

Chapter 3 California Environmental Quality Act Evaluation

3.1 Determining Significance Under CEQA

The proposed project is a joint project by Caltrans and the Federal Highway Administration and is subject to state and federal environmental review requirements. Project documentation, therefore, has been prepared in compliance with both NEPA and CEQA. The Federal Highway Administration's responsibility for environmental review, consultation, and any other actions required by applicable federal environmental laws for this project are being, or have been, carried out by Caltrans pursuant to 23 U.S. Code 327 and the Memorandum of Understanding dated May 27, 2022, and executed by the Federal Highway Administration and Caltrans. Caltrans is the lead agency under NEPA and CEQA.

One of the main differences between NEPA and CEQA is the way significance is determined. Under NEPA, significance is used to determine whether an Environmental Impact Statement, or a lower level of documentation, will be required. NEPA requires that an Environmental Impact Statement be prepared when the proposed federal action (project) as a whole has the potential to "significantly affect the quality of the human environment." The determination of significance is based on context and intensity. Some impacts determined to be significant under CEQA may not be of sufficient magnitude to be determined significant under NEPA. Under NEPA, once a decision is made regarding the need for an Environmental Impact Statement, it is the magnitude of the impact that is evaluated, and no judgment of its individual significance is deemed important for the text. NEPA does not require that a determination of significant impacts be stated in the environmental document.

CEQA, on the other hand, does require that Caltrans identify each "significant effect on the environment" resulting from the project and ways to mitigate each significant effect. If the project may have a significant effect on any environmental resource, then an Environmental Impact Report must be prepared. Each and every significant effect on the environment must be disclosed in the Environmental Impact Report and mitigated if feasible. In addition, the State CEQA Guidelines list a number of "mandatory findings of significance," which also require the preparation of an Environmental Impact Report. There are no types of actions under NEPA that parallel the findings of mandatory significance of CEQA. This chapter discusses the effects of this project and CEQA significance.

3.2 CEQA Environmental Checklist

This checklist identifies physical, biological, social, and economic factors that might be affected by the proposed project. Potential impact determinations include Significant and Unavoidable Impact, Less Than Significant With Mitigation Incorporated, Less Than Significant Impact, and No Impact. In many cases, background studies performed in connection with a project will indicate that there are no impacts to a particular resource. A No Impact answer reflects this determination. The words “significant” and “significance” used throughout the following checklist are related to CEQA, not NEPA, impacts. The questions in this checklist are intended to encourage the thoughtful assessment of impacts and do not represent thresholds of significance.

Project features, which can include both design elements of the project, and standardized measures that are applied to all or most Caltrans projects such as Best Management Practices and measures included in the Standard Plans and Specifications or as Standard Special Provisions, are considered to be an integral part of the project and have been considered prior to any significance determinations documented below; see Chapters 1 and 2 for a detailed discussion of these features. The annotations to this checklist are summaries of information contained in Chapter 2 to provide you with the rationale for significance determinations; for a more detailed discussion of the nature and extent of impacts, please see Chapter 2. This checklist incorporates by reference the information contained in Chapters 1 and 2.

3.2.1 Aesthetics

CEQA Significance Determinations for Aesthetics

Except as provided in Public Resources Code Section 21099, would the project:

a) Have a substantial adverse effect on a scenic vista?

Significant and Unavoidable Impact— Within the project vicinity, scenic vistas are available where the roadway viewing position allows visual access to the hillsides and ridgelines. Roadway widening would have a moderate impact on the scenic quality of the project location. The vegetation and tree removal required to facilitate the widening would be kept to the minimum required but would still result in impacts as described in Section 2.1.8. Therefore, the changes from construction and operation could result in an effect on a scenic vista. Implementation of Avoidance, Minimization, and Mitigation Measures VA-1 through VA-18 would reduce this impact, but not to a less than significant level.

b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

Significant and Unavoidable Impact— State Route 1 is an eligible state scenic highway, meaning it is eligible for future listing on the State Scenic Highways system but has not been officially designated (Caltrans 2017). Within the County of Santa Cruz, State Route 1 is designated as a scenic road, valued for its vistas (County of Santa Cruz 1994: 5-34). The County of Santa Cruz also has a tree removal policy, restricting the removal of healthy trees unless they pose a traffic hazard or for road widening, and the replacement of trees nearby is required. These designations and policies suggest high local aesthetic values. The proposed project would require vegetation removal for the widening and construction of soundwalls and retaining walls, which would result in impacts as described in Section 2.1.8, Visual/Aesthetics. Implementation of Avoidance, Minimization, and Mitigation Measures VA-1 through VA-18 would reduce impacts on scenic resources, but significant impacts would remain.

c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from a publicly accessible vantage point.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

Less Than Significant Impact—As shown in Section 2.1.1, the project would be consistent with aesthetic and coastal resource protection goals for the State Route 1 corridor. The project would not significantly impact the visual environment with the incorporation of avoidance, minimization, and mitigation measures described in Section 2.1.8, Visual/Aesthetics. This impact would be less than significant.

d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

Less Than Significant Impact—No new sources of light or glare are expected as part of the highway and Bus-on-Shoulder component. However, nighttime construction would likely occur, and some nighttime lighting at the construction site would be required and could result in light nuisance if not properly designed. The project would result in a nominal increase in daytime glare by increasing the paved area and by removing some of the roadside vegetation that provides shade. However, roadside vegetation would still be present along the right-of-way to provide some shade. Lighting could be installed in portions of the trail corridor for safety. They would likely be similar to lights on other segments on the trail. Light and glare effects would be potentially significant; however, implementation of avoidance and minimization measures would reduce the effects of nighttime construction and light and glare impacts from lighted intersections and any new lighting types for the trail. Therefore, the changes would not result in a new source of substantial light or glare that would significantly impact daytime or nighttime views in the area. This impact would be less than significant.

3.2.2 Agriculture and Forest Resources

CEQA Significance Determinations for 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 Department 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?

No Impact— There is no farmland in the project vicinity (Caltrans 2022). Therefore, there would be no impacts.

b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?

No Impact— There are no lands designated for agricultural use or lands enrolled in a Williamson Act contract in the project vicinity (Caltrans 2022). Therefore, there would be no impacts.

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))?

No Impact— There are no lands zoned for forest land or timberland in the project vicinity (Caltrans 2022). Therefore, there would be no impacts.

d) Result in the loss of forest land or conversion of forest land to non-forest use?

No Impact— There are no lands zoned for forest land or timberland in the project vicinity (Caltrans 2022). Therefore, there would be no impacts.

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?

No Impact— No farmland or forest land would be converted; therefore, there would be no impacts.

3.2.3 Air Quality

CEQA Significance Determinations for Air Quality

Where available, the significance criteria established by the applicable air quality management district 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?

Less Than Significant Impact—This project would result in shifts from auto to transit modes, improve freeway level of service and average speed, improve freeway operation conditions in the southbound PM peak direction, and improve pedestrian and bicycle connectivity with the two new trail crossings. The project would generate a less than significant amount of pollutants during construction and would result in emission reductions under long-term operation. The project is included in the Santa Cruz County Regional Transportation Commission's Regional Transportation Plan and Regional Transportation Improvement Program, both of which were found to be conforming (see Section 2.2.6, Air Quality). Therefore, the project would not conflict with the Air Quality Management Plan. Impacts would be less than significant.

b) 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?

Less Than Significant Impact— The project would not increase capacity and would result in slight reductions in criteria pollutant emissions, relative to existing conditions (see Section 2.2.6, Air Quality). The project would result in shifts from auto to transit modes, improve freeway Level of Service and average speed, and improve freeway operation conditions. The project would also enhance bicycle and pedestrian connectivity along Segment 12 of the Coastal Rail Trail. Additional analysis shows that construction period emissions would likewise be minimal, resulting in a maximum of 51 pounds per day of NO_x during the grading/excavation phase (see Section 2.2.6, Air Quality) which would not result in long-term health effects on sensitive receptors. Therefore, impacts would be less than significant.

c) Expose sensitive receptors to substantial pollutant concentrations?

Less Than Significant Impact— Although there are several sensitive receptors within 500 feet of the project site, exposure to construction period emissions would be short term and reduced with implementation of Caltrans Standard Specifications. The project is not in an area known to contain NOA. Adherence to applicable the Monterey Bay Air Resources District rules and Caltrans' Standard Specifications would ensure that asbestos-containing materials during demolition activities would be disposed of appropriately and safely, if found. Soils would also be tested at the start of ground disturbance for the presence of hazardous materials such as lead. If lead is present, the project would be required to develop a lead compliance plan to minimize exposure per the Monterey Bay Air Resources District rules and regulations. Refer to Section 2.2.5, *Hazardous Waste/Materials*, for more information on the handling and disposal of these materials.

As stated in Section 2.1.7, the project would not increase vehicle miles traveled. Rather, the Build Alternative would reduce vehicle delay, increase average speed, and improve level of service, thereby reducing operational mobile source air toxic emissions associated with vehicle idling. As discussed in Section 2.2.6, Air Quality, the Bus-on-Shoulder component of the Build Alternative would move buses slightly closer to freeway-adjacent land uses. However, Santa Cruz Metro is continuously upgrading its transit fleet to include new hybrid buses and zero-emission electric buses. California Air resources Board has also set a deadline of 2040 for all transit operators to transition to zero-emission electric fleets. Lastly, the project includes construction of Segment 12 of the Coastal Rail Trail, which would increase connectivity and safety for bicyclists and pedestrians, and increases use of alternative transportation modes. Therefore, impacts would be less than significant.

d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Less Than Significant Impact— Temporary odors may be noticeable during construction if the Build Alternative is selected. However, the project would comply with construction standards adopted by the Monterey Bay Air Resources District as well as Caltrans' standard procedures for minimizing air pollutants during construction. The project would not increase long-term odors that are not already present in the project area. Impacts would be less than significant.

3.2.4 Biological Resources

CEQA Significance Determinations for 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 Wildlife or U.S. Fish and Wildlife Service?

Less Than Significant With Mitigation Incorporated—As stated in Section 2.3.5, Threatened and Endangered Species, there are seven special-status species with potential to occur in the Biological Study Area: California red-legged frog, Santa Cruz long-toed salamander, southwestern willow flycatcher, least Bell's vireo, Central California coast steelhead distinct population segment, and tidewater goby. None of these seven species were observed in the Biological Study Area during the survey effort, but they have potential to occur in or near the Biological Study Area.

The Biological Study Area contains marginally suitable aquatic and upland habitat for California red-legged frog; however, no California Natural Diversity Database occurrence records are known from within two miles of the Biological Study Area.

Occupied habitat is present at the Valencia Lagoon adjacent to the Biological Study Area for Santa Cruz long-toed salamander but is absent from the Biological Study Area. The fence between the Biological Study Area and Valencia Lagoon will be repaired prior to project commencement, so it is not anticipated that this species would occur in the Biological Study Area. Thirteen California Natural Diversity Database records are known from within two miles of the Biological Study Area.

Suitable riparian habitat is present for the southwestern willow flycatcher, but the Biological Study Area lacks the density required for this species; however, no California Natural Diversity Database occurrence records are known from within two miles of the Biological Study Area. Least Bell's vireo is not known to occur in the Biological Study Area and suitable nesting habitat is absent from the Biological Study Area. No California Natural Diversity Database occurrence records are known from within two miles of the Biological Study Area.

Central California coast steelhead distinct population segment are known to be seasonally present in Aptos and Valencia Creeks. The Biological Study Area is located within designated critical habitat for the Central California coast distinct population segment steelhead. One California Natural Diversity Database occurrence record is known from within two miles of the Biological Study Area; however, the California Natural Diversity Database record occurrence was recorded in 1985.

Suitable breeding habitat is absent from the Biological Study Area for tidewater goby but suitable aquatic habitat is present just downstream of the Biological Study Area. One California Natural Diversity Database record occurrence documented in 2014 is located in Aptos Creek within the Biological Study Area.

Avoidance, minimization, and/or mitigation measures described in Section 2.3.5, Threatened and Endangered Species, would be implemented to reduce potential impacts on these species. Additionally, the project would qualify for coverage under the Programmatic Biological Opinion for Projects Funded or Approved under the Federal Aid Program, 8-8-10-F-58 (U.S. Fish and Wildlife Service 2011), which provides approved avoidance and minimization, and/or mitigation measures for California red-legged frogs.

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 U.S. Fish and Wildlife Service?

Less Than Significant With Mitigation Incorporated—Natural community/habitat types present within the Biological Study Area include riverine (stream and ditch), riparian woodland, mixed coast live oak woodland, eucalyptus woodland, mixed coniferous woodland, mixed woodland, developed/landscaped areas, annual grassland, and ruderal/disturbed vegetation. As discussed in Section 2.3.1, Natural Communities, 1.53 acres of riparian woodland habitat occur in the Biological Study Area. About 0.081 acre of riparian woodland habitat would be permanently removed, and 1.471 acres would be temporarily disturbed to build the project. Implementation of Best Management Practices, as well as the implementation of avoidance and minimization measures AMM-BIO-1 through AMM-BIO-16 and AMM-BIO-18 through AMM-BIO-21, and Mitigation Measures BIO-17, BIO-22, and BIO-24, would ensure this impact would be less than significant.

c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

Less Than Significant With Mitigation Incorporated— No jurisdictional wetlands of the U.S. were delineated within the BSA. However, as discussed in Section 2.3.2, Wetlands and Other Waters, the project would result in 0 acre of permanent impacts and about 0.226 acre of temporary impacts on waters of the U.S.; 0.061 acre of permanent impacts and 1.473 acres of temporary impacts on waters of the State (characterized as riparian non-wetlands), and 0.061 acre of permanent impacts and 0.697 acre of temporary impacts on Coastal Zone riparian non-wetlands.

Based on the scope of project impacts on jurisdictional waters and implementation of avoidance and minimization measures AMM-BIO-1 through AMM-BIO-16 and Mitigation Measure BIO-17, identified in Section 2.3.1, Natural Communities, and implementation of Best Management Practices, the project would not substantially alter the function or value of wetlands or other waters within the Biological Study Area. The impact would be less than significant with mitigation.

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?

Less Than Significant With Mitigation Incorporated — As discussed in Section 2.3.1, Natural Communities, within the Biological Study Area, Aptos Creek and tributaries are considered to be Critical Habitat for Central California coast steelhead within the critical habitat unit Aptos-Soquel Hydrologic Sub-area 330413 (70 FR 37160). Project activities could result in temporary and/or permanent impacts to aquatic and riparian habitats along Aptos and Valencia Creeks. Construction activities involving in-water work and dewatering could result in temporary alterations to in-channel conditions within Aptos and Valencia Creeks and adjacent channel banks. Project activities could disturb channel bank and bed material and increase the potential for erosion and sediment transport downstream.

Such effects would be avoided and minimized through the implementation of avoidance and minimization measures and Best Management Practices that are incorporated as part of the project; however, no effects to steelhead critical habitat are anticipated. Therefore, the project may affect, but is not likely to adversely affect, Central California coast steelhead critical habitat. Regardless, implementation of avoidance and minimization measures AMM-BIO-1 through AMM-BIO-23 and Mitigation Measures BIO-17, BIO-22, and BIO-24 identified in Section 2.3.1, Natural Communities, and implementation of Best Management Practices, the project would not 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 within the Biological Study Area. The impact would be less than significant with mitigation.

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

Less Than Significant With Mitigation Incorporated—The County of Santa Cruz has a Riparian Corridor and Wetlands Protection Ordinance that aims to minimize and eliminate any development activities in the riparian corridor. The project would be potentially inconsistent with this ordinance. Potentially jurisdictional U.S. Army Corps of Engineers waters of the U.S. (other waters), Regional Water Quality Control Board waters of the State (streambed and riparian non-wetlands), California Department of Fish and Wildlife streams and riparian areas, and Coastal Zone/California Coastal Commission streams and riparian non-wetlands were identified within the project corridor, associated with creeks or drainages. The project has the potential to result in temporary and permanent impacts on riparian and wetland resources and be inconsistent with buffers established by this ordinance. Implementation of avoidance and minimization measures AMM-BIO-1 through AMM-BIO-16 and Mitigation Measure BIO-17, identified in Section 2.3.1, Natural Communities,

and implementation of Best Management Practices, would reduce this impact to less-than-significant.

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?

No Impact— The County of Santa Cruz has no adopted conservation plan. Therefore, the project would not conflict with a conservation plan, and no impact would occur.

3.2.5 Cultural Resources

CEQA Significance Determinations for Cultural Resources

Would the project:

a) Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?

Less Than Significant— The Bay View Hotel at 8041 Soquel Drive, is listed on the National Register of Historic Places at the local level of significance under Criterion A and Criterion C. Project activities would not affect the Bay View Hotel. A segment of the Southern Pacific Railroad has been recommended as eligible to the National Register of Historic Places and is considered a historical resource for the purposes of CEQA.

The project would affect the Southern Pacific Railroad (Santa Cruz Branch Line) in different ways depending on the phase of project construction. For the Ultimate Trail Configuration, the project would not diminish the integrity of the resource and would not destroy primary character-defining features of the property.

The Optional First Phase would entail removal of approximately 1.25 miles of steel rail, representing 6.2% of the 20.2 miles of the Santa Cruz Branch Railroad. The rails are not original historic fabric, and while they contribute to the feeling and association of the line as a railway and have been determined to be a contributing feature of the overall historic property, they are not individually eligible elements and have been determined to be less significant than other character-defining features such as the original alignment, bridges, and buildings. Railroad materials such as ballast, steel rails, earthen embankments, and wood railroad ties are secondary contributing features as they are typical railroad features and are not original historic fabric (i.e., they've been replaced over time with newer materials). The railroad alignment which gives this resource its general sense of feeling and association as a historic railroad would not change as a result of the project.

Therefore, while the optional first phase would have an impact on the historic property, (i.e., removal of 6.2% of overall rail line), that impact is less than the

removal or alteration of other more significant character-defining features such as the railroad alignment which is the most important contributing element. As a result, this impact would be less than significant.

b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?

Less Than Significant With Mitigation Incorporated—Three archaeological resources have been identified in the Area of Potential Effects. As discussed in Section 2.1.9, *Cultural Resources*, test excavations were conducted for all three archaeological resources. As a result of testing, CA-SCR-353/H was determined not eligible for listing on the National Register of Historic Places or California Register of Historical Resources (Caltrans 2010). The portions of CA-SCR-2/H and CA-SCR-222/H within the Area of Potential Effects were recommended to be not eligible for listing on the National Register of Historic Places or California Register of Historical Resources. However, the entirety of both sites have not been tested. Therefore, both CA-SCR-2/H and CA-SCR-222/H are considered eligible for listing in the National Register of Historic Places and California Register of Historical Resources for the purposes of this project. Disturbance of the untested portions of these resources (i.e., outside the Area of Potential Effects), could cause significant impacts on significant archaeological resources.

It is possible that previously unknown archaeological resources could be uncovered during ground-disturbing construction activities. This impact is considered potentially significant.

With implementation of the measures below, the potential impacts on known and previously unknown archaeological resources would be reduced to a less-than-significant level. This impact would be less than significant.

Implementation of avoidance and minimization measures AMM-CUL-1, AMM-CUL-2, AMM-CUL-3, and AMM CUL-4 identified in Section 2.1.9, *Cultural Resources*, would reduce the potential for significant impacts on known and previously unknown archaeological resources to less-than-significant.

c) Disturb any human remains, including those interred outside of dedicated cemeteries?

Less Than Significant Impact— There is always the potential for discovering human remains during excavation and other ground-disturbing activities. If human remains are discovered, California Health and Safety Code Section 7050.5 states that further disturbances and activities shall stop in any area or nearby area suspected to overlie remains, and the county coroner should be contacted. If the coroner thinks the remains are Native American, the coroner would notify the Native American Heritage Commission, who, per Public Resources Code Section 5097.98, would then notify the Most Likely Descendant. At this time, the person who discovered

the remains would contact the Caltrans District 5 Office of Cultural Resources so that they may work with the Most Likely Descendant on the respectful treatment and disposition of the remains. Further provisions of the Public Resources Code Section 5097.98 are to be followed as applicable. This impact would be less than significant.

3.2.6 Energy

CEQA Significance Determinations for Energy

Would the project:

a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

Less Than Significant Impact— Construction of the Build Alternative would result in a short-term increase in energy use from construction equipment and potential traffic delays. Construction best available control technologies, and AMM TR-1 would help conserve energy. The Build Alternative would not result in an increase in vehicle miles traveled, and therefore increases in diesel and gasoline use are not anticipated. These project features and benefits, along with construction avoidance and minimization measures and compliance with Caltrans and state regulations and requirements, would result in a less than significant impact.

b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

No Impact—The Santa Cruz County General Plan/Local Coastal Program contains energy policies related to new building development, but not for transportation projects. As described in Section 3.2.6, while there would be a temporary increase in energy usage during construction, operation of the Build Alternative would reduce energy consumption because the project reduces delay and increases speeds which in turn increases fuel efficiency. Furthermore, the Build Alternative would increase opportunities to use alternative modes of transportation, including transit and construction of Coastal Rail Trail Segment 12. Project design and construction energy conservation features are consistent with state and local policies to reduce energy. Therefore, the project would not conflict with state and local policies to reduce energy and there would be no impacts.

3.2.7 Geology and Soils

CEQA Significance Determinations for Geology and Soils

Would the project:

a) Directly or indirectly cause 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, ii) Strong seismic ground shaking, iii) Seismic-related ground failure, including liquefaction, iv) Landslides; or

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?

Less Than Significant Impact (a and c) — There are no known active faults in the area. Thus, impacts on construction workers or the traveling public related to surface fault rupture would be less than significant.

The project area, which is influenced mostly by the San Andreas Fault system, has a potential for strong seismic ground shaking. There is no obvious evidence of landslides in the project area. Based on similar structure locations, the soils are not prone to ground failure, such as liquefaction. Additionally, a geotechnical field investigation would be conducted, and a Geotechnical Design Report with recommended design parameters would be prepared per Caltrans' Highway Design Manual (Caltrans 2019a). The project would be designed according to Caltrans' seismic standards, as provided in Caltrans' Highway Design Manual, minimizing the risk to construction workers or the traveling public from strong seismic ground shaking.

There is a low risk for landslides because of the topography and because the project would not involve cuts and fills or steep excavation. There would be no impacts on construction workers or the traveling public.

b) Result in substantial soil erosion or the loss of topsoil?

Less Than Significant Impact — Ground-disturbing earthwork associated with construction at the project site may increase soil erosion rates and loss of topsoil. Compliance with the erosion-related requirements applicable to the project would ensure that construction activities do not result in significant erosion. This impact is considered less than significant.

d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?

Less Than Significant Impact— The project area is on soils known to not be expansive (i.e., have a high shrink-swell potential) and would be verified during a detailed field investigation conducted during the design phase. All construction and engineered fills would comply with Caltrans' Standard Specifications, and all construction would compact the roadway subgrade in accordance with Caltrans' Standard Specifications. Additionally, minimization measures in the Geotechnical Design Report, such as the use of subgrade enhancement geotextile and cementitious binder, as well as Best

Management Practices, would be implemented to address soil issues, minimizing the risk to construction workers and the traveling public.

e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?

No Impact— The project would not require alternative wastewater disposal systems. There would be no impacts.

f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Less Than Significant With Mitigation Incorporated— As discussed in Section 2.2.4, Paleontology, fossil-bearing sediments can be found within the project boundaries, and fossils could be damaged during earthwork operations. Implementation of a paleontological mitigation plan that includes construction monitoring and fossil salvage, as described in Mitigation Measure PALEO-1, would reduce impacts to less than significant.

3.2.8 Greenhouse Gas Emissions

CEQA Significance Determinations for Greenhouse Gas Emissions

Would the project:

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Less Than Significant Impact— As discussed in Section 3.3, Climate Change, the project would generate temporary construction greenhouse gas emissions and would not result in operational emissions. All construction contracts include Caltrans Standard Specifications related to air quality. Section 7-1.02A and 7-1.02C, Emissions Reduction, requires contractors to comply with all laws applicable to the project and to certify they are aware of and will comply with all California Air Resources Board emission reduction regulations. Section 14-9.02, Air Pollution Control, requires contractors to comply with all air pollution control rules, regulations, ordinances, and statutes. Certain common regulations, such as equipment idling restrictions, that reduce construction vehicle emissions also help reduce greenhouse gas emissions. With the implementation of construction greenhouse gas-reduction measures, the impact would be less than significant.

b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Less Than Significant Impact—As described in Section 3.2.3, the project would not conflict with an applicable plan, policy, or regulation adopted to reduce the emissions of greenhouse gas because the project is consistent with the Santa Cruz County Regional Transportation Commission's

Metropolitan Transportation Plan and the Association of Monterey Bay Area Governments' Regional Transportation Plan/Sustainable Communities Strategy, which considers goals stipulated by Senate Bill 375. The project would, therefore, not conflict with Senate Bill 375. Additionally, the project is consistent with the policies in the applicable city and county general plans; the project would help achieve the goals of providing a safe and efficient transportation system. This impact would be less than significant.

3.2.9 Hazards and Hazardous Materials

CEQA Significance Determinations for 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; or
- 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?

Less Than Significant Impact (a, b)— As discussed in Section 2.2.5, Hazardous Waste and Materials, humans and the environment could be exposed to hazardous conditions from the accidental release of hazardous materials during construction activities. Construction would involve the use of heavy equipment, involving small quantities of hazardous materials (e.g., petroleum and other chemicals used to operate and maintain construction equipment) that may result in hazardous conditions in the project area.

Disturbing either yellow or white pavement markings by grinding or sandblasting, or removing treated wood posts or guardrails, could expose construction workers or the general public to lead chromate and other harmful chemicals unless standard removal protocols are followed. Exposing construction workers or the general public to these hazardous materials or wastes could pose a possible threat to human health. Exposing construction workers or the general public to these hazardous materials or wastes could pose a possible threat to human health. Compliance with local, state, and federal policies, standards, and laws described in Section 3.2.9 would avoid or minimize effects related to hazardous waste and materials. The project would implement AMM-HAZ-1 and AMM-HAZ-2 as identified in Section 2.2.5, Hazardous Waste/Materials. Therefore, this impact would be less than significant.

- c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

Less Than Significant Impact—Aptos Junior High School is within 0.25 mile of the project. Humans and the environment could be exposed to various

constituents from the accidental release of hazardous materials during construction activities. The use of heavy equipment would involve small quantities of hazardous materials (e.g., petroleum and other chemicals used to operate and maintain construction equipment) that may result in hazardous releases in the project area. Caltrans routinely handles the types of hazardous releases that may occur during project construction through its Standard Specifications and Standard Special Provisions for removal, storage, and disposal of hazardous materials and wastes. This impact would be less than significant.

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?

Less Than Significant Impact—As discussed in Section 2.2.5, Hazardous Waste and Materials, there are hazardous waste and substance sites on the Cortese List within a 1-mile search of the project site. Implementation of AMM HAZ-1 would require a preliminary site investigation be conducted during the project's design phase to determine whether contaminated soil or groundwater would be encountered during project construction activities. Implementation of AMM HA-2 would develop appropriate procedures for handling, reusing, and/or disposing of soils. This impact would be less than significant.

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 or excessive noise for people residing or working in the project area?

No Impact—The closest public airport is the Watsonville Municipal Airport, which is about 7 miles southeast of the project area. Additionally, no aspect of the project would result in a safety hazard for people living or working in the project area. No impact would occur.

f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Less Than Significant Impact—There may be temporary disruptions to the existing freeway during the construction period. During construction, Standard Measure TR-1 would require that closures be coordinated with emergency service providers, so their services are minimally affected. Project operation would improve traffic delay and allow for formal passing opportunities. The project would make the highway safer, more reliable, and more efficient for emergency service providers and would benefit those served by these providers. The impact would be less than significant.

g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

Less Than Significant Impact— There is the potential for wildland fires in the region, given the moderate Mediterranean climate and wind. The lands to the north of State Route 1 are in a moderate and high fire hazard severity zone, according to the California Department of Forestry and Fire Protection's Fire Hazard Severity Zone Map for the County of Santa Cruz (California Department of Forestry and Fire Protection 2007). The proposed project could expose workers to fire risk and hazards during construction. Construction of the proposed project could also create an unintended fire. However, standard precautions as those found in the California Division of Occupational Safety and Health (Cal/OSHA) Fire Protection and Prevention guidance to prevent fire incidents such as, no smoking in open areas, requiring spark arrestors on equipment and fire extinguishers be onsite at all times during construction, and vegetation clearing, would reduce the potential for wildland fires. The impact would be less than significant.

3.2.10 Hydrology and Water Quality

CEQA Significance Determinations for Hydrology and Water Quality

Would the project:

- a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?
- b) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

Less Than Significant Impact (a, b)— The project area is within the jurisdiction of the Central Coast Regional Water Quality Control Board. The project's receiving waters are Aptos Creek, Valencia Creek, Valencia Lagoon, and the Pacific Ocean.

Potential temporary impacts on existing water quality would result from staging and active construction areas, which could result in the release of fluids, concrete material, construction debris, sediment, and litter beyond the perimeter of the site. Sediment from construction would be minimized by using Caltrans' construction Best Management Practices for stormwater, including silt fence, fiber roll, check dam, concrete wash-out, and street sweeping.

Because the intended acreage of disturbed soil area would be more than 1 acre, a Stormwater Pollution Prevention Plan would be completed to minimize pollution and stormwater runoff during construction (see Section 1.4.1, Build Alternatives). A Stormwater Pollution Prevention Plan would be prepared by the contractor and approved by Caltrans. The Stormwater Pollution Prevention Plan would address potential temporary impacts via the implementation of appropriate Best Management Practices. Further, groundwater dewatering would not be necessary for project operation and maintenance activities. The project would not violate any water quality

standards or waste discharge requirements or result in substantial degradation of surface or groundwater quality. Therefore, impacts on water quality would be less than significant.

During construction, potentially sediment-laden flow can result from runoff over disturbed soil areas that enter storm drainage facilities or directly discharge into the receiving water bodies, increasing the turbidity, decreasing the clarity, and potentially impacting the beneficial uses of the receiving water bodies. Earthmoving and other construction activities could cause minor erosion and runoff of topsoil into the drainage systems along the project corridor and Coastal Rail Trail Segment 12 during construction, which could temporarily affect water quality in local waterways.

Implementation of water quality project features required for all construction projects in compliance with federal, state, and local requirements would minimize the potential for water quality impacts from runoff entering storm drains. The impact would be less than significant.

b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

Less Than Significant Impact— As discussed in Section 2.2.1, Hydrology and Floodplain, increased impervious surfaces could reduce the ability for groundwater recharge within the localized groundwater aquifer system. Soquel Creek and Aptos Creek are both listed in the Water Quality Control Plan for the Central Coast Region as having the groundwater recharge beneficial use. The reduction in the local aquifer and groundwater recharge also has the potential to impact the beneficial uses of groundwater basins. However, considering the size of the groundwater basin, the increase in the impervious surface area (3.61 acres in Caltrans' right-of-way, 6.28 acres for the interim trail in the Santa Cruz County's right-of-way and 6.51 acres for the ultimate trail in Santa Cruz County's right-of-way) would not reduce water infiltration into the groundwater aquifer or cause a widespread, regional change in groundwater levels. To address the additional flows associated with increased impervious surface areas, the project would include stormwater runoff Best Management Practices to collect and retain or detain the additional flows within the project limits, as required by Caltrans' National Pollutant Discharge Elimination System Municipal Separate Storm Sewer System permit and a Stormwater Management Plan. The project is not expected to have a long-term impact on surface water or groundwater. Local aquifer and groundwater recharge could occur during construction, but because the project would comply with the Caltrans Municipal Separate Storm Sewer System permit, Best Management Practices would reduce this effect. The project would not impede sustainable groundwater management of the basin. The impact would be less than significant.

c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would: i) Result in substantial erosion or siltation onsite or offsite; ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding onsite or offsite; iii) 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; or iv) Impede or redirect flood flows?

Less Than Significant Impact (c.i through c.iv)—Earthmoving and other construction activities could cause minor erosion and runoff of topsoil into the drainage systems along the project corridor during construction, which could temporarily affect water quality in local waterways. The standards of the Construction General Permit, Caltrans, and the County of Santa Cruz require the project's contractor to implement a Stormwater Pollution Prevention Plan to comply with the conditions of the Construction General Permit (Standard Measure WQ-1), which would include soil stabilization and other controls to reduce erosion. The impact would be less than significant.

The project would not substantially alter the existing drainage pattern in the area. As discussed in Section 2.2.1, Hydrology and Floodplain, the project would maintain the existing drainage pattern. Additional impervious surfaces would be added, and a Hydromodification Susceptibility Assessment would be required to determine whether the project requires hydromodification management measures. The impact would be less than significant.

d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?

Less Than Significant Impact—The potential release of pollutants as a result of project inundation could occur during construction involving sediment or contaminated runoff from disturbed work areas or potential spills that could result in temporary impacts on water resources. However, standard measures, including stabilizing construction areas, and sediment controls and filtration, would be implemented before a flood event to minimize impacts on water resources (Standard Measure WQ-1). Further, the Stormwater Pollution Prevention Plan, which includes provisions to reduce and control discharges other than stormwater, would be implemented.

The release of pollutants due to project inundation during project operation may result from an increased impervious surface area, operation and maintenance activities—including automobile use—and discharges of sediments and other pollutants collected in stormwater and floodwater runoff. The portion of the project within the County's right-of-way would be subject to the site design, source control, runoff reduction, stormwater treatment, and baseline hydromodification management requirements of the Phase 2 Municipal Separate Storm Sewer System permit. A Hydromodification Susceptibility Assessment would be required to determine whether the project

requires hydromodification management measures. Coordination with local, state, and federal water resources and floodplain management agencies would be conducted as necessary during all aspects of the project to discuss these potential floodplain impacts. The impact would be less than significant.

3.2.11 Land Use and Planning

CEQA Significance Determinations for Land Use and Planning

Would the project:

a) Physically divide an established community?

No Impact— The project includes the widening of auxiliary lanes along State Route 1 from Freedom Boulevard to State Park Drive, and construction of Segment 12 of the Coastal Rail Trail along the Santa Cruz County Regional Transportation Commission-owned Santa Cruz Branch Rail Line between State Park Drive and Rio Del Mar Boulevard. Both the highway and railroad are linear features that already divide the community. The project would improve travel times and reduce traffic delay on State Route 1. The Bus-on-Shoulder feature would increase the use of public transit, and the trail component would serve as a benefit to the local community by adding additional bicycle and pedestrian facilities and recreational opportunities. Therefore, the project would not physically divide an established community. No impact would occur.

b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

Less Than Significant Impact— The project is included in the Santa Cruz County Regional Transportation Commission's 2040 Metropolitan Transportation Plan/Sustainable Communities Strategy and the Santa Cruz County Regional Transportation Plan. Additionally, the project would not conflict with any policies of the County of Santa Cruz General Plan adopted for the purpose of avoiding or mitigating an environmental impact.

The project would be consistent with policies from the County of Santa Cruz Local Coastal Program, as described in Section 2.1.1. Avoidance, minimization, and mitigation measures, as well as standard measures listed in Chapter 1, would reduce ensure that any impacts related to vegetation removal or riparian areas is consistent with the Local Coastal Program. The project would be consistent with other policies from the Local Coastal Program because it would preserve the park and recreational land uses as stated in the Local Coastal Program and improve access to these resources by decreasing delay along State Route 1. Because the project traverses the Coastal Zone, a Coastal Development Permit from the County of Santa Cruz would be required. Additionally, consultation with the California Coastal Commission regarding discharges into Critical Coastal Areas and a federal

consistency determination would be needed. The impact would be less than significant.

3.2.12 Mineral Resources

CEQA Significance Determinations for 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?

(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?

No Impact (a, b)— There are no designated mineral resource areas in the project area or vicinity, and the project would not impede the extraction of any known mineral resources. There would be no impacts.

3.2.13 Noise

CEQA Significance Determinations for Noise

Would the project result in:

a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Less Than Significant Impact—The County of Santa Cruz Municipal Code establishes noise regulations in Chapter 8.30 of its Noise Ordinance, which restricts offensive noise, defined in Chapter 8.30, Section 10, as “any noise which is loud, boisterous, irritating, penetrating, or unusual, or that is unreasonably distracting in any other manner such that it is likely to disturb people of ordinary sensitivities in the vicinity of such noise”, between the hours of 10:00 p.m. and 8:00 a.m. The project is not subject to these ordinances, which are not part of the Local Coastal Program. However, Caltrans would coordinate with local agencies and the public before construction can be performed in noise-sensitive areas during nighttime hours.

Land uses along the State Route 1 project corridor are predominantly residential with pockets of commercial and recreational parcels. Traffic on State Route 1 is the dominant source of noise in the area. As discussed in Section 2.2.7, Noise and Vibration, the traffic noise modeling documented in the noise study report indicates that traffic noise levels would approach or exceed Caltrans’ Noise Abatement Criteria at 53 receptor sites. Noise abatement was considered for affected receptor sites and would meet the

criteria of abating noise by at least 5 A-weighted decibels at some sites, but not all. An increase of 12 A-weighted decibels is considered a substantial increase. None of the 107 receptor sites would experience an increase in noise that exceeds 12 A-weighted decibels or more over its corresponding modeled existing noise level. Therefore, this impact would be less than significant.

b) Generation of excessive groundborne vibration or groundborne noise levels?

Less Than Significant Impact— During certain construction phases, processes—such as earthmoving with bulldozers, the use of vibratory compaction rollers, impact pile driving, demolition, or pavement breaking—may cause construction-related vibration impacts such as human annoyance or, in some cases, building damage. The closest sensitive receptors is the Tennis Club of Rio del Mar athletic center located approximately 50 feet from construction areas for the Build Alternative. The use of a large bulldozer during construction of the Build Alternative would generate the highest vibration level of 0.089 peak particle velocity inches per second at a distance of 25 feet. The sensitive receptors may be subject to a ground-borne vibration level of 0.032 peak particle velocity inches per second. This vibration level is considered distinctly perceptible to humans and would not result in community annoyance. In addition, this vibration level would be well below the damage threshold of 0.3 PPV (in/sec) for older residential structures and would not have the potential to damage nearby residential structures. In addition, compliance with local Noise Ordinances and the Caltrans Standard Specifications described above in Section 2.2.7, Noise, would also minimize vibration impacts. Therefore, vibration from the Build Alternative during construction is not expected to exceed thresholds related to structural damage for any of the buildings nearest to construction areas or result in impacts on sensitive receptors from vibration. This impact is considered less than significant.

c) For a project located within the vicinity of a private airstrip or 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?

No Impact— The closest public airport is the Watsonville Municipal Airport, which is about 7 miles southeast of the project area. There are no private airstrips in the project vicinity. No impacts would occur.

3.2.14 Population and Housing

CEQA Significance Determinations for Population and Housing

Would the project:

a) Induce substantial unplanned 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)?

b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

Less Than Significant Impact (a, b)—Improvements to State Route 1 and increased alternative modes of travel are expected to reduce delay in the State Route 1 corridor. As stated in Section 2.1.6, Growth, the project is not expected to cause direct impacts related to growth. However, the project could make areas where developable land is still available more appealing for future development if peak commute times are reduced. The project could indirectly contribute to growth pressure in the cities of Watsonville and Marina and the unincorporated communities of Live Oak, Aptos, and Freedom, where future growth could occur. If future growth does occur within those areas and is indirectly influenced by the project, the project would require independent environmental review. Planned growth is described in more detail in Section 2.1.6. The impact would be less than significant.

Section 2.1.7, Relocations and Real Property Acquisition, describes residential and business displacements that would result from potential full acquisition of the properties at 7992, 7994, and 7996 Soquel Drive. The buildings at 7992, 7994, and 7996 Soquel Drive are located on three parcels under title to two owners. The analysis found that, in general, there is sufficient decent, safe and sanitary housing available to meet the needs of the potential displacees and Caltrans' Relocation Assistance Program would be applied 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. The impact would be less than significant with implementation of the avoidance, minimization/mitigation measures found in Section 2.1.7.

3.2.15 Public Services

CEQA Significance Determinations for 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 and Police Protection?

Less Than Significant Impact—The Aptos-La Selva Fire Protection District and Central Fire Protection District provide fire protection and emergency

rescue services to the project area. There is one fire station within the project area, located at 300 Bonita Drive, just east of Rio Del Mar Boulevard and south of State Route 1. Police protection and traffic enforcement in the project area are provided by the California Highway Patrol and the Santa Cruz County Sheriff's Department.

The project would not result in direct impacts on fire or police stations and is not expected to significantly impact response times for emergency services associated with the fire station or police/sheriff department personnel. The changes to lane configuration in the project corridor may improve response times of emergency services, allowing emergency service personnel to bypass other vehicles safely and quickly.

During the construction period, temporary closures of off/on-ramps and surrounding surface streets have the potential to affect the response times of emergency service providers. Temporary road closures may temporarily affect certain routes and temporarily increase congestion on surrounding streets. Additionally, temporary closures have the potential to significantly impact access to and from Aptos/La Selva Fire Station Number 2, the California Highway Patrol Santa Cruz Area office, and the Santa Cruz County Sheriff's Center. Detours and coordination with emergency service providers would be provided to ensure access is maintained throughout construction and that emergency service providers receive advance notice of detours and changes to access routes. Traffic would be shifted to allow continued two-way operation of State Route 1, as described in the Transportation Management Plan. Any required closures would be coordinated with emergency service providers, so their response times are not affected. Delays in access, although temporary, could disrupt normal operations and may result in impacts on emergency services. The impact would be less than significant.

Schools and Other public facilities?

Less Than Significant Impact—It is expected that most public and government services and facilities, including emergency service centers in the project vicinity, would be unaffected during construction because the existing roadways would remain open and functional during construction. Implementation of a Transportation Management Plan during construction would reduce potential impacts on the response times of emergency service providers (including law enforcement, fire protection, and ambulance service providers) caused by potential construction delays on area roadways. The long-term effect of the project would be to reduce delay and bottlenecks and thereby enhance accessibility to the greater State Route 1 project area, which would benefit the community facilities.

Parks?

Less Than Significant Impact—The proposed project would require a temporary construction easement in Aptos Village County Park, immediately

adjacent to the Santa Cruz Branch Line right of way, for construction of Coastal Rail Trail Segment 12. No other use of public park land is proposed. Additionally, implementation of the proposed project would require temporary road and ramp closures and detours during construction along State Route 1. Temporary road and ramp closures during construction may affect certain routes to nearby parks, beaches, and other recreational facilities in the vicinity of the project; however, detours would be established to ensure access to those facilities is maintained throughout construction.

No permanent impacts to Aptos Village County Park, or any other public parks or recreational facilities would occur. Although no significant impacts to parks or other recreational facilities are anticipated to occur as a result of the proposed project, implementation of a Transportation Management Plan, developed as part of the project construction planning phase, will ensure appropriate detours are established such that access to all facilities is maintained throughout construction. The Transportation Management Plan will also require coordination with and notification of all proposed road closures and detours prior to implementation. The impact is less than significant with implementation of the Transportation Management Plan.

3.2.16 Recreation

CEQA Significance Determinations for 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?

Less Than Significant Impact—The project would construct a segment of the Coastal Rail Trail for public use which would facilitate access to other parks and recreational facilities. However, use of existing facilities is not expected to be so substantial as to cause physical deterioration to existing recreational facilities. This impact would be less than significant.

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?

Less Than Significant Impact—The project would provide an additional recreational facility for public use and enhanced access to an existing park. See Section 3.2.15, Public Services, Parks. The impact is less than significant with implementation of the Transportation Management Plan.

3.2.17 Transportation

CEQA Significance Determinations for Transportation

Would the project:

a) Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

No Impact—The project is included in the Santa Cruz County Regional Transportation Commission's 2040 Metropolitan Transportation Plan/Sustainable Communities Strategy and the Santa Cruz County Regional Transportation Plan. In addition, the supplemental traffic analysis prepared for the project states that in terms of vehicle miles traveled, the Senate Bill 743 (Transportation Impact) guidelines have listed auxiliary lanes as a project type that is not likely to lead to measurable or substantial increase in vehicle travel, and transit projects such as the Bus-on-Shoulder element of the project are exempt from Senate Bill 743 analysis.

As stated in Section 2.1.7, the project would not conflict with any applicable plan or policy addressing circulation. There would be no impacts.

b) Conflict with or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?

Less Than Significant Impact—There will be temporary lane closures for construction on State Route 1 and local streets due to widening and replacement of bridges and trail improvements. The traffic management plan (AMM-TR-1) would reduce detour related vehicle miles traveled impacts by avoiding construction during peak hours of travel and keeping one through lane open on local streets. Vehicle trips used for construction purposes would be temporary, and any generated vehicle miles traveled would generally be minor and limited to construction equipment and personnel and would not result in long-term trip generation.

The supplemental traffic analysis prepared for the project states that in terms of vehicle miles traveled, the Senate Bill 743 (Transportation Impact) guidelines have listed auxiliary lanes as a project type that is not likely to lead to measurable or substantial increase in vehicle travel. In addition, transit projects such as the Bus-on-Shoulder element of the project are exempt from Senate Bill 743 analysis.

As described in Section 2.1.7, the net change in the countywide vehicle miles traveled due to the project auxiliary lanes is expected to be zero or a small negative value. Project bus-on-shoulder and trail would result in a mode shift from auto to transit, bicycle, and pedestrian modes of transportation, which in turn would result in a countywide net decline of 6,952 vehicle miles traveled per day by 2025 and 8,094 vehicle miles traveled per day by 2045 compared to the No Build Alternative (CDM Smith 2023).

Therefore, the Build Alternative would not have impacts related to vehicle miles traveled and no mitigation measures are necessary.

c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

Less Than Significant Impact—No incompatible uses or hazardous design features are associated with the operation of the project. The project would widen 2.6 miles of State Route 1 and improve traffic operations and safety along this segment of the freeway. The project would also enhance bicycle and pedestrian connections, promote use of alternative modes of transportation, and provide Coastal Rail Trail access across State Route 1.

During construction activities, a short-term increase in the potential for accidents involving motor vehicles and bicycles could occur. Because of the temporary disruption to traffic flow, the presence of construction equipment in the public right-of-way, and the localized increase in traffic congestion, drivers would be presented with unexpected driving conditions and obstacles, potentially increasing automobile accidents. These potential impacts would not substantially increase hazards because people are used to driving through construction areas, and at least one lane of travel in both directions would be open at all times during construction. A traffic control plan (i.e., Transportation Management Plan) would be prepared as part of the project to provide controlled access through the work site during construction. Impacts would be less than significant.

d) Result in inadequate emergency access?

Less Than Significant Impact—The Transportation Management Plan to be prepared and implemented would provide controlled access through the work site during construction. Although traffic would be slowed during construction, continuous access would be provided. This would avoid significant effects that could result from traffic stoppages, such as interruption of emergency access or access to homes and commercial businesses. The impact would be less than significant.

3.2.18 Tribal Cultural Resources

CEQA Significance Determinations for Tribal Cultural Resources

Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

- a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or
- b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

No Impact—The cultural resources studies and Native American consultation conducted for the project did not identify any tribal cultural resources within the project area.

3.2.19 Utilities and Service Systems

CEQA Significance Determinations for Utilities and Service Systems

Would the project:

- a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

Less Than Significant Impact—The project would not require water or wastewater treatment because no potable water and/or toilets would be provided as part of the project. The project would require utilities relocations including sanitary sewer and electric utility poles adjacent to Moosehead Drive and a gas line along the Coastal Rail Trail Segment 12 route for the ultimate trail improvements, and other utility appurtenances. This temporary impact would be less than significant.

The project design includes drainage system improvements and permanent stormwater treatment facilities for the State Route 1 and Coastal Rail Trail Segment 12 improvements, which would minimize the potential for discharges of pollutants to nearby storm drains. Additionally, vegetative areas would allow for infiltration and water quality treatment. The project would be designed per the objectives of Caltrans' National Pollutant Discharge Elimination System Permit requirements and related stormwater requirements to reduce runoff and the volume of entrained sediment. Caltrans' stormwater quality manuals also include Best Management Practices to be implemented for erosion and sediment control and material management. The implementation of Best Management Practices would minimize impacts on drainage and water quality during long-term operations at the site. The impact would be less than significant.

b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?

Less Than Significant Impact— During operation, similar to existing conditions, the project would require nominal amounts of water for the maintenance of plants and landscaping along the project corridor. During construction, water would only be used for dust control along the project corridor and trail Coastal Rail Trail Segment 12 route. Due to the minimal amount of water that would be required for dust control, the impact on the existing water supply would be less than significant.

c) 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?

Less Than Significant Impact—The project would not generate wastewater. If dewatering is necessary for areas where groundwater is encountered, depending on surface and groundwater levels at the time of construction, a permit for the discharge of extracted groundwater would be obtained from the Regional Water Board. Dewatering activities would also comply with the Caltrans Standard Specifications (see Standard Measure WQ-3). The discharge would be consistent with Regional Water Board requirements and, as such, would not result in a violation of water quality standards or waste discharge requirements. The impact would be less than significant.

d) Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

Less Than Significant Impact—Project construction would generate solid waste. However, the amount of solid waste generated by construction would not be substantial, would be limited to the construction time period and would not result in a substantial reduction in the capacity of a landfill. Therefore, this impact would be less than significant.

e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

No Impact— No impacts on local solid waste facilities are expected. The project would comply with all federal, state, and local statutes and regulations related to solid waste. Additionally, generated solid waste would be recycled when possible. No impacts would occur.

3.2.20 Wildfire

CEQA Significance Determinations for Wildfire

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:

a-d) Substantially impair an adopted emergency response plan or emergency evacuation plan; or due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire; or require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment; or expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

Less Than Significant Impact— There is the potential for wildland fires in the region, given the moderate Mediterranean climate and wind. However, the project site is not in a very high fire hazard severity zone, according to the California Department of Forestry and Fire Protection's Fire Hazard Severity Zone Map for the County of Santa Cruz (California Department of Forestry and Fire Protection 2007). The project would implement a traffic control plan that would keep lanes open for emergency access at all times. The impact would be less than significant.

3.2.21 Mandatory Findings of Significance

CEQA Significance Determinations for Mandatory Findings of Significance

a) Does the project have the potential to substantially 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, substantially 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?

Less Than Significant With Mitigation Incorporated—The project is in a primarily coastal environment along an existing portion of State Route 1. Implementation of Caltrans' standard measures, which are described in Chapter 1, as well as the avoidance, minimization, and mitigation measures described in Chapter 2, would ensure that the construction and operation of the project would not reduce the habitat, population, or range of a plant or animal species; or eliminate important examples of California history or prehistory. AMMs regarding protection of cultural and historic resources are described in Section 3.2.5 and AMMs, including compensatory mitigation, is

described in Section 2.3. Impacts would be less than significant with mitigation.

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)?

Significant and Unavoidable Impact—The development has the potential to further reduce the visual quality in the State Route 1 corridor. Visual impacts of the project include the loss of mature trees along the project corridor, the length of time required for replacement trees to reach maturity, and the inability to fully mitigate the visual impacts of the project. These factors suggest that the incremental contribution of the project to the cumulative visual impact may be considerable.

c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

Significant and Unavoidable Impact—The implementation of the project could impact aesthetics. The implementation of Caltrans’ standard measures and avoidance, minimization, and mitigation measures described in Section 2.1.4, Visual/Aesthetics, would reduce these impacts, but not below a significant level. Mitigation measures include aesthetic treatments on project features such as sound walls and retaining walls, and measures to reduce impacts to trees and vegetation (such as replanting). As discussed in the Aesthetics section in Chapter 2 and Section 3.2.1, Aesthetics, impacts related to visual resources would be significant and unavoidable. Cumulatively considerable impacts are described in Section 2.4.

3.3 Climate Change

Climate change refers to long-term changes in temperature, precipitation, wind patterns, and other elements of the Earth’s climate system. The Intergovernmental Panel on Climate Change, established by the United Nations and World Meteorological Organization in 1988, is devoted to greenhouse gas emissions reduction and climate change research and policy. Climate change in the past has generally occurred gradually over millennia or more suddenly in response to cataclysmic natural disruptions. The research of the Intergovernmental Panel on Climate Change and other scientists over recent decades, however, has unequivocally attributed an accelerated rate of climatological changes over the past 150 years to greenhouse gas emissions generated from the production and use of fossil fuels.

Human activities generate greenhouse gases consisting primarily of carbon dioxide, methane, nitrous oxide, tetrafluoromethane, hexafluoroethane, sulfur hexafluoride, and various hydrofluorocarbons. Carbon dioxide is the most

abundant greenhouse gas; while it is a naturally occurring and necessary component of Earth's atmosphere, fossil-fuel combustion is the main source of additional, human-generated carbon dioxide that is the main driver of climate change. In the U.S. and in California, transportation is the largest source of greenhouse gas emissions, mostly carbon dioxide.

The impacts of climate change are already being observed in the form of sea level rise, drought, more intense heat, extended and severe fire seasons, and historic flooding from changing storm patterns. Both mitigation and adaptation strategies are necessary to address these impacts. The most important mitigation strategy is to reduce greenhouse gas emissions. In the context of climate change (as distinct from CEQA and NEPA), "mitigation" involves actions to reduce greenhouse gas emissions or to enhance the "sinks" that store them (such as forests and soils) to lessen adverse impacts. "Adaptation" is planning for and responding to impacts to reduce vulnerability to harm, such as by adjusting transportation design standards to withstand more intense storms, heat, and higher sea levels. This analysis will include a discussion of both in the context of this transportation project.

3.3.1 Regulatory Setting

This section outlines federal and state efforts to comprehensively reduce greenhouse gas emissions from transportation sources.

Federal

To date, no national standards have been established for nationwide mobile-source greenhouse gas reduction targets, nor have any regulations or legislation been enacted specifically to address climate change and greenhouse gas emissions reduction at the project level.

NEPA (42 U.S. Code Part 4332) requires federal agencies to assess the environmental effects of their proposed actions prior to making a decision on the action or project.

The Federal Highway Administration recognizes the threats that extreme weather, sea level change, and other changes in environmental conditions pose to valuable transportation infrastructure and those who depend on it. The Federal Highway Administration therefore supports a sustainability approach that assesses vulnerability to climate risks and incorporates resilience into planning, asset management, project development and design, and operations and maintenance practices (FHWA 2019). This approach encourages planning for sustainable highways by addressing climate risks while balancing environmental, economic, and social values—"the triple bottom line of sustainability" (FHWA n.d.). Program and project elements that foster sustainability and resilience also support economic vitality and global efficiency, increase safety and mobility, enhance the environment, promote energy conservation, and improve the quality of life.

The federal government has taken steps to improve fuel economy and energy efficiency to address climate change and its associated effects. The most important of these was the Energy Policy and Conservation Act of 1975 (42 USC Section 6201) as amended by the Energy Independence and Security Act of 2007; and Corporate Average Fuel Economy Standards. This act established fuel economy standards for on-road motor vehicles sold in the United States. The U.S. Department of Transportation's National Highway Traffic and Safety Administration sets and enforces the CAFE standards based on each manufacturer's average fuel economy for the portion of its vehicles produced for sale in the United States. The Environmental Protection Agency calculates average fuel economy levels for manufacturers, and also sets related greenhouse gas emissions standards under the Clean Air Act. Raising CAFE standards leads automakers to create a more fuel-efficient fleet, which improves our nation's energy security, saves consumers money at the pump, and reduces greenhouse gas emissions (U.S. DOT 2014).

The U.S. Environmental Protection Agency published a final rulemaking on December 30, 2021, that raised federal greenhouse gas emissions standards for passenger cars and light trucks for model years 2023 through 2026, increasing in stringency each year. The updated greenhouse gas emissions standards will avoid more than 3 billion tons of greenhouse gas emissions through 2050. In April 2022, the National Highway Traffic Safety Administration announced corresponding new fuel economy standards for model years 2024 through 2026, which will reduce fuel use by more than 200 billion gallons through 2050 compared to the old standards and reduce fuel costs for drivers (U.S. Environmental Protection Agency 2022a; National Highway Traffic Safety Administration 2022).

State

California has been innovative and proactive in addressing greenhouse gas emissions and climate change by passing multiple Senate and Assembly bills and executive orders including, but not limited to, the following:

Executive Order S-3-05 (June 1, 2005): The goal of this Executive Order is to reduce California's greenhouse gas emissions to: (1) year 2000 levels by 2010, (2) year 1990 levels by 2020, and (3) 80 percent below year 1990 levels by 2050. This goal was further reinforced with the passage of Assembly Bill 32 in 2006 and Senate Bill 32 in 2016.

Assembly Bill 32, Chapter 488, 2006, Núñez and Pavley, The Global Warming Solutions Act of 2006: AB 32 codified the 2020 greenhouse gas emissions reduction goals outlined in Executive Order S-3-05, while further mandating that the California Air Resources Board create a scoping plan and implement rules to achieve "real, quantifiable, cost-effective reductions of greenhouse gases." The Legislature also intended that the statewide greenhouse gas emissions limit continue in existence and be used to maintain and continue reductions in emissions of greenhouse gases beyond

2020 (Health and Safety Code Section 38551(b)). The law requires California Air Resources Board to adopt rules and regulations in an open public process to achieve the maximum technologically feasible and cost-effective greenhouse gas reductions.

Executive Order S-01-07 (January 18, 2007): This order sets forth the low carbon fuel standard for California. Under this order, the carbon intensity of California's transportation fuels is to be reduced by at least 10 percent by the year 2020. The California Air Resources Board readopted the low carbon fuel standard regulation in September 2015, and the changes went into effect on January 1, 2016. The program establishes a strong framework to promote the low-carbon fuel adoption necessary to achieve the governor's 2030 and 2050 greenhouse gas reduction goals.

Senate Bill 375, Chapter 728, 2008, Sustainable Communities and Climate Protection: This bill requires California Air Resources Board to set regional emissions reduction targets for passenger vehicles. The Metropolitan Planning Organization for each region must then develop a "Sustainable Communities Strategy" that integrates transportation, land-use, and housing policies to plan how it will achieve the emissions target for its region.

Senate Bill 391, Chapter 585, 2009, California Transportation Plan: This bill requires the State's long-range transportation plan to identify strategies to address California's climate change goals under Assembly Bill 32.

Executive Order B-30-15 (April 2015) establishes an interim statewide greenhouse gas emission reduction target of 40 percent below 1990 levels by 2030 to ensure California meets its target of reducing greenhouse gas emissions to 80 percent below 1990 levels by 2050. It further orders all state agencies with jurisdiction over sources of greenhouse gas emissions to implement measures, pursuant to statutory authority, to achieve reductions of greenhouse gas emissions to meet the 2030 and 2050 greenhouse gas emissions reductions targets. It also directs California Air Resources Board to update the Climate Change Scoping Plan to express the 2030 target in terms of million metric tons of carbon dioxide equivalent (MMTCO₂e). greenhouse gases differ in how much heat each traps in the atmosphere, called global warming potential, or GWP. Carbon dioxide is the most important greenhouse gas, so amounts of other gases are expressed relative to carbon dioxide, using a metric called "carbon dioxide equivalent". The global warming potential of carbon dioxide is assigned a value of 1, and the GWP of other gases is assessed as multiples of carbon dioxide. Finally, it requires the Natural Resources Agency to update the state's climate adaptation strategy, Safeguarding California, every 3 years, and to ensure that its provisions are fully implemented.

Senate Bill 32, Chapter 249, 2016, codifies the greenhouse gas reduction targets established in Executive Order B-30-15 to achieve a mid-range goal of 40 percent below 1990 levels by 2030.

Senate Bill 1386, Chapter 545, 2016, declared “it to be the policy of the state that the protection and management of natural and working lands ... is an important strategy in meeting the state’s greenhouse gas reduction goals, and would require all state agencies, departments, boards, and commissions to consider this policy when revising, adopting, or establishing policies, regulations, expenditures, or grant criteria relating to the protection and management of natural and working lands.”

Senate Bill 743, Chapter 386 (September 2013): This bill changes the metric of consideration for transportation impacts pursuant to CEQA from a focus on automobile delay to alternative methods focused on vehicle miles traveled, to promote the state’s goals of reducing greenhouse gas emissions and traffic related air pollution and promoting multimodal transportation while balancing the needs of congestion management and safety.

Senate Bill 150, Chapter 150, 2017, Regional Transportation Plans: This bill requires California Air Resources Board to prepare a report that assesses progress made by each metropolitan planning organization in meeting their established regional greenhouse gas emission reduction targets.

Executive Order B-55-18 (September 2018) sets a new statewide goal to achieve and maintain carbon neutrality no later than 2045. This goal is in addition to existing statewide targets of reducing greenhouse gas emissions.

Assembly Bill 1279, Chapter 337, 2022, The California Climate Crisis Act: This bill mandates carbon neutrality by 2045 and establishes an emissions reduction target of 85% below 1990 level as part of that goal. This bill solidifies a goal included in EO B-55-18. It requires ARB to work with relevant state agencies to ensure that updates to the scoping plan identify and recommend measures to achieve these policy goals and to identify and implement a variety of policies and strategies that enable carbon dioxide removal solutions and carbon capture, utilization, and storage technologies in California, as specified.

3.3.2 Environmental Setting

The proposed project is in an urban area of Santa Cruz County with a well-developed road and street network. The project area is mostly comprised of urban and built-up land with small portions of forested areas on the northern and southern edges of State Route 1. These forested areas generally serve as vegetated buffers between State Route 1 and adjacent land uses and none of these areas serve as active lumber production or other timberland use. State Route 1 is heavily used during peak hours (7:00 a.m. to 8:00 a.m. and 4:00 p.m. to 5:00 p.m.). The 2040 Metropolitan Transportation Plan/Sustainable Communities Strategy guides transportation development in the project area. The Santa Cruz County General Plan Conservation and Open Space element addresses Greenhouse gases in the project area.

Greenhouse Gas Inventories

A greenhouse gas emissions inventory estimates the amount of greenhouse gases discharged into the atmosphere by specific sources over a period of time, such as a calendar year. Tracking annual greenhouse gas emissions allows countries, states, and smaller jurisdictions to understand how emissions are changing and what actions may be needed to attain emission reduction goals. The U.S. Environmental Protection Agency is responsible for documenting greenhouse gas emissions nationwide, and the California Air Resources Board does so for the state, as required by Health and Safety Code Section 39607.4. Cities and other local jurisdictions may also conduct local greenhouse gas inventories to inform their greenhouse gas reduction or climate action plans.

National Greenhouse Gas Inventory

The annual greenhouse gas inventory submitted by the U.S. Environmental Protection Agency to the United Nations provides a comprehensive accounting of all human-produced sources of greenhouse gases in the U.S. Total greenhouse gas emissions from all sectors in 2020 were 5,222 million metric tons, factoring in deductions for carbon sequestration in the land sector. Of these, 79 percent were carbon dioxide, 11 percent were methane, and 7 percent were nitrous oxide; the balance consisted of fluorinated gases. Total greenhouse gases in 2020 decreased by 21 percent from 2005 levels and 11 percent from 2019. The change from 2019 resulted primarily from less demand in the transportation sector during the COVID-19 pandemic. The transportation sector was responsible for 27 percent of total U.S. greenhouse gas emissions in 2020, more than any other sector (Figure 3-1), and for 36 percent of all carbon dioxide emissions from fossil fuel combustion. Transportation carbon dioxide emissions for 2020 decreased by 13 percent from 2019 to 2020 but were 7 percent higher than transportation carbon dioxide emissions in 1990 (Figure 3-1) (U.S. Environmental Protection Agency 2022b).

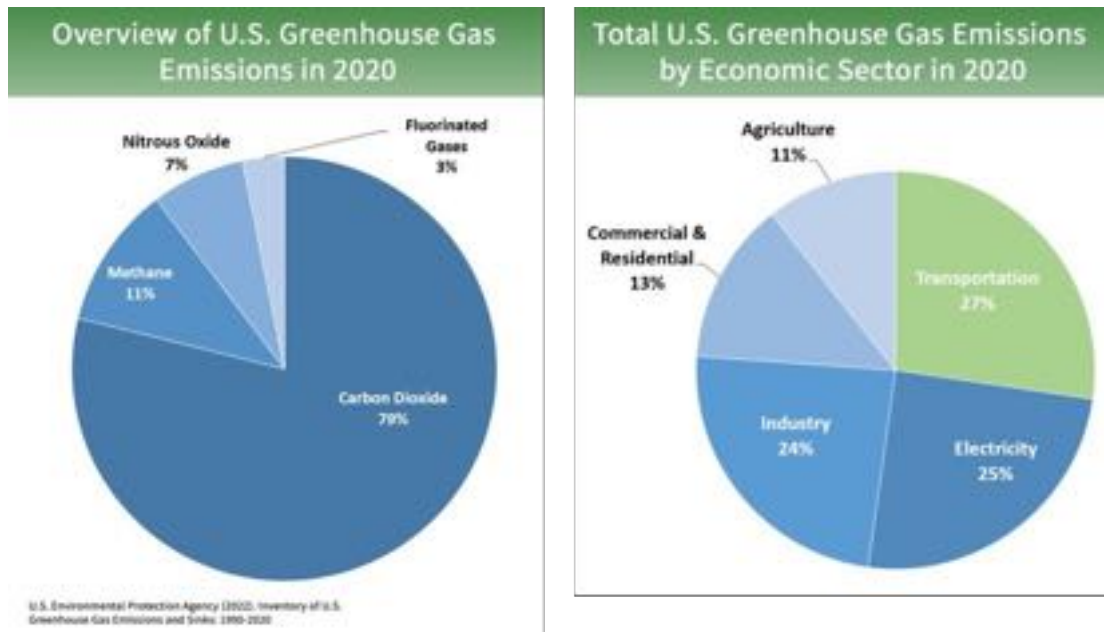


Figure 3-1. U.S. 2020 Greenhouse Gas Emissions (Source: U.S. Environmental Protection Agency 2022b)

State Greenhouse Gas Inventory

The California Air Resources Board collects greenhouse gas emissions data for transportation, electricity, commercial/residential, industrial, agricultural, and waste management sectors each year. It then summarizes and highlights major annual changes and trends to demonstrate the state's progress in meeting its greenhouse gas reduction goals. The 2022 edition of the greenhouse gas emissions inventory reported emissions trends from 2000 to 2020. Total California greenhouse gas emissions in 2020 were 369.2 million metric tons of carbon dioxide equivalent, a reduction of 35.3 million metric tons of carbon dioxide equivalent from 2019 and 61.8 million metric tons of carbon dioxide equivalent below the 2020 statewide limit of 431 million metric tons of carbon dioxide equivalent. Much of the decrease from 2019 to 2020, however, is likely due to the effects of the COVID-19 pandemic on the transportation sector, during which vehicle miles traveled declined under stay-at-home orders and reductions in goods movement. Nevertheless, transportation remained the largest source of greenhouse gas emissions, accounting for 37 percent of statewide emissions (Figure 3-2). (Including upstream emissions from oil extraction, petroleum refining, and oil pipelines in California, transportation was responsible for about 47 percent of statewide emissions in 2020; however, those emissions are accounted for in the industrial sector.) California's gross domestic product and greenhouse gas intensity (greenhouse gas emissions per unit of gross domestic product) both declined from 2019 to 2020 (Figure 3-2). It is expected that total greenhouse gas emissions will increase as the economy recovers over the next few years (California Air Resources Board 2022a).

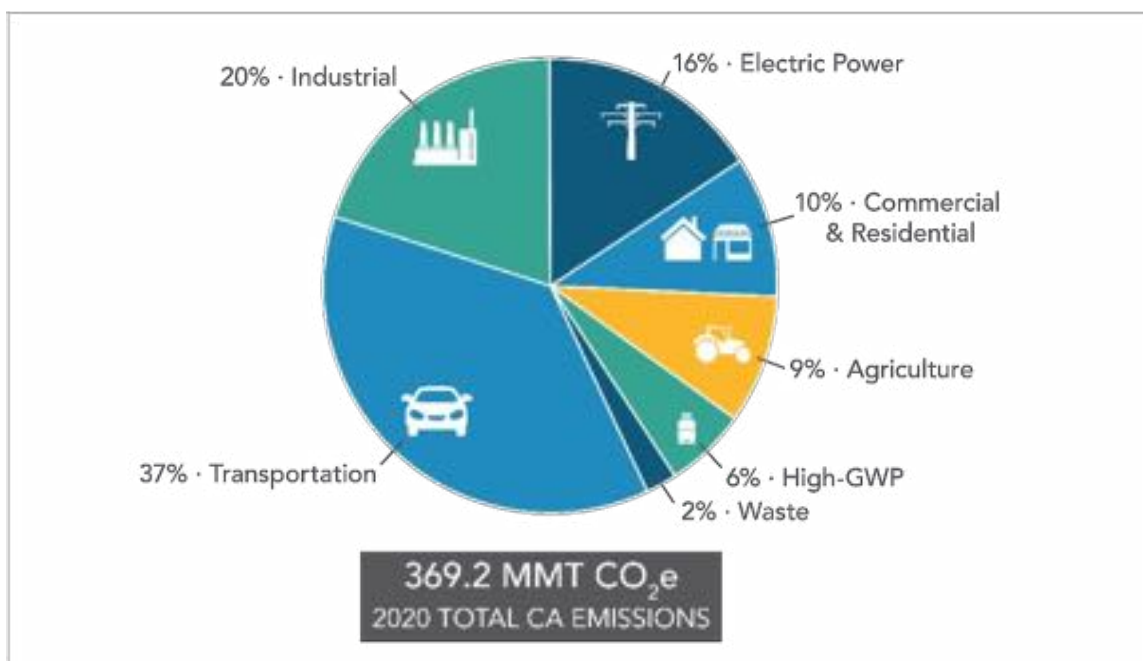


Figure 3-2. California 2020 Greenhouse Gas Emissions by Scoping Plan Category (Source: California Air Resources Board 2022a)

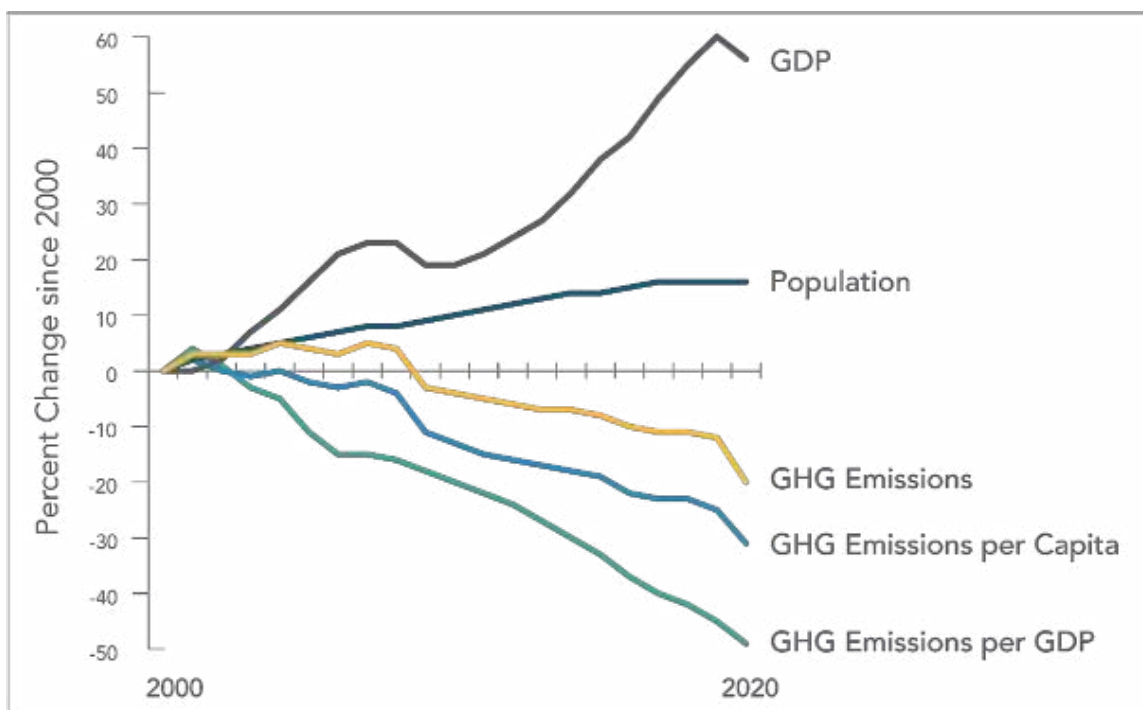


Figure 3-3. Change in California Gross Domestic Product, Population, and Greenhouse Gas Emissions Since 2000 (Source: California Air Resources Board 2022a)

Assembly Bill 32 required the California Air Resources Board to develop a Scoping Plan that describes the approach California will take to achieve the goal of reducing greenhouse gas emissions to 1990 levels by 2020 and to update it every five years. The California Air Resources Board adopted the first scoping plan in 2008. The second updated plan, *California's 2017 Climate Change Scoping Plan*, adopted on December 14, 2017, reflects the 2030 target established in Executive Order B-30-15 and Senate Bill 32. The draft 2022 Scoping Plan Update additionally lays out a path to achieving carbon neutrality by 2045 (California Air Resources Board 2022b).

Regional Plans

The California Air Resources Board sets regional greenhouse gas reduction targets for California's 18 Metropolitan Planning Organizations to achieve through planning future projects that will cumulatively achieve those goals and reporting how they will be met in the Regional Transportation Plan/Sustainable Communities Strategy. Targets are set at a percent reduction of passenger vehicle greenhouse gas emissions per person from 2005 levels.

The proposed project is included in the Association of Monterey Bay Area Governments' 2045 Metropolitan Transportation Plan/Sustainable Communities Strategy. The regional reduction target for Association of Monterey Bay Area Governments is -6 percent by 2035 (ARB 2021b).

The project is within the jurisdiction of the Santa Cruz County Regional Transportation Commission and is included in the 2040 Regional Transportation Plan for Santa Cruz County. The 2040 Regional Transportation Plan identifies goals to work toward a sustainable transportation system that addresses the current and future transportation challenges in the county, including congestion, safety, and maintenance. Additional relevant plans are shown below in Table 3-1.

Table 3-1. Regional and Local Greenhouse Gas Reduction Plans

Title	Greenhouse Gas Reduction Policies or Strategies
Association of Monterey Bay Area Governments 2040 Metropolitan Transportation Plan/Sustainable Communities Strategy and Regional Transportation Plans for Monterey, San Benito, and Santa Cruz Counties (adopted June 2018)	Integrated multi-modal network; Expand the public transit network; Strategic capacity and technology enhancements to existing highways; Identify a list of projects that will add and enhance walking and biking facilities; Transportation Systems Management measures; Transportation Demand Management
Santa Cruz County 2040 Regional Transportation Plan (Adopted June 2018)	Implement transportation system management programs and projects on major roadways to increase efficiency; decrease vehicle miles traveled; improve multi-modal access; ensure network connectivity and reduce conflict by improving bicycle, pedestrian, and transit networks; locate new facilities close to existing services

Title	Greenhouse Gas Reduction Policies or Strategies
County of Santa Cruz Climate Action Strategy (Adopted February 2013)	Public education about climate change and the impacts of individual actions; reduce vehicle miles traveled through Santa Cruz County and regional long range planning efforts; increase bicycle ridership and walking through incentive programs and investment in bicycle and pedestrian infrastructure and safety programs; increase employee use of alternative commute modes.

3.3.3 Project Analysis

Greenhouse gas emissions from transportation projects can be divided into those produced during the operation of the State Highway System (operational emissions) and those produced during construction. The main greenhouse gases produced by the transportation sector are carbon dioxide, methane, nitrous oxide, and hydrofluorocarbons. Carbon dioxide emissions are a product of burning gasoline or diesel fuel in internal combustion engines, along with relatively small amounts of methane and nitrous oxide. A small amount of hydrofluorocarbon emissions related to refrigeration is also included in the transportation sector.

The CEQA Guidelines generally address greenhouse gas emissions as a cumulative impact due to the global nature of climate change (Public Resources Code, Section 21083(b)(2)). As the California Supreme Court explained, “because of the global scale of climate change, any one project’s contribution is unlikely to be significant by itself” (Cleveland National Forest Foundation versus San Diego Association of Governments (2017) 3 California 5th 497, 512). In assessing cumulative impacts, it must be determined if a project’s incremental effect is “cumulatively considerable” (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. Although climate change is ultimately a cumulative impact, not every individual project that emits greenhouse gases must necessarily be found to contribute to a significant cumulative impact on the environment.

Operational Emissions

The purpose of the proposed project is to reduce delay and improve system reliability and safety, to improve traffic operational movements with auxiliary lanes, to enhance bicycle and pedestrian connectivity and safety, and to promote alternative transportation modes. The project will not increase the vehicle capacity of the roadway. This type of project generally causes minimal or no increase in operational greenhouse gas emissions. Because the project would not increase the number of travel lanes on State Route 1, no increase in vehicle miles traveled would occur. While some greenhouse gas emissions during the construction period would be unavoidable, no increase in operational greenhouse gas emissions is expected.

Construction Emissions

Construction greenhouse gas emissions would result from material processing and transportation, onsite construction equipment, and traffic delays due to construction. These emissions will be produced at different levels throughout the construction phase; their frequency and occurrence can be reduced through innovations in plans and specifications and by implementing better traffic management during construction phases.

The use of long-life pavement, improved traffic management plans, and changes in materials can also help offset emissions produced during construction by allowing longer intervals between maintenance and rehabilitation activities.

All construction contracts include Caltrans Standard Specifications related to air quality. Section 7-1.02A and 7-1.02C, Emissions Reduction, requires contractors to comply with all laws applicable to the project and to certify they are aware of and will comply with all California Air Resources Board emission reduction regulations. Section 14-9.02, Air Pollution Control, requires contractors to comply with all air pollution control rules, regulations, ordinances, and statutes. Certain common regulations, such as equipment idling restrictions, that reduce construction vehicle emissions also help reduce greenhouse gas emissions.

CEQA Conclusion

While the proposed project will result in greenhouse gas emissions during construction, it is expected that the project will not result in any increase in operational greenhouse gas emissions. The project does not conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases. With the implementation of construction greenhouse gas-reduction measures, the impact would be less than significant.

Caltrans is firmly committed to implementing measures to help reduce greenhouse gas emissions. These measures are outlined in the following section.

With the implementation of greenhouse gas- reduction measures during construction, the impact would be less than significant for construction emissions. The long-term operation of the Build Alternative would decrease greenhouse gas emissions slightly relative to existing conditions. This impact would be less than significant. Caltrans is firmly committed to implementing measures to help reduce greenhouse gas emissions. These measures are outlined in the following section.

3.3.4 Greenhouse Gas Reduction Strategies

Statewide Efforts

In response to Assembly Bill 32, California is implementing measures to achieve emission reductions of greenhouse gases that cause climate change. Climate change programs in California are effectively reducing greenhouse gas emissions from all sectors of the economy. These programs include regulations, market programs, and incentives that will transform transportation, industry, fuels, and other sectors, to take California into a sustainable, low-carbon, and cleaner future while maintaining a robust economy (California Air Resources Board 2022d).

Major sectors of the California economy, including transportation, will need to reduce emissions to meet the 2030 and 2050 greenhouse gas emissions targets. The Governor's Office of Planning and Research identified five sustainability pillars in a 2015 report: (1) increasing the share of renewable energy in the state's energy mix to at least 50 percent by 2030; (2) reducing petroleum use by up to 50 percent by 2030; (3) increasing the energy efficiency of existing buildings by 50 percent by 2030; (4) reducing emissions of short-lived climate pollutants; and (5) stewarding natural resources, including forests, working lands, and wetlands, to ensure that they store carbon, are resilient, and enhance other environmental benefits (Office of Planning and Research 2015). The Office of Planning and Research later added strategies related to achieving statewide carbon neutrality by 2045 in accordance with Executive Order B-55-18 and Assembly Bill 1279 (Office of Planning and Research 2022).

The transportation sector is integral to the people and economy of California. To achieve greenhouse gas emission reduction goals, it is vital that the state build on past successes in reducing criteria and toxic air pollutants from transportation and goods movement.

Greenhouse gas emission reductions will come from cleaner vehicle technologies, lower-carbon fuels, and a reduction in vehicle miles traveled. Reducing today's petroleum use in cars and trucks by 50 percent is a key state goal for reducing greenhouse gas emissions by 2030 (California Environmental Protection Agency 2015).

In addition, Senate Bill 1386 (Wolk 2016) established as state policy the protection and management of natural and working lands and requires state agencies to consider that policy in their own decision-making. Trees and vegetation in forests, rangelands, farms, and wetlands remove carbon dioxide from the atmosphere through biological processes and sequester the carbon in above- and below-ground matter.

Subsequently, Governor Gavin Newsom issued Executive Order N-82-20 to combat the crises in climate change and biodiversity. It instructs state agencies to use existing authorities and resources to identify and implement

near- and long-term actions to accelerate the natural removal of carbon and build climate resilience in our forests, wetlands, urban greenspaces, agricultural soils, and land conservation activities in ways that serve all communities and in particular low-income, disadvantaged, and vulnerable communities. To support this order, the California Natural Resources Agency (2022a) released *Natural and Working Lands Climate Smart Strategy*, with a focus on nature-based solutions.

Caltrans Activities

Caltrans continues to be involved on the Governor's Climate Action Team as the California Air Resources Board works to implement Executive Orders S-3-05 and S-01-07 and help achieve the targets set forth in Assembly Bill 32. Executive Order B-30-15, issued in April 2015, and Senate Bill 32 (2016), set an interim target to cut greenhouse gas emissions to 40 percent below 1990 levels by 2030. The following major initiatives are underway at Caltrans to help meet these targets.

Climate Action Plan for Transportation Infrastructure

The California Action Plan for Transportation Infrastructure builds on executive orders signed by Governor Newsom in 2019 and 2020 targeted at reducing greenhouse gas emissions in transportation, which account for more than 40 percent of all polluting emissions, to reach the state's climate goals. Under the California Action Plan for Transportation Infrastructure, where feasible and within existing funding program structures, the state will invest discretionary transportation funds in sustainable infrastructure projects that align with its climate, health, and social equity goals (California State Transportation Agency 2021).

California Transportation Plan

The California Transportation Plan is a statewide, long-range transportation plan to meet our future mobility needs and reduce greenhouse gas emissions. It serves as an umbrella document for all the other statewide transportation planning documents. The California Transportation Plan 2050 presents a vision of a safe, resilient, and universally accessible transportation system that supports vibrant communities, advances racial and economic justice, and improves public and environmental health. The plan's climate goal is to achieve statewide greenhouse gas emissions reduction targets and increase resilience to climate change. It demonstrates how greenhouse gas emissions from the transportation sector can be reduced through advancements in clean fuel technologies; continued shifts toward active travel, transit, and shared mobility; more efficient land use and development practices; and continued shifts to telework (Caltrans 2021a).

Caltrans Strategic Plan

The *Caltrans 2020-2024 Strategic Plan* includes goals of stewardship, climate action, and equity. Climate action strategies include developing and

implementing a Caltrans Climate Action Plan; a robust program of climate action education, training, and outreach; partnership and collaboration; a vehicle miles traveled monitoring and reduction program; and engaging with the most vulnerable communities in developing and implementing Caltrans climate action activities (Caltrans 2021b).

Caltrans Policy Directives and Other Initiatives

Caltrans Director's Policy 30 Climate Change (June 22, 2012) established a department policy to ensure coordinated efforts to incorporate climate change into departmental decisions and activities. *Caltrans Greenhouse Gas Emissions and Mitigation Report* (Caltrans 2020) provides a comprehensive overview of Caltrans' emissions. The report documents and evaluates current Caltrans procedures and activities that track and reduce greenhouse gas emissions and identifies additional opportunities for further reducing greenhouse gas emissions from department-controlled emission sources in support of departmental and state goals.

Project-Level Greenhouse Gas Reduction Strategies

Project features include new and expanded bicycle and pedestrian facilities and improved bike lane connectivity, which would support non-motorized modes of transportation.

Bus-on-Shoulder facilities would enable buses to use the shoulder lane, avoiding traffic delay and shortening travel time.

The following measures will also be implemented in the project to reduce greenhouse gas emissions and potential climate change impacts from the project.

- **Standard Measure AQ-4:** The construction contractor shall properly tune and maintain construction equipment and vehicles.
- **Standard Measure AQ-5:** The construction contractor shall use low-sulfur fuel in all construction equipment as provided in California Code of Regulations Title 17, Section 93114.
- **Standard Measure AQ-8:** All on-road and off-road diesel equipment shall not idle for more than 5 minutes. The contractor shall post signs in the designated queuing areas and/or job sites to remind drivers and operators of the 5-minute idling limit. For non-diesel equipment, idling time for lane closure during construction shall be restricted to 10 minutes in each direction.
- **Standard Measure AQ-12:** The construction contractor shall 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.

- **AMM-VA-11 Landscaping and Revegetation.** During design and construction, landscape and revegetate disturbed areas to the greatest extent feasible (given Caltrans' setback and maintenance requirements). Vegetation absorbs carbon dioxide.

3.3.5 Adaptation

Reducing greenhouse gas emissions is only one part of an approach to addressing climate change. Caltrans must 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 their intensity, and in the frequency and intensity of wildfires. Flooding and erosion can damage or wash out roads; longer periods of intense heat can buckle pavement and railroad tracks; storm surges combined with a rising sea level can inundate highways. Wildfires can directly burn facilities and indirectly cause damage when rain falls on denuded slopes that landslide after a fire. Effects will vary by location and may, in the most extreme cases, require that a facility be relocated or redesigned. Accordingly, Caltrans must consider these types of climate stressors in how highways are planned, designed, built, operated, and maintained.

Federal Efforts

Under the National Environmental Policy Act assignment, Caltrans is obligated to comply with all applicable federal environmental laws and Federal Highway Administration National Environmental Policy Act regulations, policies, and guidance.

The *Fourth National Climate Assessment*, published in 2018, presents the foundational science and the "human welfare, societal, and environmental elements of climate change and variability for 10 regions and 18 national topics, with particular attention paid to observed and projected risks, impacts, consideration of risk reduction, and implications under different mitigation pathways."

The U.S. Department of Transportation Policy Statement on Climate Adaptation in June 2011 committed the federal Department of Transportation to "integrate consideration of climate change impacts and adaptation into the planning, operations, policies, and programs of the U.S. Department of Transportation in order to ensure that taxpayer resources are invested wisely and that transportation infrastructure, services, and operations remain effective in current and future climate conditions" (U.S. DOT 2011). The U.S. Department of Transportation Climate Action Plan of August 2021 followed up with a statement of policy to "accelerate reductions in greenhouse gas emissions from the transportation sector and make our transportation

infrastructure more climate change resilient now and in the future,” following this set of guiding principles (U.S. DOT 2021):

- Use best-available science
- Prioritize the most vulnerable
- Preserve ecosystems
- Build community relationships
- Engage globally

The U.S. Department of Transportation developed its climate action plan pursuant to the federal Executive Order 14008, *Tackling the Climate Crisis at Home and Abroad* (January 27, 2021). Executive Order 14008 recognized the threats of climate change to national security and ordered federal government agencies to prioritize actions on climate adaptation and resilience in their programs and investments (White House 2021).

Federal Highway Administration order 5520 (*Transportation System Preparedness and Resilience to Climate Change and Extreme Weather Events*, December 15, 2014) established Federal Highway Administration policy to strive to identify the risks of climate change and extreme weather events to current and planned transportation systems. The Federal Highway Administration has developed guidance and tools for transportation planning that foster resilience to climate effects and sustainability at the federal, state, and local levels (FHWA 2019).

State Efforts

Climate change adaptation for transportation infrastructure involves long-term planning and risk management to address vulnerabilities in the transportation system. A number of state policies and tools have been developed to guide adaptation efforts.

California’s Fourth Climate Change Assessment (Fourth Assessment) (2018) is the state’s effort to “translate the state of climate science into useful information for action.” It provides information that will help decision-makers across sectors and at state, regional, and local scales protect and build the resilience of the state’s people, infrastructure, natural systems, working lands, and waters. The state’s approach recognizes that the consequences of climate change occur at the intersections of people, nature, and infrastructure. The Fourth Assessment reports that if no measures are taken to reduce greenhouse gas emissions by 2021 or sooner, the state is projected to experience a 2.7 to 8.8 degrees Fahrenheit increase in average annual maximum daily temperatures, with impacts on agriculture, energy demand, natural systems, and public health; a two-thirds decline in water supply from snowpack and water shortages that will impact agricultural production; a 77 percent increase in average area burned by wildfire, with consequences for forest health and communities; and large-scale erosion of up to 67 percent of

Southern California beaches and inundation of billions of dollars worth of residential and commercial buildings due to sea level rise (State of California 2018).

Sea level rise is a particular concern for transportation infrastructure in the coastal zone. Major urban airports will be at risk of flooding from sea level rise combined with storm surge as early as 2040; San Francisco International Airport is already at risk. Miles of coastal highways vulnerable to flooding in a 100-year storm event will triple to 370 by 2100, and 3,750 miles will be exposed to temporary flooding. The Fourth Assessment's findings highlight the need for proactive action to address these current and future impacts of climate change.

In 2008, then-governor Arnold Schwarzenegger recognized the need when he issued Executive Order S-13-08, which focused on sea level rise. Technical reports on the latest sea level rise science were first published in 2010 and updated in 2013 and 2017. The 2017 projections of sea level rise and a new understanding of processes and potential impacts in California were incorporated into the *State of California Sea-Level Rise Guidance Update* in 2018. This executive order also gave rise to the *California Climate Adaptation Strategy* (2009), updated in 2014 as *Safeguarding California: Reducing Climate Risk* (Safeguarding California Plan), which addressed the full range of climate change impacts and recommended adaptation strategies. The Safeguarding California Plan was updated in 2018 and again in 2021 as the *California Climate Adaptation Strategy*, incorporating key elements of the latest sector-specific plans such as the *Natural and Working Lands Climate Smart Strategy*, *Wildfire and Forest Resilience Action Plan*, *Water Resilience Portfolio*, and the Climate Action Plan for Transportation Infrastructure (described above). Priorities in the 2021 California Climate Adaptation Strategy include acting in partnership with California Native American Tribes, strengthening protections for climate-vulnerable communities that lack capacity and resources, nature-based climate solutions, use of best available climate science, and partnering and collaboration to best leverage resources (California Natural Resources Agency 2022b).

Executive Order B-30-15: This order was signed in April 2015 and requires state agencies to factor climate change into all planning and investment decisions. This order recognizes that the effects of climate change, in addition to sea level rise, also threaten California's infrastructure. At the direction of Executive Order B-30-15, the Office of Planning and Research published *Planning and Investing for a Resilient California: A Guidebook for State Agencies* in 2017 to encourage a uniform and systematic approach.

Assembly Bill 2800 (Quirk 2016): This bill created the multidisciplinary Climate-Safe Infrastructure Working Group to help actors throughout the state address the findings of California's Fourth Climate Change Assessment. It released its report, *Paying it Forward: The Path Toward Climate-Safe Infrastructure in California*, in 2018. The report provides guidance to agencies

on how to address the challenges of assessing risk in the face of inherent uncertainties still posed by the best available science on climate change. It also examines how state agencies can use infrastructure planning, design, and implementation processes to address the observed and anticipated climate change impacts (Climate Change Infrastructure Working Group 2018).

Caltrans Adaptation Efforts

Caltrans Vulnerability Assessments

Caltrans completed climate change vulnerability assessments to identify segments of the State Highway System vulnerable to climate change effects of precipitation, temperature, wildfire, storm surge, and sea level rise.

The climate change data in the assessments were developed in coordination with climate change scientists and experts at federal, state, and regional organizations at the forefront of climate science. The findings of the vulnerability assessments guide analysis of at-risk assets and the development of Adaptation Priority Reports as a method to make capital programming decisions to address identified risks.

Project Adaptation Analysis

The Governor's Office of Planning and Research prepared Planning and Investing for a Resilient California, a guidebook for state agencies performing climate risk analyses to determine how to integrate climate considerations into planning or investment decisions. The first step is to identify how climate change could affect a project or plan by identifying impacts of concern and assessing the scale, scope, and context of climate disruption. Next, a climate risk analysis can be conducted by selecting climate change scenarios for analysis and selecting an analytical approach. Following that, a climate-informed decision can be made by evaluating the alternatives and design and applying resilient decision principles. Finally, the agency can track and monitor progress by evaluating determined metrics, adjusting as needed. The adaptation analysis evaluates the first two steps to inform a decision for the project.

Assessing the scale, scope, and context of climate disruption for the project means considering the timeframe/lifetime, adaptive capacity, and risk tolerance of the project areas. The guidebook states, "If the expected lifetime of a project is less than 5 years, it may not be necessary to integrate longer-term climate change into the design and analysis." The project (i.e., roadway improvements along State Route 1) is expected to last far longer than 5 years, so the impacts of extreme events are considered to ensure that planning and investment decisions reflect the current and future climate conditions. In the following sections, the extreme impacts of climate change-based sea-level rise, flooding, and wildfire are addressed. Other extreme weather impacts, such as drought and extreme heat, are also expected as

changing climate conditions, but this analysis focuses on conditions that could potentially affect the project and its proposed structures.

Sea Level Rise

Except for the improvements along Soquel Drive, the project is within the Coastal Zone. Therefore, a sea level rise analysis is required in accordance with the California Coastal Commission, California Ocean Protection Council, and Caltrans planning guidance.

The project opening year is 2025 and the design/horizon year is 2045. As a comprehensive approach, sea level rise projections are considered in 2030, through 2100 at every decade. The 2018 California Ocean Protection Council Sea Level Rise guidance acknowledges that current projections beyond 2100 are subject to a higher degree of uncertainty.

Table 3-2 presents the range of sea level rise projections for the Monterey tide gauge in 2030, 2040, 2050 and 2100 for high emissions scenario (IPCC RPC 8.5) with low, medium/high, and extreme risk aversion approaches. Low-Risk Aversion corresponds to a 66 percent probability that sea level rise will reach the specified height by the associated year, Medium/High-Risk Aversion corresponds to a 0.5 percent probability that sea level rise meets or exceeds the specified height (i.e., 99.5 percent chance sea level rise will be at or below this height), and the Extreme Risk Aversion scenario is based on a maximally conservative estimate of sea level rise that could result from loss of the West Antarctic ice sheet by the associated year; this scenario is not assigned any probability of occurrence.

Table 3-2. Monterey Sea Level Rise Projections

Year	Emissions Scenario	Low-Risk Aversion Sea Level Rise Projection (Feet)	Medium/High-Risk Aversion Sea Level Rise Projection (Feet)	Extreme Risk Aversion Sea Level Rise Projection (Feet)
2030	High	0.5	0.8	1.0
2040	High	0.8	1.2	1.7
2050	High	1.1	1.9	2.7
2100	High	3.3	6.9	10.1

The data in Table 3-2 demonstrate that the range of sea level rise projections is from 0.5 feet to 1.0 feet in 2030, from 0.8 feet to 1.7 feet in 2040, from 1.1 feet to 2.7 feet in 2050, and from 3.3 feet to 10.1 feet in 2100. These years are of particular interest to this project because the opening year of 2025 would most closely model the 2030 predictions and the horizon/design year of 2045 would most closely model between the predictions of 2040 and 2050.

The Caltrans Climate Change Vulnerability Assessment District 5 Technical Report (Caltrans 2019b) evaluated the roadways at risk of permanent

inundation or exposure from higher sea levels within Caltrans District 5, which includes the County of Santa Cruz and the project area. The technical report used Ocean Protection Council projections in combination with National Oceanic and Atmospheric Administration data and identified no roadway segments in the County of Santa Cruz, including the project area, that would be impacted by up to 6 feet of sea level rise. Furthermore, the technical report did not identify any locations in the project area that would be affected by a combination of sea level rise and storm surge; this was confirmed using the National Oceanic and Atmospheric Administration Sea Level Rise Viewer tool.

The National Oceanic and Atmospheric Administration Sea Level Rise Viewer identifies the project area as at medium vulnerability to the effects of climate change. Project facilities would remain unaffected by sea level rise with about 10 feet of Sea Level Rise (Extreme Risk Aversion in 2100).

Taking a conservative approach, the analysis for the project considers the Extreme Risk Aversion Sea Level Rise in 2030 (1.0 feet), 2040 (1.7 feet), 2050 (2.7 feet), and the Medium/High-Risk Aversion—Low Emissions Sea Level Rise (6.9 feet) and the Extreme Risk Aversion (10.1 feet) Sea Level Rise projections for 2100. The Extreme Risk Aversion Sea Level Rise projection represents the worst-case scenario.

Based on the range of sea level rise projections and the analytical resources available (National Oceanic and Atmospheric Administration Sea Level Rise Viewer, 2019 Caltrans Vulnerability Assessment, and the Ocean Protection Council Sea Level Rise Guidance), maximum sea level rise projections in 2030 (1.0 feet), 2040 (1.7 feet), 2050 (2.7 feet), and 2100 (10.1 feet) would not have the potential to impact the project area. Project facilities would remain unaffected by sea level rise with about 10 feet of Sea Level Rise and no further consideration of adaptation strategies is warranted.

Precipitation and Flooding

The hydraulics assessment evaluated whether the project would affect 100-year water surface elevations within the project vicinity at these locations (WRECO 2022: 56). Model results showed an increase in water surface elevation of less than one-quarter inch for Aptos and Valencia Creeks. The proposed pedestrian bridges along Coastal Rail Segment 12 would be designed with all grading, piers, and structures outside the base floodplain with projected sea level rise. The proposed grading and retaining wall on State Route 1 to accommodate widening the existing railroad bridge over Aptos Creek would likewise be above the 100-year water surface elevation including sea level rise. The hydraulic model showed the proposed bridge at Aptos Creek would have adequate freeboard during the 100-year flood (approximately 22.8 feet during the 100-year flood, and 19 feet during the 100-year flood with sea level rise) (WRECO 2022: vi).

The sea level rise analysis in this chapter and that conducted for the floodplain evaluation report both concluded that the project would not be vulnerable to inundation by sea level rise of 7 feet plus 100-year storm surge at the likely end of bridge service lives at about 2100 under the medium-high risk aversion scenario.

The District 5 Climate Change Vulnerability Assessment technical report (Caltrans 2019b) reported projected changes in 100-year storm precipitation depth. Mapping shows the project area may experience an up to 10% increase in 100-year storm depth as early as 2025 and through 2085. The project's water quality assessment found that minimal net impervious area would drain to the different receiving waters within project limits and would not change water surface elevation upstream of State Route 1 during a 100-year event with sea level rise (WRECO 2022a: 70–71). As noted for sea level rise, bridge freeboard was found to be more than adequate to pass any increased flows. Furthermore, new drainage systems would be designed to convey 100-year flow, existing undersized culverts would be replaced, and treatment Best Management Practices and hydromodifications to enhance percolation would be conducted in accordance with requirements of Caltrans, Santa Cruz County, and the Central Coast Regional Water Quality Control Board (WRECO 2022a: 18; 2022b: 52). Accordingly, the project is not likely to be affected by the projected relatively small changes in 100-year storm precipitation.

Wildfire

The project area is within a Local Responsibility Area and Moderate Fire Hazard Severity Zone. During construction, Caltrans' 2018 revised Standard Specification 7-1.02M(2) mandates fire prevention procedures, including a fire prevention plan, to avoid accidental fire starts. Furthermore, the project is in an urban area and is not expected to exacerbate the impacts of wildfires intensified by climate change.

Temperature

It is not anticipated that temperature changes during the project's design life would require adaptive changes in pavement design or maintenance practices.

3.4 References

California Air Resources Board (ARB). 2008. *Climate Change Scoping Plan Appendices. Volume II: Analysis and Documentation*. Appendix I, p. I-19. December.

California Air Resources Board (ARB). 2022a. *Greenhouse Gas Emissions and Trends for 2000 to 2020*. Available: <https://ww2.arb.ca.gov/our-work/programs/ghg-inventory-program>. Accessed: November 2,

2022. <https://ww3.arb.ca.gov/cc/scopingplan/document/scopingplandocument.htm>. Accessed: October 31, 2019.
- California Air Resources Board (ARB). 2022b. *AB 32 Climate Change Scoping Plan*. Available: <https://ww2.arb.ca.gov/our-work/programs/ab-32-climate-change-scoping-plan>. Accessed: November 2, 2022.
- California Air Resources Board (ARB). 2022c. *SB 375 Regional Plan Climate Targets*. <https://ww2.arb.ca.gov/our-work/programs/sustainable-communities-program/regional-plan-targets>. Accessed: November 2, 2022.
- California Air Resources Board (ARB). 2022d. *Climate Change*. <https://ww2.arb.ca.gov/our-work/topics/climate-change>. Accessed: November 2, 2022.
- Climate Change Infrastructure Working Group. 2018. *Paying it Forward: The Path Toward Climate-Safe Infrastructure in California*. September. <https://files.resources.ca.gov/climate/climate-safe-infrastructure-working-group/>. Accessed: December 13, 2021.
- California Department of Forestry and Fire Protection. 2007. FHSZ Viewer. Available: <https://egis.fire.ca.gov/FHSZ/>. Accessed May 23, 2022. November.
- California Department of Transportation (Caltrans). 2010. *Historic Property Survey Report Santa Cruz Guardrail Project Santa Cruz County, California on State Route 1; 05-SCR-1; PM 9.00/17.62; EA 05-OR9100*. May. Amended July.
- California Department of Transportation (Caltrans). 2020. *Caltrans Greenhouse Gas Emissions and Mitigation Report*. Final. August. Prepared by ICF, Sacramento, CA. <https://dot.ca.gov/programs/public-affairs/mile-marker/summer-2021/ghg>. Accessed: November 2, 2022.
- California Department of Transportation (Caltrans). 2021a. *California Transportation Plan 2050*. February. <https://dot.ca.gov/programs/transportation-planning/state-planning/california-transportation-plan>. Accessed: November 2, 2022.
- California Department of Transportation (Caltrans). 2021b. *Caltrans 2020-2024 Strategic Plan*. <https://dot.ca.gov/-/media/dot-media/programs/risk-strategic-management/documents/sp-2020-16p-web-a11y.pdf>. Accessed: November 2, 2022.
- California Environmental Protection Agency. 2015. *California Climate Strategy*. <https://calepa.ca.gov/wp-content/uploads/sites/6/2016/10/Climate-Documents-2015yr-CAStrategy.pdf>. Accessed: November 2, 2022.

- California Governor's Office of Planning and Research (OPR). 2015. *A Strategy for California @ 50 Million*. November. https://opr.ca.gov/docs/EGPR_Nov_2015.pdf. Accessed: November 2, 2022.
- California Governor's Office of Planning and Research (OPR). 2022. *Carbon Neutrality by 2045*. <https://opr.ca.gov/climate/carbon-neutrality.html>. Accessed: November 2, 2022.
- California Natural Resources Agency. 2022a. *Natural and Working Lands Climate Smart Strategy*. <https://resources.ca.gov/Initiatives/Expanding-Nature-Based-Solutions>. Accessed: November 2, 2022.
- California Natural Resources Agency. 2022b. *California Climate Adaptation Strategy*. <https://climateresilience.ca.gov/>. Accessed: November 2, 2022.
- California State Transportation Agency. 2021. *Climate Action Plan for Transportation Infrastructure (CAPTI)*. Adopted July 2021. <https://calsta.ca.gov/subject-areas/climate-action-plan>. Accessed: November 2, 2022.
- County of Santa Cruz. 1994. Santa Cruz County General Plan Conservation and Open Space Element. Available: https://www.sccoplanning.com/Portals/2/County/userfiles/106/GP_Chapter%205_Open%20Space_Conservation.pdf. Accessed May 26, 2022.
- Federal Highway Administration . No date. *Sustainable Highways Initiative*. <https://www.sustainablehighways.dot.gov/overview.aspx>. Accessed: May 25, 2022.
- Federal Highway Administration (FHWA). 2022. *Sustainability*. <https://www.fhwa.dot.gov/environment/sustainability/resilience/>. Last updated July 29, 2022. Accessed: November 2, 2022.
- Federal Highway Administration (FHWA). No date. *Sustainable Highways Initiative*. <https://www.sustainablehighways.dot.gov/overview.aspx>. Accessed: November 2, 2022.
- National Highway Traffic Safety Administration (NHTSA). 2022. *USDOT Announces New Vehicle Fuel Economy Standards for Model Year 2024–2026*. Press release. April 21. <https://www.nhtsa.gov/press-releases/usdot-announces-new-vehicle-fuel-economy-standards-model-year-2024-2026>. Accessed: November 2, 2022.
- State of California. 2018. *California's Fourth Climate Change Assessment*. <https://climateassessment.ca.gov/>. Accessed: November 2, 2022.
- U.S. Department of Transportation (U.S. DOT). 2011. *Policy Statement on Climate Change Adaptation*. <https://www.transportation.gov/sites/>

- dot.dev/files/docs/Policy_on_Adaptation2011.pdf. Accessed: November 2, 2022.
- U.S. Department of Transportation (U.S. DOT). 2014. *Corporate Average Fuel Economy (CAFE) Standards*. <https://www.transportation.gov/mission/sustainability/corporate-average-fuel-economy-cafe-standards>. Accessed: November 2, 2022.
- U.S. Department of Transportation (U.S. DOT). 2021. *Climate Action Plan: Ensuring Transportation Infrastructure and System Resilience*. <https://www.transportation.gov/sites/dot.gov/files/docs/DOT%20Adaptation%20Plan.pdf>. Accessed: November 2, 2022.
- U.S. Environmental Protection Agency (U.S. EPA). 2022a. *Final Rule to Revise Existing National GHG Emissions Standards for Passenger Cars and Light Trucks Through Model Year 2026*. December. <https://www.epa.gov/regulations-emissions-vehicles-and-engines/final-rule-revise-existing-national-ghg-emissions>. Accessed: November 2, 2022.
- U.S. Environmental Protection Agency (U.S. EPA). 2022b. *Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2020*. <https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks>. Accessed: November 2, 2022.
- The White House. 2021. *Executive Order on Tackling the Climate Crisis at Home and Abroad*. January 27. <https://www.whitehouse.gov/briefing-room/presidential-actions/2021/01/27/executive-order-on-tackling-the-climate-crisis-at-home-and-abroad/>. Accessed: November 14, 2022.
- U.S. Fish and Wildlife Service. 2011. Programmatic Biological Opinion for Projects Funded or Approved under the Federal Highway Administration's Federal Aid Program (8-8-10-F-58). Available: <https://dot.ca.gov/-/media/dot-media/programs/environmental-analysis/documents/ser/2011-crlf-programmatic-bo-a11y.pdf>. Accessed May 25, 2022.
- WRECO. 2022. *Floodplain Evaluation Report*. State Route Highway 1 Auxiliary Lanes and Bus-on-Shoulder Improvements Freedom Blvd to State Park Dr. and Coastal Rail Trail Segment 12 Project Santa Cruz County, California. Prepared for the California Department of Transportation and Santa Cruz County Regional Transportation Commission. September.