A	Plant species is highly susceptible to competition from non-native plants and has been extirpated from much of its range. Not found during plant surveys and is not known to occur in BSA.
Vine Hill ceanothus	<i>Ceanothus foliosus var. vineatus</i>	CNPS 1B.1	Chaparral on sandy, acidic soil. 45-305 m. Blooms Mar-May.	A	No chaparral present and BSA lacks intact acidic marine soils.
Vine Hill clarkia	<i>Clarkia imbricata</i>	FE SE CNPS 1B.1	Chaparral, valley & foothill grassland on acidic, sandy soil. 50-75 m. Blooms Jun-Aug.	A	No chaparral present and BSA lacks intact acidic marine soils.
Vine Hill manzanita	<i>Arctostaphylos densiflora</i>	SE CNPS 1B.1	Chaparral on acid marine sand. 50-120 m. Blooms Feb-Apr.	A	No chaparral present and BSA lacks intact acidic marine soils..
white beaked-rush	<i>Rhynchospora alba</i>	CNPS 2.2	Freshwater marshes & swamps, sphagnum bogs. 60-2040 m. Blooms Jul-Aug.	A	No wetlands present. Not found during plant surveys and is not known to occur in BSA.
white sedge	<i>Carex albida</i>	FE SE CNPS 1B.1	Freshwater marsh, bogs & fens, wet meadows & seeps. 15-90 m. Blooms May-Jul.	A	No wetlands present. Not found during plant surveys and is not known to occur in BSA.

Common Name	Scientific Name	Status	General Habitat Description	Habitat Present/Absent	Rationale
woolly-headed gilia	<i>Gilia capitata ssp. tomentosa</i>	CNPS 1B.1	Coastal bluff scrub. Rocky outcrops on the coast. 15-155m. Blooms May-Jul.	A	No coastal bluff scrub present.
INVERTEBRATES					
California freshwater shrimp	<i>Syncaris pacifica</i>	FE SE	Endemic to Marin, Napa & Sonoma Cos. Low elevation, low gradient streams where riparian cover is moderate to heavy. Shallow pools away from main stream flow. Winter: undercut banks w/ exposed roots. Summer: leafy branches touching water.	A	There are no streams in the project footprint. CFS is known to occur in Green Valley Creek, which is located approximately 0.5 mile west of the western project limits.
Giuliani's dubiraphian riffle beetle	<i>Dubiraphia giulianii</i>	None	Aquatic; found in the slow part of the Russian River. Inhabits rocks & vegetation.	A	The project will not impact the Russian River.
Myrtle's silverspot butterfly	<i>Speyeria zerene myrtleae</i>	FE	Restricted to the foggy, coastal dunes/hills of the Point Reyes peninsula; larval food plant thought to be <i>Viola adunca</i> .	A	The project is outside of the known range for this species. No coastal dunes/hills present.
FISH					
California coastal chinook salmon	<i>Oncorhynchus tshawytscha</i>	FT	Federal listing refers to wild spawned, coastal, spring & fall runs between Redwood Creek, Humboldt Co & Russian River, Sonoma Co.	A	There are no salmonid streams within the project limits. Green Valley Creek is the nearest salmonid bearing stream located 0.5 miles west of the project limits.
Central California Coast coho salmon	<i>Oncorhynchus kisutch</i>	FE SE	Listing includes all naturally spawned populations of coho salmon from Punta Gorda in northern California south to the San Lorenzo River in central California (inclusive). Need cover, cool water & sufficient dissolved oxygen.	A	There are no salmonid streams within the project limits. Green Valley Creek is the nearest salmonid bearing stream located 0.5 miles west of the project limits.

Common Name	Scientific Name	Status	General Habitat Description	Habitat Present/Absent	Rationale
Central California Coastal steelhead	<i>Oncorhynchus mykiss</i>	FT	From Russian River south to Soquel Creek & to, but not including, Pajaro River. Also includes San Francisco & San Pablo Bay basins.	A	There are no salmonid streams within the project limits. Green Valley Creek is a salmonid stream located 0.5 miles west of the project limits.
Russian River tule perch	<i>Hysterocarpus traskii pomo</i>	SSC	Low elevation streams of the Russian River system. Require clear, flowing water w/ abundant cover and deep (> 1m) pool habitat.	A	There are no streams in the project footprint. Green Valley Creek is located 0.5 miles west of the project limits. Tule perch have been observed in Green Valley Creek (CDFG, 2000).
AMPHIBIANS					
California red-legged frog	<i>Rana draytonii</i>	FT SSC	Lowlands & foothills in or near permanent sources of deep water with dense, shrubby, or emergent riparian vegetation. Requires 11-20 weeks of permanent water for larval development. Must have access to aestivation habitat.	A	No breeding habitat or summer holding habitat is present in the BSA.
California tiger salamander (CTS)	<i>Ambystoma californiense</i>	FE ST SSC	Central Valley populations listed as threatened. Santa Barbara & Sonoma county populations listed as endangered. Found associated with long lasting vernal pools or other seasonal water sources for breeding. Need underground refuges, especially ground squirrel burrows.	A	The project area is not within the boundaries of the Santa Rosa Plain or within the known range of CA tiger salamander. The project site lacks necessary vernal pool habitat.
foothill yellow-legged frog	<i>Rana boylei</i>	SSC	Partly shaded, shallow streams & riffles w/ rocky substrate in a variety of habitats. Need at least some cobble-sized substrate for egg-laying & at least 15 weeks to attain metamorphosis.	A	The unknown tributary to Green Valley Creek may provide habitat. However, foothill yellow-legged frogs are highly aquatic and would not move away from the stream corridor into the BSA.

Common Name	Scientific Name	Status	General Habitat Description	Habitat Present/Absent	Rationale
REPTILES					
western pond turtle	<i>Actinemys marmorata</i>	SSC	Associated w/ permanent or nearly permanent water in a wide variety of habitats. Requires basking sites. Nests may be found up to 0.5 km from water.	HP	The BSA could provide upland nesting and aestivation habitat for western pond turtle.
BIRDS					
marbled murrelet	<i>Brachyramphus marmoratus</i>	FT SE	(Nesting). Feeds near-shore; nests inland along coast, from Eureka to Oregon border & from Half Moon Bay to Santa Cruz. Nests in old-growth redwood-dominated forests, up to six miles inland, often in Douglas firs.	A	No old growth forest present. Project is approximately 12 miles inland.
northern spotted owl	<i>Strix occidentalis caurina</i>	FT SSC	Old-growth forests or mixed stands of old-growth & mature trees. Occasionally in younger forests w/patches of big trees. High, multistory canopy dominated by big trees, many trees w/cavities or broken tops woody debris & space under canopy.	A	No forest present. Project is located in developed area.
osprey	<i>Pandion haliaetus</i>	None	(Nesting). Ocean shore, bays, freshwater lakes, and larger streams. Large nests built in tree-tops within 15 miles of good fish-producing body of water.	A	BSA lacks suitable trees for nesting, and no nests were observed during site surveys.
white-tailed kite	<i>Elanus leucurus</i>	Fully Protected	(Nesting). Rolling foothills and valley margins with scattered oaks & river bottomlands or marshes next to deciduous woodland. Open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching.	HP	Oak trees located in or adjacent to the BSA provide suitable nesting habitat, and grasslands in and adjacent to the BSA could provide foraging habitat.
MAMMALS					
American badger	<i>Taxidea taxus</i>	SSC	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Needs sufficient food, friable soils, and open, uncultivated ground. Preys on burrowing rodents. Digs burrows.	A	Limited grassland present in Staging Area 1. However, ground is disturbed by discing and mowing. No badger burrows observed during site visit.

Common Name	Scientific Name	Status	General Habitat Description	Habitat Present/Absent	Rationale
pallid bat	<i>Antrozous pallidus</i>	SSC	Deserts, grasslands, shrublands, woodlands & forests. Most common in open dry habitats w/ rocky areas for roosting. Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	HP	Habitat may be present. Occasionally roosts in hollow trees. Historic occurrence mapped as "Forestville."
Sonoma tree vole	<i>Arborimus pomo</i>	SSC	North coast fog belt from Oregon border to Sonoma Co. In Douglas fir, redwood & montane hardwood-conifer forests. Feeds almost exclusively on Douglas fir needles. Will occasionally take needles of grand fir, hemlock or spruce.	A	No coniferous forest or Douglas fir present

Notes:

Absent [A] - no habitat present and no further work needed. Habitat Present [HP] -habitat is, or may be present. The species may be present. Present [P] - the species is present. Critical Habitat [CH] - project footprint is located within a designated critical habitat unit, but does not necessarily mean that appropriate habitat is present. Status: Federal Endangered (FE); Federal Threatened (FT); Federal Proposed (FP, FPE, FPT); Federal Candidate (FC), Federal Species of Concern (FSC); State Candidate (SC); State Endangered (SE); State Threatened (ST); Fully Protected (FP); State Rare (SR); State Species of Special Concern (SSC); California Native Plant Society (CNPS), etc.

Appendix I: Agency Comments in Response to "Notice of Project to Receive Environmental Review"

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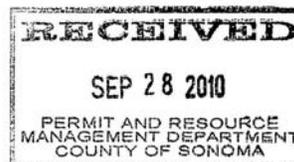


Forestville Fire Protection District
6554 Mirabel Road
P.O. Box 427
Forestville, CA 95436
Phone: (707)887-2212 Fax: (707)887-1862

Fire Chief- Dan G. Northern

September 27, 2010

County of Sonoma
Permit and Resource Management Department
2550 Ventura Ave
Santa Rosa, CA 95403
Attn: Laura Peltz



Dear Ms. Peltz,

I am writing this letter in regards to the State Route 116 at Mirabel Road Intersection Improvement Project.

You have requested that the Forestville Fire District provide you with comments on the potential environmental effects, what permits our agency would require, and any mitigation measures or other conditions your agency would recommend.

The Forestville Fire District is unaware of any environmental effects resulting from the project and will not require any permits for the project however; the District would be remiss in not mentioning the following issues, indirectly and directly related to this project.

As the Chief of the Forestville Fire District I feel it is important to bring following information to the attention of both the County of Sonoma and the State of California as it relates to traffic safety along Hwy 116 within the District. A review of the accident history on Hwy 116, within the Forestville Fire District, over the past several years indicates that there have been over 85 vehicle accidents on Hwy 116 between Guerneville Road and Green Valley Road (west of the town of Forestville). Approximately half of the accidents have occurred between Guerneville Road and the town of Forestville, approximately 4 have occurred in area in which this improvement project will take place and the remainder between the town of Forestville and Green Valley Road. Many of these accidents between Guerneville Road and the town of Forestville were rear end accidents possibly due to a lack of adequate turn lanes in the area. A search of the California Highway Patrol records may shed some additional light on this issue. Additional research should be conducted regarding this important public safety issue.

In regards to the roundabout project the Forestville Fire Station is located just a few hundred feet north of the intersection on Mirabel Road. As the Fire Chief I am concerned that the splitter (median), proposed for Mirabel Road in particular, will create difficulties for Forestville District emergency vehicles responding from the fire station, code 3 (lights and siren) through the roundabout. I am specifically concerned that civilian vehicles that have entered the splitter median portion of the roundabout, as emergency vehicles responding code 3 approach, will pull to the right as required by law and block the proposed 12' roadway between the curb and the splitter median. I am not able to make mitigation recommendations regarding this issue other than to require all Forestville Fire District emergency vehicles responding code 3 reduce their response to code 2 (no lights and siren) as they enter the

P-1

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Forestville Fire Protection District
6554 Mirabel Road
P.O. Box 427
Forestville, CA 95436
Phone: (707)887-2212 Fax: (707)887-1862

Fire Chief- Dan G. Northern

splitter median area and then to increase to code 3 again as they exit the roundabout. Unfortunately this measure will cause delays in emergency response.

The Forestville Fire District would be more than willing to work with you to resolve these concerns.

Respectfully Submitted,

A handwritten signature in black ink, appearing to read "Dan Northern", is written over a horizontal line.

Dan Northern
Fire Chief
Forestville Fire Protection District
6554 Mirabel Road
P.O. Box 427
Forestville, CA 95436
Office: (707) 887-2212
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SONOMA
COUNTY
REGIONAL
PARKS

MARY E. BURNS
DIRECTOR

2300
County Center Drive
Suite 120A
Santa Rosa
CA 95403
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Fax: 707 579-8247

www.sonomacounty.org

MEMORANDUM

DATE: October 7, 2010
TO: Laura Peltz, Environmental Specialist
Sonoma County Permit & Resource Management Department
FROM: Ken Tam, Park Planner II *KI*
SUBJECT: **State Route 116 at Mirabel Road Intersection Improvement Project**

Thank you for the opportunity to review and comment. At this time we do not have any comments on the potential environmental effects of the project. Please keep us informed on any design changes that may affect how the proposed Class I bike path will interface with the roundabout at the intersection of Highway 116 and Mirabel Road. For more information on the proposed Class I bike path alignment, please refer to PLP07-0062.

If you have any questions, please call me at 565-3348.

c: Sonoma County Transportation and Public Works Department: Kevin Howze,
Mitch Simson
Steven Schmitz, Sonoma County Transit, SCBPAC, CBPAC
Sonoma County Regional Parks: Jon Jainga

S:\Planning\Administrative\Responsible Agency and Referral Letters\Thiessen PLP07-0062\Hwy
116 Mirabel Roundabout.doc page 1 of 1

Laura Peltz

From: Steven Schmitz [steven@sctransit.com]
Sent: October 14, 2010 1:25 PM
To: Laura Peltz
Cc: Gary Heflrich; Mitch Simson; Ken Tam
Subject: Comments on 116 & Mirabel Intersection Project

Dear Laura:

On behalf of the Sonoma County Bicycle and Pedestrian Advisory Committee (SCBPAC), thank you for the opportunity to comment on the Notice to Receive Environmental Review for the State Route 116 at Mirabel Road Intersection Improvement Project. The SCBPAC had the opportunity to review the preliminary design for the proposed round-about during their meeting on August 19, 2009.

The preliminary project description indicates that sidewalks for use by both bicyclists and pedestrian will be located on the outside of the round-about in all four quadrants of the intersection. Experienced bicyclists could choose to utilize the round-about with motor vehicles and novice bicyclists would have the option of exiting the roadway to a shared bicycle and pedestrian sidewalk/pathway and cross at the sidewalks.

In the final design of the round-about, attention should be given to the transition from the roadway to the shared sidewalks/pathways. Whenever bicyclists are directed from roadways to shared sidewalks/pathways, curb cuts should be flush with the street to assure that bicyclists are not subjected to problems associated with crossing a vertical lip at a flat angle. Similar curb cuts at each of the crosswalks are also necessary, as well as the installation of appropriate bikeway yield or stop signs at each of the transitions from roadway to sidewalk/pathway and at each of the crosswalks. All curb cuts should be wide enough to accommodate adult tricycles and two-wheel bicycle trailers. The shared sidewalk/pathways should be minimum 10-feet wide and a center line stripe or other treatment is preferred to encourage the segregation of bicyclists and pedestrians.

Also, the final design of the round-about should assume future Class II bicycle lanes approaching from all four quadrants. It is preferable to discontinue Class II bicycle lanes 35 to 65 feet before reaching the round-about, rather than continuing the bicycle lane through the round-about. Where the bicycle lanes end at each of the approaches, 'Share the Road' bicycle caution signs are recommended.

Once again, thank you for the opportunity to comment. Should you have any questions, please feel free to contact me at 585-7516.

Sincerely,

Steven Schmitz, Staff
Sonoma County Bicycle & Pedestrian Advisory Committee

Cc: Gary Heflrich, PRMD
Mitch Simson, TPW
Ken Tam, Regional Parks

Laura Peltz

From: Glenn Lawrence
Sent: October 16, 2010 5:16 PM
To: Laura Peltz
Subject: Hwy 116 at Mirabel RD IIP

Laura Peltz
Environmental Specialist,

Highway 116 at Mirabel Road Roundabout Environmental Review

I will be person of contact for the Sheriff's Office if the need arises and if issues are brought forward. I received the **notice of project to receive environmental review** letter, and from a Law Enforcement perspective I do not see any obvious issues that would be of concern at this point in the process.

Thank you and I will try to keep abreast of the issues related to this project.

Lieutenant Glenn Lawrence
Sonoma County Sheriff's Office
2796 Ventura Avenue
Santa Rosa CA. 95403
(707) 565-6011

Appendix J: List of Acronyms

AB	Assembly Bill
ACOE	U.S. Army Corps of Engineers
ADA	Americans with Disabilities Act
ADL	Aerially deposited lead
APN	Assessor Parcel Number
ARB	California Air Resources Board
AST	aboveground storage tank
BAT/BCT	Best Available Technology/Best Conventional Pollution Control Technology
BMP	Best Management Practice
Caltrans	California Department of Transportation
CDFG	California Department of Fish and Game
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act of 1980
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CNDDDB	California Natural Diversity Data Base
CNPS	California Native Plant Society
CO	carbon monoxide
CO ₂	carbon dioxide
County	County of Sonoma
CRHR	California Register of Historic Resources
CRLF	California red-legged frog
CTP	Comprehensive Transportation Plan
CTS	California tiger salamander
CWA	Clean Water Act
dBA	A-weighted decibel
dBA L _{max}	maximum A-weighted noise level during the measurement period
Department	California Department of Transportation
DSA	disturbed soil area
DTPW	Sonoma County Department of Transportation and Public Works
EDR	Environmental Data Resources, Inc.
EIR	Environmental Impact Report
EP	edge of pavement

EPA	U.S. Environmental Protection Agency
FCCA	Federal Clean Air Act
FESA	Federal Endangered Species Act
FFPD	Forestville Fire Protection District
FHWA	Federal Highway Administration
FPPA	Farmland Protection Policy Act
GHG	greenhouse gas
H ₂ S	hydrogen sulfide
HAS	Hydrologic Sub Area
IPCC	Intergovernmental Panel on Climate Change
IS	Initial Study
Leq	equivalent sound level
LOS	Level of service
MCE	Maximum credible earthquake
MLD	Most Likely Descendant
MND	Mitigated Negative Declaration
mpg	miles per gallon
mph	miles per hour
MTC	Metropolitan Transportation Commission
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NHTSA	National Highway Traffic Safety Administration
NO ₂	nitrogen dioxide
NOAA Fisheries	National Oceanic and Atmospheric Administration's National Marine Fisheries Service
NOC	Notice of Construction
NOCC	Notice of Completion of Construction
NOI	Notice of Intent
NOT	Notice of Termination
NOx	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NSCAPCD	Northern Sonoma County Air Pollution Control District
O ₃	Ozone
OSRC	Opens Space and Resource Conservation

OSTP	Office of Science and Technology Policy
PAL	Project Area Limits
Pb	lead
PDT	Project Development Team
PM	Post mile
PM ₁₀	particulate matter less than 10 micrometers in diameter
PM _{2.5}	particulate matter less than 2.5 micrometers in diameter
PRC	Public Resources Code
PRMD	Sonoma County Permit and Resource Management Department
PS&E	Plans, Specifications & Estimates
RAP	Relocation Assistance Program
RCRA	Resource Conservation and Recovery Act of 1976
REC	Recognized Environmental Condition
Resources Agency	California Natural Resources Agency
ROW	Right of way
RTP	Regional Transportation Plan
RWQCB	Regional Water Quality Control Board
SCTA	Sonoma County Transportation Authority
SHPO	State Historic Preservation Office(r)
SIP	State Implementation Plan
SLPP	State-Local Partnership Program
SO ₂	sulfur dioxide
SO _x	sulfur oxides
SR	State Route
SWMP	Storm Water Management Plan
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TMDLs	Total Maximum Daily Loads
TNAP	Traffic Noise Analysis Protocol
USACE	U.S. Army Corps of Engineers
US EPA	U.S. Environmental Protection Agency
USC	United States Code
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
UST	underground storage tank

VIA	Visual Impact Assessment
VMT	vehicle miles traveled
VOC	volatile organic compound
vpd	vehicles per day
WPCP	Water Pollution Control Plan