

Appendix F Avoidance, Minimization, and/or Mitigation Summary

Table F-1 Avoidance, Minimization, and/or Mitigation Summary

Air Quality
<p>Measure AIR-1: Construction Period Best Management Practices. Short term air quality effects during the proposed project’s construction period will be addressed by Caltrans Special Provision and Standard Specification 14-9.02. Trucks and construction equipment emit hydrocarbons, oxides of nitrogen, carbon monoxide and particulates. Most project-related pollution during construction would consist of wind-blown dust generated by excavation, grading, hauling and various other activities. The effects from these activities would vary from day to day as construction progresses. The Special Provisions and Standard Specifications would include requirements to minimize or eliminate dust during construction through the application of water or dust palliatives.</p>
Traffic/Transportation
<p>Measure TRAFFIC-1: Traffic Management Plan. A Traffic Management Plan shall be implemented during project construction activities to ensure effective flow of automobile, bicycle and pedestrian traffic through the project area.</p>
Noise
<p>Measure NOISE-1: Construction Period Best Management Practices. During project construction, noise from construction activities may intermittently dominate the noise environment in the immediate area of construction. Construction noise is regulated by Caltrans’ Standard Specifications Section 7-1.011, “Sound Control Requirements,” which states that noise levels generated during construction shall comply with applicable local, state and federal regulations, and that all equipment shall be fitted with adequate mufflers according to the manufacturer’s specifications.</p> <p>No project-related adverse or significant noise effects/impacts from construction are anticipated because construction would be conducted in accordance with Caltrans’ Standard Specifications Section 7-1.011 and applicable local noise standards and ordinances. Construction noise would be short-term and intermittent. Further, implementing the following best management practices would minimize temporary noise effects resulting from construction activities:</p> <ul style="list-style-type: none"> • All equipment will have sound control devices that are no less effective than those provided on the original equipment. No equipment will have an un-muffled exhaust. • As directed by Caltrans, the construction contractor will implement appropriate additional noise minimization measures, including changing the location of stationary construction equipment, turning off idling equipment, avoiding construction activities during night and weekends, notifying adjacent residents in advance of construction work, and installing acoustic barriers around stationary construction noise sources.
Utilities/Emergency Services
<p>Measure UTIL-1: Coordination with Utility Companies. To address temporary utility disruptions associated with project implementation, measures would be implemented that include coordination in advance with utility companies and property owners during the development of construction plans and specifications.</p>
Visual/Aesthetics
<p>Mitigation Measure VISUAL-1: Reduce Shoulder Widths. To minimize any decline in visual character and quality due to increased scale and dominance of the proposed roadway as seen by motorists, reduce paved area of shoulders to 4 feet with an additional 4 feet of unpaved shoulder on non-bridge portions of the project, where feasible.</p>
<p>Mitigation Measure VISUAL-2: Bridge Design Enhancement Measures. To increase project visual character compatibility and enhance project visual unity and quality, bridge design enhancement measures (such as column, bent, and parapet design) shall be developed during the Design Phase. Surface texture treatments will be applied to reduce brightness and the potential for concrete reflectivity. The goal of bridge design will be to make the structure as visually thin and as light and streamlined as possible, with a curving alignment that blends into the local geography.</p>

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<p>Mitigation Measure VISUAL-3: Re-vegetation of Bridge Embankments. Re-vegetation of graded bridge embankments in the project right-of-way will include locally native species in addition to typical erosion control species.</p>
<p>Mitigation Measure VISUAL-4: Rip-rap Design Treatment. The proposed rip-rap area visible from the beach will employ rock material of an appropriate size, scale, and color such that it reduces visual contrast and enhances visual character compatibility with the adjoining beach.</p>
<p>Mitigation Measure VISUAL-5: Plant Landscape Screening In Right-of-Way East of Bridge. To reduce the visual intrusion of the bridge into foreground views from Gleason-Mann-Ballard Ranch, small groupings of native or locally typical trees, or shrubs and forbs will be planted within the project right-of-way east of the bridge to the north and south of the westward ocean view corridor to filter, frame, and soften views of the bridge as seen from the ranch. This measure will reduce the overall amount of bridge visible from the ranch while minimizing blockage of ocean views. The location of plantings will be coordinated with Caltrans' Office of Cultural Resource Studies.</p>
<p>Mitigation Measure VISUAL-6: Construction Mitigation. All construction lighting will be limited to within the area of work and will avoid light trespass through directional lighting, shielding, and other measures as needed. Staging and storage areas will be screened with opaque screening wherever they would be exposed to public view for extended periods. All areas disturbed by construction, staging and storage will be re-graded and re-vegetated.</p>
<p>Cultural Resources</p>
<p>Mitigation Measure CUL-1: Preparation of Environmentally Sensitive Area Action Plan. Environmentally Sensitive Area (ESA) Action Plans will be prepared by a qualified archaeologist, and architectural historian as needed. The Plans will include a discussion of requirements to protect all known resources, or portions of resources, outside the APE, from indirect construction impacts by placing barrier fencing around known boundaries. Prior to construction, construction personnel shall be instructed on the protection and avoidance of cultural resources.</p>
<p>Mitigation Measure CUL-2: Data Recovery Plan. If archaeological resources cannot be avoided, a pre-Construction Phase III Data Recovery Plan will be prepared by a qualified archaeologist for all significant archaeological sites that would be directly affected if the sites cannot be avoided. Data recovery will only occur in the portion of the site being directly impacted.</p>
<p>Mitigation Measure CUL-3: Construction Monitoring. A Cultural Resources Construction Monitoring Plan will be developed prior to construction. An archaeological monitor will be onsite during all construction activities to identify significant features and human remains. Prior to construction, construction personnel will be instructed on the protection and avoidance of cultural resources.</p>
<p>Mitigation Measure CUL-4: Unanticipated Discovery of Cultural Resources. If previously unidentified cultural materials are unearthed during construction, it is Caltrans' policy that work will be halted in that area until a qualified archaeologist can assess the significance of the find. Additional archaeological survey will be needed if project limits are extended beyond the present survey limits.</p>
<p>Mitigation Measure CUL-5: CEQA-Specific Mitigation—Interpretive Signage and Materials. Develop interpretive signage on early Sonoma County coastal dairy farms. Signage will be installed in the project area or in the vicinity of the project if a suitable location can be identified. The exact location will be determined at a later date. Additional mitigation, such as an interpretive brochure or documentation or recordation of the Gleason-Mann-Ballard Ranch, will be determined in consultation with the stakeholders.</p>

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Water Quality and Stormwater Runoff
<p>Measure WATER-1: Storm Water Pollution Prevention Plan. A SWPPP will be developed and implemented for the project and will comply with the Construction General Permit and the Caltrans SWMP, which includes measures to protect sensitive areas and to prevent and minimize stormwater and non-stormwater discharges. Water quality inspector(s) will inspect construction areas to determine if the BMPs are adequate and adjust them, if necessary. The SWPPP will be prepared by the contractor and approved by Caltrans.</p> <p>The temporary Construction Site BMPs specified in the SWPPP will be implemented throughout the duration of construction activities to avoid and minimize pollutant loads in potential stormwater/non-stormwater discharges. Construction Site BMPs strategies applicable to this project may include the following:</p> <ul style="list-style-type: none"> • Soil Stabilization: Temporary Fence (Type ESA); Move-In/Move-Out; Hydroseeding; Geotextiles, Mats, Plastic Covers, and Erosion Control Blankets; Hydraulic Mulch • Sediment Control: Fiber Rolls, Silt Fence, Sediment Trap, Gravel Bag Berm, Check Dams, Drainage Inlet Protection • Tracking Control Practices: Temporary Construction Entrance/Exit • Wind Erosion Controls: Temporary Cover • Non-Stormwater Management: Dewatering Operations; Material and Equipment Use Over Water; Avoidance of Potable Water Use; Reclaimed Water Use for Irrigation • Waste Management and Materials Pollution Control: Concrete Waste Management, Material Delivery and Storage, Material Use, Stockpile Management, Spill Prevention and Control, Soil Waste Management, Hazardous Waste and/or Contaminated Soil Management, and Liquid Waste Management
<p>Measure WATER-2: Temporary Creek Diversion. A temporary creek diversion will be installed during construction to minimize the export of sediment and pH issues from disturbed soil areas as a result of removal of the box culverts.</p>
<p>Measure WATER-3: Stockpile Area. Stockpile areas for construction materials, equipment, and debris will be placed greater than 150 feet away from Scotty Creek, as well as covered to minimize/avoid impacts to Scotty Creek.</p>
<p>Measure WATER-4: Regional Water Quality Control Board Agreements (Construction Phase). The 401 Certification will detail specific temporary impacts to waters of the State, require actions to be used to avoid and/or minimize impacts, as well as mitigation efforts to enhance or restore these areas. Temporary impacts may include dewatering, temporary creek diversion, and pile driving. The permits obtained for the project may include dewatering rate limitations, and monitoring, testing, and effluent limitations or conditions for discharge of water from dewatering and temporary creek diversion operations. The permits for the project could include scheduling and vibration limits for pile driving operations during construction.</p>
<p>Measure WATER-5: Regional Water Quality Control Board Agreements (Operation Phase). The 401 Certification will detail specific temporary and permanent effects to waters of the State, require actions to avoid and/or minimize effects, as well as mitigation efforts to enhance or restore these areas. Any effects to domestic wells will be avoided or minimized in compliance with the permits obtained by Caltrans for the project. Any effects to the special-status species associated with the waterways within the hydrologic study area will be reduced or avoided with re-vegetation, compensatory measures, or other requirements as designated by the relevant permits (see Section 2.3, Biological Environment, for additional discussion as it relates to Biological Resources).</p>

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<p>Measure WATER-6: Design Pollution Prevention Measures. Design Pollution Prevention BMPs are permanent measures implemented to improve stormwater quality by reducing erosion, stabilizing disturbed soil areas, and maximizing vegetated surfaces. Strategies that will be used include the following:</p> <ul style="list-style-type: none"> • Erosion control features for stormwater conveyance features and to stabilize slopes • Preservation of vegetation • Flow attenuating devices (e.g., flared-end-section, outlet protection/velocity dissipation devices)
<p>Measure WATER-7: Treatment Measures. Permanent Treatment Measures will be used to remove pollutants from stormwater runoff prior to being discharged from Caltrans' right-of-way. Typical Treatment Measures that are applicable to the proposed project are vegetated biofiltration swales and biofiltration strips. These biofiltration measures remove pollutants by filtration through grass, adsorption to soil or grass, and infiltration through the soil. These measures are effective at removing debris and solid particles as well as some dissolved constituents. Stormwater treatment measures include sheet flow over the proposed side slopes and the use of existing natural ditches that provide infiltration in or near roadside areas. Seed mixes and/or plants used for erosion control, biofiltration, and similar functions would be regionally native and appropriate for the project site.</p>
<p>Geology/Soils/Seismic/Topography</p>
<p>Measure GEO-1: Topography Measure. A geotechnical investigation will be conducted for the Preferred Build Alternative to further characterize subsurface soil and groundwater conditions. The investigation will consist of soil borings, soil sampling, and field and laboratory tests. The results of this investigation will be used to confirm and develop design features to address geologic and seismic hazards.</p>
<p>Measure GEO-2: Fault Rupture and Ground Shaking Measure. Engineering design of overcrossings, retaining walls, embankments, and roadways will be carried out in accordance with Caltrans design standards which vary, for example, to address proximity to a fault. Because of the high potential for strong ground shaking, Caltrans will perform a detailed seismic demand analysis and the bridges, embankments, slopes, and roadway will be designed to withstand strong ground shaking. The measures to protect structures from ground shaking may include structural improvements/strengthening and soil improvements.</p>
<p>Measure GEO-3: Settlement Measure. Structures are designed with an allowance for settlement. Where the predicted settlement exceeds the allowable settlement, measures are necessary. Estimates of settlement are developed based on proposed design elements such as the height of proposed soil fill; the weight of structures, such as bridges and retaining walls; and site-specific geotechnical data. Excessive settlement from the project can be reduced by preloading the site prior to construction of structures, pavement, or retaining walls to allow settlement to occur before construction. Ground improvements such as compaction to densify the soil; deepening of foundations; excavation and removal of soft, loose, or expansive soils; and other ground improvement techniques are typical methods used to reduce settlement. The construction and design requirements will include measures to address settlement, as necessary based on the site-specific geotechnical investigation. Both total settlement and differential settlement will be evaluated.</p>
<p>Measure GEO-4: Earth Movement or Slope Failure. A constructability review and analysis will be performed for temporary cut slopes and placement and compaction of fill soil. Project construction and design plans will incorporate features to minimize the risk of failure of cut slopes and retaining structures. The embankment fills will be constructed in accordance with the guidelines provided in the <i>Caltrans Highway Design Manual</i> (Caltrans 2012a). Design features to prevent lateral movement; deformation; or failure of cut slopes, embankment fills, and retaining walls include the use of soldier pile walls, tiebacks, compaction of fill to 95 percent relative compaction, mechanically stabilized earth walls, and drainage. Slope and wall stability analyses under static and seismic loadings will be performed in accordance with the guidelines in the <i>Caltrans Highway Design Manual</i> (Caltrans 2012a) and Caltrans Design Information Bulletins.</p>

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<p>Measure GEO-5: Shrink-swell Soils. One option is to excavate and replace soils that represent the highest risk. In locations where shrink-swell potential is only marginally unacceptable, soil additives can be mixed with existing soil to reduce the shrink-swell potential. The decision whether to remove or treat the soil is made on the basis of specific shrink-swell potential, the additional costs for treatment versus excavation and replacement, as well as the long-term performance characteristics of the treated soil.</p>
<p>Paleontology</p>
<p>Measure PALEO-1: Preparation of a Paleontological Resources Awareness Module (PRAM). A PRAM is a project-specific worker training module for all construction personnel, designed to be integrated into the worker environmental awareness training program for the project. The PRAM provides pictures of fossils that might be encountered, a review of the laws and regulations protecting paleontological resources, the name of a qualified paleontologist to contact if fossils are discovered, description of the role of monitors, and measures to be taken until discoveries can be assessed and recovered. Administration of the PRAM to construction workers will help to ensure that fossils are recognized and handled properly in the event they should be encountered.</p>
<p>Measure PALEO-2: Preparation of a Paleontological Evaluation Report (PER)/Proposed Mitigation Plan (PMP). The PER/PMP will be prepared using detailed design plans of the Preferred Build Alternative. The PER/PMP will include a monitoring plan, if necessary, that will provide (1) instructions for monitoring excavations, (2) a determination of the level of monitoring necessary at each excavation based on paleontological sensitivity of the sediment and excavation type, and (3) prescriptions for dealing with paleontological discoveries.</p>
<p>Biological Resources</p>
<p>Measure BIO-1: Re-vegetation. After construction activities are complete, any temporary fill or construction debris will be removed and disturbed areas restored to their pre-project conditions or improved through native plantings. An area subject to “temporary” disturbance includes any area that is disturbed during the project, but that, after project completion, will not be subject to further disturbance and has the potential to be re-vegetated. Appropriate methods and plant species used to re-vegetate such areas will be determined on a site-specific basis. All areas that are temporarily affected during construction will be re-vegetated with an assemblage of native species appropriate for the local area and fauna. Invasive, exotic plants will be controlled within the BSA to the maximum extent practicable pursuant to EO 13112.</p>
<p>Measure BIO-2: ESA Fencing. The final construction drawings will show all environmentally sensitive areas (ESAs), the equivalent to LCP ESHAs. These areas include features with high ecological value such as wetlands and patches of western dog violet (<i>Viola adunca</i>), discussed in Sections 2.3.3 and 2.3.5. Prior to the commencement of construction activities, high-visibility fencing and wildlife exclusion fencing, or a combination thereof, will be erected around active work areas. The fencing will help prevent the encroachment of construction personnel and equipment into sensitive areas during construction activities and to limit the entry of wildlife into the project site. The fencing shall be inspected and maintained by the contractor until the project is complete.</p>
<p>Measure BIO-3: Sonoma County Local Coastal Plan Management Measures. Caltrans will implement measures from the Sonoma County LCP to avoid and minimize impacts on wetlands. These measures relevant to wetlands and other waters include, but are not limited to, excluding motor vehicles from wetlands except where critical to construction, limiting dredging to the smallest amount feasible, minimizing construction on land adjacent to wetlands, and prohibiting wetland vegetation removal unless it is essential to project implementation. Staging and access plans will be described in the project specifications and contract bid package and will clearly provide direction on how to avoid unnecessary access through, and work in, wetlands.</p>
<p>Measure BIO-4: Wetland Impact Minimization. To minimize impacts to wetlands that cannot be avoided during construction, the Preferred Build Alternative will limit vehicle movement and include the use of protective matting where feasible.</p>

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<p>Measure BIO-5: Pre-Construction Plant Surveys. Caltrans will conduct pre-construction surveys for special-status plant species within the BSA 1 year prior to construction during the appropriate period of identification for these species. In the unlikely event that a special-status plant species is identified within the BSA in future surveys, the appropriate agencies will be notified and Caltrans will identify and follow any necessary AMMs to avoid and minimize effects on these species. Such measures may include general avoidance or transplantation efforts.</p>
<p>Measure BIO-6: Worker Environmental Awareness Training. A resource agency-approved biologist will conduct an employee environmental awareness training for all construction employees. All construction crews will be required to attend a presentation that addresses listed species that have the potential to occur within the project limits, AMMs, terms of the Biological Opinion and project permits, ESAs, and other related matters. Upon completion of training, employees will sign a form stating that they attended the training and understand all the conservation and protection measures. Project employees will be provided with written guidance governing vehicle use, speed limits on unpaved roads, fire prevention, and other hazards.</p>
<p>Measure BIO-7: Pre-construction Wildlife Surveys. A qualified biologist will conduct pre-construction surveys for special-status wildlife species no more than 72 hours prior to the installation of fencing and no more than 2 weeks prior to initial ground-disturbing activities. If an active badger den or bird nest is found, a qualified biologist in conjunction with the resource agencies, will determine the appropriate buffer size and delineate the buffer zone using methods such as ESA fencing, visual screens, yellow caution tape, etc. Construction within the buffer zone will be prohibited until the qualified biologist determines the den or nest is no longer active. If establishment of the buffer around any badger den or bird nest is not feasible, the agencies will be contacted for further avoidance and minimization guidelines.</p> <p>General pre-construction surveys will also be conducted by an agency-approved qualified biologist prior to installing fencing and no more than 2 weeks before initial ground-disturbing activities in a given area for all life stages of the California red-legged frog, the Myrtle’s silverspot butterfly, and the butterfly’s host plant western dog violet (<i>Viola adunca</i>). Surveys will also be conducted no more than 1 day before initial ground-disturbing activity. Surveys will also be conducted for the larval silverspot butterfly prior to the removal or disturbance of any western dog violet. Larvae will be avoided where possible.</p>
<p>Measure BIO-8: Biological Monitoring. A Caltrans- and resource agency-approved, qualified biological monitor shall be assigned to the project. The biological monitor will be onsite to monitor all initial ground-disturbing activities during project construction and restoration activities and other actions that may reasonably result in the “take” of a listed species. At a minimum, the USFWS-approved biologist will visit the project site weekly to assess compliance with the Biological Opinion. The biologist will perform a clearance survey and mark any badger dens and active bird nests. The USFWS-approved biologist will have the authority to halt work through coordination with the Resident Engineer.</p>
<p>Measure BIO-9: Protection of western dog violet. The host plant for larval Myrtle’s silverspot butterfly will be avoided to the greatest extent possible, and exclusionary fencing will be installed around avoidable plants observed during pre-construction plant surveys per the directions of the qualified biologist. Because western dog violets grow at scattered, patchily distributed locations within the coastal terrace prairie habitat of the BSA, it may not be feasible to completely avoid it. Where the violets cannot be avoided, they will be relocated, if feasible, to suitable habitat outside the project area or at a selected mitigation site.</p>
<p>Measure BIO-10: Work Windows. In-water work will be restricted to a seasonal window when surface water flows are lowest and steelhead are least likely to be present in the project site. The specific work windows will be in accordance with the terms of the NMFS Programmatic Biological Opinion (June 15 to October 15) and as determined during the project’s permitting phase. Work within 100 feet of Scotty Creek will be conducted between April 15 and November 15. Work outside this Scotty Creek riparian corridor will be limited to dry weather conditions. On-site work will be limited to daylight hours.</p>
<p>Measure BIO-11: Avoid or Minimize Impacts to Aquatic Habitat. Caltrans has designed the bridge such that the bridge columns will be located outside of the ordinary high water mark. This will greatly reduce the potential for this project to adversely affect Scotty Creek and rare aquatic species such as steelhead, coho salmon, and the California red-legged frog.</p>

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<p>Measure BIO-12: Water Diversion Plan. Caltrans will submit a water diversion plan to the RWQCB, CDFW, and NMFS for review prior to construction, and the approved temporary water diversion system will only be used during the summer months when there is little to no water present in Scotty Creek.</p>
<p>Measure BIO-13: Fish Removal and Relocation Plan. Caltrans will submit a fish removal and relocation plan to CDFW and NMFS for review and approval prior to the installation and operation of the water diversion system.</p>
<p>Measure BIO-14: Prevention of Wildlife Entrapment. To prevent the inadvertent entrapment of wildlife, including special-status species, during construction, all excavated, steep-walled holes or trenches more than 1 foot deep will be covered at the close of each working day using plywood. If it is not feasible to cover an excavation, one or more escape ramps constructed of earth fill or wooden planks shall be installed. Before such holes or trenches are filled, they must be thoroughly inspected for trapped animals. Any equipment or debris left overnight within the action area will be inspected for animals. If at any time a trapped listed animal is discovered, the onsite biologist will contact USFWS by telephone for guidance and relocate the individual.</p>
<p>Measure BIO-15: Enhancements to Offset Effects to the California Red-legged Frog. Caltrans will fund habitat enhancements to suitable coastal habitat in Sonoma County, preferentially onsite, to offset the loss of suitable California red-legged frog upland habitat due to the project.</p>
<p>Measure BIO-16: Invasive Species. In compliance with EO 13112 and FHWA, Caltrans will not use any invasive species for replanting efforts. Caltrans will direct the contractor to dispose of all invasive plant material at an approved location and to inspect equipment regularly for invasive plant material. All borrow material brought onsite for construction will be certified as weed free. The contractor will be required to inspect construction equipment for invasive plant material and seeds prior to construction, remove and dispose of invasive plants in the project footprint cautiously, and replant the site with fast-growing, non-invasive species. In areas of particular sensitivity (e.g., near drainages), extra precautions will be taken if invasive species are found in or next to the construction areas. These include the inspection and cleaning of construction equipment and eradication strategies to be implemented should an invasion occur.</p>
<p>Mitigation Measure BIO-A: Compensatory Mitigation for Jurisdictional Water Features. Caltrans will mitigate for permanent adverse effects to jurisdictional wetlands and other waters, which consist of conversion of wetlands to hardscaping. Following CWA and California Coastal Act guidance and CCC, USACE, CDFW, and RWQCB permitting requirements, Caltrans expects to mitigate impacts at a minimum ratio of 3:1 for permanent impacts to jurisdictional features (of all agencies). Feasible mitigation options include, but are not limited to, in-lieu fees provided towards the enhancement of wetlands along the Sonoma Coast, including habitat on lands owned by State Parks, The Wildlands Conservancy, or other similar entities. State Parks and The Wildlands Conservancy have expressed an ability to, and an interest in, providing this enhancement. This mitigation will offset the project's reduction in wetlands so that there is no net loss of wetlands.</p> <p>Mitigation ratios and a mitigation plan will be finalized during the permitting process through coordination with all applicable state and federal agencies, including USACE, the RWQCB, Sonoma County, and the CCC. Temporary adverse effects to these resources will be mitigated through onsite habitat restoration. Funding enhancement of riparian and streambed habitat within and adjacent to the proposed project will also be considered in the permitting stage of the project when Caltrans is able to engage in right-of-way coordination and to fully coordinate and implement this option.</p>

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Mitigation Measure BIO-B: Compensatory Mitigation for Myrtle’s Silverspot Butterfly. Caltrans will fund the enhancement of Myrtle’s silverspot butterfly habitat onsite to reduce the project’s permanent effects (the conversion of occupied Myrtle’s silverspot butterfly habitat to hardscape and changes to grazing regime). Caltrans will also fund the enhancement of Myrtle’s silverspot butterfly habitat offsite, as needed, to offset the permanent loss of butterfly habitat that will occur as a result of this project, at a minimum of a 1:1 ratio. Caltrans has identified that funding the enhancement of habitat on lands owned by State Parks, as managed or operated by the Gold Ridge or Sonoma RCD, is a feasible and effective means of mitigating the project’s effects. The enhancement would occur on high quality remnant grasslands within the Sonoma Coast State Park, located within the butterfly’s dispersal distance of the project. The enhancement will involve managing invading Douglas-fir (*Pseudotsuga menziesii*) and encroaching shrubs and control of any potential invasive, non-native species that might occur on selected sites. Rapid rotational sheep grazing to remove thatch through the mitigation period is proposed to follow these treatments. Success criteria will include increases in nectar and host species and detections of Myrtle’s silverspot butterfly. This mitigation project will provide comparable or superior larval and foraging habitat to compensate for the project’s conversion of such habitat. Myrtle’s silverspot butterfly mitigation is considered feasible because the stated entities have communicated the ability and interest in providing the enhancement.

During the permitting stage of the project, Caltrans will scope other mitigation options, such as securing conservation easements on private land in areas known to support butterfly habitat. Caltrans will work with the USFWS to identify such mitigation options.