

2.4 Cumulative Impacts

2.4.1 Regulatory Setting

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

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

CEQA Guidelines Section 15130 describes when a cumulative impact analysis is necessary and what elements are necessary for an adequate discussion of cumulative impacts. The definition of cumulative impacts under CEQA can be found in Section 15355 of the CEQA Guidelines. A definition of cumulative impacts under NEPA can be found in 40 Code of Federal Regulations 1508.7.

Approach and Methodology

The information in this section is summarized from the Cumulative Impact Analysis Technical Report prepared for the project in November 2022 (Caltrans 2022), which follows the eight-step cumulative impact analysis methodology developed by the California Department of Transportation (Caltrans) in cooperation with the Federal Highway Administration and the U.S. Environmental Protection Agency.

- Step 1 identifies the resources to consider in the cumulative impact analysis.
- Step 2 defines the resource study area for each resource addressed by the analysis. A Resource Study Area is the geographic area within which impacts on a resource are analyzed. The boundaries of a Resource Study Area are often broader than the boundaries used for project-specific analysis, such as a Biological Study Area. The delineation of the Resource Study Area was based on a review of the documentation of the work that has been accomplished on the project, focusing on technical studies.

- Step 3 assesses the current health and historical context of resources. This assessment was based on a review of the technical studies, as well as the County of Santa Cruz General Plan/Local Coastal Program, the General Plan/Local Coastal Program's Environmental Impact Report, and other data sources documented in the Cumulative Impact Analysis Technical Report.
- Step 4 identifies the direct and indirect impacts of the proposed project that might contribute to a cumulative impact by reviewing the impacts identified in the technical studies for the proposed project. For each impact of the proposed project for the resources identified in Step 1, the specific contributions to cumulative impacts that could result from the proposed project were considered.
- Step 5 requires the identification of current and reasonably foreseeable projects. A list of projects was compiled by first identifying projects listed on the websites of the Town of Aptos, the County of Santa Cruz, and the Governor's Office of Planning and Research's CEQANet database. The Regional Transportation Plan, local general plans and specific plans, and Caltrans Transportation Concept Reports were also consulted to identify projects that have a reasonable probability of being implemented over the next 20 years. Staff members from planning departments of the City of Capitola and the County of Santa Cruz were consulted to assess the likelihood that the projects identified in the respective general plans would be built over the next 20 years and to identify any other reasonably foreseeable projects. Information about the projects, including expected environmental impacts and mitigation, was obtained to the extent available.
- The Step 6 analysis began with a review of the information gathered in Steps 3 through 5 regarding the historical context and current health of each resource included in the Cumulative Impact Analysis Technical Report, the impacts of the proposed project on these resources, and the impacts of reasonably foreseeable future projects on the resources. The next step was to assess, for each resource, whether cumulative impacts exist, whether the identified cumulative impacts could be considered beneficial or adverse, and whether the proposed project would have a considerable contribution to the cumulative impact.
- Step 7 is to document the results of the stepwise cumulative impact analysis process. The activities associated with Step 7 consisted of preparing the analysis in Steps 1 through 6 that are presented in Sections 3 through 6 of the Cumulative Impact Analysis Technical Report.
- Step 8 of the cumulative impact analysis process involves assessing the need for mitigation to address the overall cumulative impact on each resource.

Affected Environment

The information in this section is summarized from the Cumulative Impact Analysis Technical Report prepared for the project in November 2022 (Caltrans 2022).

A list of reasonably foreseeable projects was compiled by first identifying projects listed on the websites of the County of Santa Cruz planning and public works departments and the Governor's Office of Planning and Research's CEQANet database. The Regional Transportation Plan, local general plans and specific plans, and Caltrans Transportation Concept Reports were also consulted to identify projects that have a reasonable probability of being implemented over the next 20 years. Staff members from planning department of the County of Santa Cruz as well as the Santa Cruz County Regional Transportation Commission were consulted to identify any other reasonably foreseeable projects. Information about the projects, including expected environmental impacts and mitigation, was obtained to the extent available. The list of current and reasonably foreseeable projects includes are as follows:

- Trout Gulch Road Storm Damage Repair Project (California Department of Fish and Wildlife 2022)
- Medical Office Building Project County of Santa Cruz 2020)
- Pure Water Soquel: Groundwater Replenishment and Seawater Intrusion Prevention Project (Soquel Creek Water District 2022)
- Dominican Hospital PUD (Dignity Health 2022)
- Arana Sewer Trunk Line Replacement Project (County of Santa Cruz 2021a)
- Valencia Creek Sewer Relocation Project (County of Santa Cruz 2021b)
- Capitola Wharf Renovation (City of Capitola 2020)
- Front St. Riverfront Project (City of Santa Cruz 2020)
- Sustainability Policy and Regulatory Update (County of Santa Cruz 2022)
- 9041 Soquel Drive, Aptos Mixed Use project (County of Santa Cruz 2021)c
- The 41st Avenue to Soquel Drive Auxiliary Lanes Project (Caltrans 2018b)
- State Park Drive to Bay Avenue/Porter Street Auxiliary Lanes Project (Caltrans 2021)
- Sustainability Policy and Regulatory Update (County of Santa Cruz 2022)
- 9041 Soquel Drive, Aptos Mixed Use project (County of Santa Cruz 2021)c
- The 41st Avenue to Soquel Drive Auxiliary Lanes Project (Caltrans 2018b)
1N900 Valencia creek improvement project

A summary of potential impacts from future projects is shown in Table 2-64.

Table 2-64. Summary of Impacts from Future Actions

Visual Resources	Potential impacts include the removal of trees, widened highway cross-section, soundwalls, and retaining walls, ranging from low to moderate-high levels of visual quality change.
Wetlands and Other Waters	Potential impacts include the permanent and temporary loss of wetlands and other waters.
Riparian Forest Natural Community and Riparian Corridors	Potential impacts include the permanent and temporary loss of riparian non-wetlands, including land disturbance and tree removal within areas of riparian forest habitat.
Coast Live Oak Woodland Habitat	Potential impacts include the permanent and temporary loss of oak woodland, including land disturbance and tree removal within areas of oak woodland habitat.
Tidewater Goby	Potential impacts include disturbance of identified tidewater goby habitat or project-induced runoff to identified habitat.
Central California Coast Steelhead	Potential impacts include the disturbance of habitat, runoff to habitat, or changed streamflow.
California Giant Salamander	Potential impacts include the disturbance of habitat.
Santa Cruz Long-Toed Salamander	Because this is a fully-protected species under the California Fish and Game Act, take of this species must be avoided.
California Red-Legged Frog (CRLF)	Potential impacts include the disturbance of habitat.
Foothill Yellow-Legged Frog (FYLF)	Potential impacts include the permanent and temporary loss of habitat.
Santa Cruz black salamander	Potential impacts include the disturbance of habitat.
Western Pond Turtle	Potential impacts include the permanent and temporary loss of habitat.
Cooper's Hawk & White-Tailed Kite	Potential impacts include the permanent and temporary loss of nesting habitat.
Least Bell's Vireo & Southwestern Willow Flycatcher	Potential impacts include any disturbance of brush or trees which may affect habitat.
Monarch Butterfly	Potential impacts include the permanent and temporary loss of overwintering habitat.
Pallid Bat, Townsend's Big-eared Bat, and Hoary Bat	Potential impacts include disturbance or tree removal.
Cultural/Historic Resources	Potential impacts include temporary and permanent removal of rail in Segment 12 of the Coastal Rail Trail.

Resources assessed for cumulative impacts fall into four categories: no potential for cumulative impacts, resources assessed with a projection approach, resources with less-than-significant impacts and in good/stable health, and resources with potential for cumulative impacts.

Resources Assessed with a Projection Approach

The following resources are at risk or are in poor or declining health but were not included in the eight-step cumulative impact analysis because they are addressed in other technical studies in their respective analyses using modeling projections.

- Growth
- Traffic and Transportation
- Air Quality
- Greenhouse Gas Emissions

In a cumulative impacts analysis, the identification of “past, present, and reasonably foreseeable future actions” can use either the “list approach” or the “projection approach.” The list approach identifies specific projects in the vicinity, typically provided by a local planning department. The projection approach or adopted plan approach relies on current general plans, transportation plans, or other planning documents, which by definition account for cumulative growth in a defined area.

For this analysis, the projection approach was used for the assessment of cumulative growth, traffic, air quality, and greenhouse gas emissions. As an example, the Association of Monterey Bay Area Governments’ Regional Travel Demand Model was used to project future build and no-build conditions and is based on planned regional growth, as contained in adopted general plans. The model also accounts for planned growth in nearby areas. For all other resource areas discussed, the list approach is used and takes into consideration past, present, and reasonably foreseeable future actions.

Resources with Less-Than-Significant Impacts and in Good/Stable Health

The following resources have less-than-significant impacts, are currently in good/stable health and when combined with the anticipated impacts of other past, present, and future projects in the area, they would not result in a significant impact. Therefore, these resources are not discussed in this cumulative impact analysis.

- Community Character and Cohesion
- Relocations and Real Property Acquisition

- Environmental Justice
- Utilities and Emergency Services
- Archaeological Resources
- Hydrology and Floodplains
- Water Quality and Stormwater Runoff
- Geology/Soils/Seismic/Topography
- Paleontology
- Hazardous Waste/Materials
- Noise
- Energy
- Plant Species
- Invasive Species

Resources with Potential for Cumulative Impacts

The following resources either have significant impacts identified or are in poor or declining health and are therefore discussed in this cumulative impact analysis:

- Coastal Zone Resources (Coastal Zone riparian non-wetlands)
- Visual/Aesthetics
- Cultural Resources
- Natural Communities (coast live oak woodland)
- Wetlands and Other Waters (riparian non-wetlands, Coastal Zone riparian non-wetlands)
- Special-Status Animal Species (Santa Cruz black salamander, California giant salamander, western pond turtle, Cooper's hawk, white-tailed kite, pallid bat, Townsend's big-eared bat, hoary bat)
- Threatened and Endangered Species (tidewater goby, Central California coast steelhead, foothill yellow-legged frog, California red-legged frog, least Bell's vireo, southwestern willow flycatcher, monarch butterfly)

For those resources that have the potential for a cumulative impact, the sections below describe the Resource Study Areas, current health and historical context, impacts of the project that may contribute to a cumulative impact, and impacts of reasonably foreseeable future projects for each resource analyzed for cumulative impacts. These sections also present the cumulative impacts of each resource.

Environmental Consequences

The information presented in these sections includes the results of Steps 2 through 6 of the cumulative impact analysis. Step 7 of the cumulative impact analysis requires the reporting of the information found in Steps 2 through 6; these sections document those results and satisfy the requirements of Step 7.

Visual/Aesthetics

The visual Resource Study Area encompasses the project limits, including the State Park Drive overcrossing above State Route 1 on the north and the Freedom Boulevard overcrossing above State Route 1 on the south. On the inland side of Route 1, it extends to the first ridgeline above the highway, tapering down to encompass only properties adjacent to the highway south of the southern project terminus. On the seaward side of Route 1, the visual Resource Study Area extends approximately 0.5 miles from Route 1, except in locations where there are visual obstructions due to topography, development, and vegetation. In those locations the visual Resource Study Area extends only to properties adjacent to the highway.

The current health and historical context of visual and aesthetic resources in the Resource Study Area are defined by sweeping changes to the visual environment accompanying the rapid development of the mid-twentieth century, which have left visual resources in poor health. However, the growth management policies instituted more recently, even as development continues, suggest that the trend is for conditions to remain in a stable condition of poor health.

The improvements under the project would have an adverse impact on the visual quality of the corridor, primarily due to the removal of trees and mature vegetation. Temporary impacts during the construction period would result from the use of equipment, stockpiling of soils and materials, and clearing of vegetation. Potential permanent impacts to visual and aesthetic resources from reasonably foreseeable future actions may include the removal of trees, widened freeway cross section, soundwalls, and retaining walls, ranging from low to moderate-high levels of visual quality change.

Although the trend for visual resources is considered to be in a generally stable condition, this resource is in a condition of poor health, and the effects of past, current, and future development, including the proposed project, has the potential to further reduce the visual quality in the Resource Study Area. Therefore, an adverse cumulative impact was identified. The context and extent of the project's contribution to this cumulative impact were considered, noting the distribution of visual impacts of the project, including 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 proposed project. These factors suggest that the incremental contribution of the proposed project to the cumulative visual impact may be considerable.

Wetlands and Other Waters

The Resource Study Area for wetlands and other waters encompasses the areas of freshwater marsh/ riverine habitat in the Coastal Zone within the Biological Study Area, which consists of a linear area within and adjacent to the State Route 1 ROW from State Park Drive to Freedom Boulevard and also encompasses the Santa Cruz Branch Line railroad ROW from State Park Drive to Rio Del Mar Boulevard, and extends beyond the Biological Study Area to include the watersheds of the following resources: Soquel Creek, Nobel Creek, Tannery Gulch, Borregas Creek, Valencia Channel, Aptos Creek, Valencia Creek, Ord Gulch, Pot Belly Creek, Rodeo Creek Gulch, Soquel Lagoon, Valencia Lagoon, and Valencia Channel.

Wetland acreage in the Monterey Bay region has greatly decreased since the 1890s, and wetlands have become more fragmented, due primarily to human impacts, though wetland acreage may have been stable since the late 1970's. Federal, state, and local laws and regulations along with studies done nearby indicate that the health of this resource will remain poor but stable. Current and future restoration activities may eventually lead to a gradual improvement in the health of this resource. Over the past 200 years, other waters in the area have been impacted by land use changes, channel alteration, levee and dam construction, flood control structures, roadway crossings, water diversions, and groundwater depletion. The efforts at multiple levels of government to protect this resource indicate that the current condition of poor health is stabilizing.

Impacts on wetlands from the proposed project include 0.061 acre of permanent impacts and 1.473 acre of temporary impacts. Impacts on other waters include 0.226 acre of temporary impacts and no permanent impacts.

Although the trend for wetlands and other waters is considered to be generally stable, this resource is in a condition of poor health, and the effect of past, current, and future development, including the proposed project, has potential to further degrade this resource. Therefore, an adverse cumulative impact was identified. The context and extent of the project's contribution to this cumulative impact was considered, noting that the impacts would occur in an existing transportation corridor, would be addressed by avoidance and minimization measures and compensatory mitigation as described in Section 2.2.2, *Wetlands and Other Waters*, and that the overall scale of wetlands and other waters would not be substantially affected. These factors indicate that the incremental contribution of the Project to the cumulative impact of past, present, and reasonably foreseeable future projects in the vicinity of the Project would not be considerable.

Riparian Forest

The Resource Study Area for riparian non-wetlands (riparian forest) and Coastal Zone riparian non-wetlands encompasses the areas of riparian habitat within the Biological Study Area and extends beyond the Biological

Study Area to include the watersheds of the following resources: Ord Gulch, Borregas Creek, Potbelly Creek, Tannery Gulch, a tributary to Tannery Gulch, and Nobel Creek.

The current health and historical context of riparian non-wetlands (riparian forest) and Coastal Zone riparian non-wetlands include decreases in the extent of riparian habitats within the County of Santa Cruz region over the past 200 years, due to the encroachment of agriculture, domestic animal grazing, urban development, roadway crossings, water diversions and channelization for drainage and flood control. Given the loss of riparian forest that has occurred, this resource appears to be in poor health. Despite the small remaining amount of old-growth forest, the regulatory protections for riparian corridors suggest that conditions are remaining stable, with a potential for improvement.

Impacts on riparian non-wetlands (riparian forest) from the proposed project include 0.081 acre of permanent impacts and 1.471 acre of temporary impacts. Potential impacts to riparian forest from reasonably foreseeable future actions include the permanent and temporary loss of riparian non-wetlands, including land disturbance and tree removal.

Although the trend for riparian forest is considered to be generally stable with a potential for improvement, this resource is in a condition of poor health. The effects of past, current, and future development, including the proposed project, has the potential to degrade this resource further. Therefore, an adverse cumulative impact was identified. The context and extent of the project's contribution to this cumulative impact were considered, noting that the impacts would occur in an existing transportation corridor, would not introduce new stream crossings in previously undeveloped areas, would be addressed by avoidance and minimization measures and compensatory mitigation as described in Section 2.3, Biological Environment, and the overall scale of the riparian forest would not be substantially affected. These factors indicate that the incremental contribution of the proposed project to the cumulative impact on riparian forest habitat would not be considerable.

Coast Live Oak Woodland

The Resource Study Area for coast live oak woodland encompasses the riparian forest Resource Study Area (described above), the oak woodland, mixed conifer woodland, and eucalyptus woodland habitats mapped within the Biological Study Area, and areas of open land immediately surrounding New Brighton State Park and from Freedom Boulevard to San Andreas Road, extending from the Pacific shore to the ridgeline above Route 1.

The current health and historical context of coast live oak woodland include the effects of grazing, wood harvesting, invasive species, land clearing, and urban expansion, which have led to the elimination of extensive areas of coast live oak woodland in the region. Though local laws and regulations may

decrease the future impact of development, the health of this resource is considered poor and may continue to decline given the remaining threat of invasive species.

Impacts on coast live oak woodland resulting from the project would include 1.565 acres of permanent impacts and 1.019 acres of temporary impacts. Potential impacts to coast live oak woodland from reasonably foreseeable future actions may include the permanent and temporary loss of coast live oak woodland, including land disturbance and tree removal within areas of coast live oak woodland habitat.

Coast live oak woodland is considered to be in a condition of poor health, and the trend for this resource may be in decline, although there is a possibility for improvement. The effects of past, current, and future development, including the proposed project, has the potential to degrade this resource further. Therefore, an adverse cumulative impact was identified. The context and extent of the project's contribution to this cumulative impact was considered, noting that the impacts would occur in an existing transportation corridor and would be addressed by avoidance and minimization measures and compensatory mitigation, as described in Section 2.3, Biological Environment. These factors indicate that the incremental contribution of the proposed project to the cumulative impact on the coast live oak woodland natural community would not be considerable.

Tidewater Goby

The Resource Study Area for tidewater goby encompasses the entirety of Critical Habitat Unit SC-7 (Aptos Creek) and includes Soquel Creek, Arana Gulch, Rodeo Gulch and their tributaries, as well as a 500-foot buffer around these resources.

This species faces many threats and has seen a reduction in its historic range. Data on population dynamics for this species is limited and short-term variability in local populations is common and natural. Though populations have historically declined and threats from climate change, drought, predation, and habitat loss remain, the population is thought to be relatively stable but is considered to be in poor health.

It is unexpected that tidewater goby would occupy the creeks within the Biological Study Area. However, impacts to tidewater goby habitat could occur in the wetted portion of Aptos Creek downstream of the Biological Study Area from construction activities.

These factors indicate that the incremental contribution of the proposed project to the cumulative impact on Tidewater Goby would not be considerable.

Fill and dewatering during construction activities have the potential to impact the species. Measures are identified in Section 2.3.5, *Threatened and Endangered Species* to avoid and minimize potential impacts.

Central California Coast Steelhead

The Resource Study Area for Central California coast steelhead encompasses the entirety of Hydrologic Sub-areas 330412 (San Lorenzo) and 330413 (Aptos-Soquel). These hydrologic subareas include Soquel Creek and Arana Gulch and their tributaries.

Development and land use changes have caused declines in water and habitat quality which resulted in substantial reductions in population of this distinct population segment. Given historic population declines and loss of habitat, this species is considered to be in poor health. Conservation efforts and restoration activities in the area may stabilize Steelhead populations; however, based on the documentation to date, the trend of decline appears to be continuing.

Potential impacts from reasonably foreseeable projects include disturbance of habitat, runoff to habitat, or changed streamflow.

Project activities could result in temporary and permanent impacts to aquatic and riparian habitats along Aptos and Valencia Creeks, where Steelhead are known to be seasonally present. Construction activities involving in-water work and dewatering could result in temporary alterations to in-channel conditions. Activities could also increase the potential for erosion and sediment transport downstream. Water quality degradation resulting from Project activities could potentially impact steelhead habitat. The use of mechanized equipment could also lead to the unintentional release of fuels, lubricants, solvents, or other pollutants into the channel, thus affecting water quality. Removal of the existing bridge support structures located immediately adjacent to Aptos Creek would result in long-term improvements to central California coast steelhead critical habitat. Nevertheless, the Project may affect, and is likely to adversely affect, central California coast steelhead critical habitat due to temporary dewatering. Measures are identified in the Section 2.3.1 to avoid and minimize potential impacts, including improving fish passage at Valencia and Aptos creeks. The arch culvert at Valencia Creek has been identified as a priority fish passage barrier; therefore, the project would construct a temporary fish passage solution to comply with Senate Bill 857. Mitigation is identified in Section 2.3.5, *Threatened and Endangered Species* to address the fish passage barrier. These factors indicate that the incremental contribution of the proposed project to the cumulative impact on Central California coast steelhead would not be considerable.

California Giant Salamander and Santa Cruz Black Salamander

The Resource Study Area for these two species is contiguous with that identified for the California red-legged frog, described below.

Historic conversion of habitat to agricultural and urban land uses has caused habitat fragmentation and loss for both species. In addition to habitat disturbance and destruction, disease (pathogenic fungi) and climate change have contributed to a decline in the population of this species. Given the ongoing threats to reproduction and dispersal due to continued urbanization, the species is considered to be in poor health with a declining trend in population.

Grading or other earthwork included in the project could impact Santa Cruz black salamanders and California giant salamanders in the Biological Study Area, where Caltrans proposes shoulder improvements for the project, particularly in uplands next to streams along State Route 1. Individuals could, therefore, be subjected to injury or mortality as a result of ground-disturbing activities. The potential need to capture and relocate Santa Cruz black salamanders or California giant salamanders could subject these animals to stresses that could result in adverse effects. Injury or mortality could occur via accidental crushing by construction equipment or even worker foot-traffic. Potential impacts from reasonably foreseeable future projects to Santa Cruz black salamanders and California giant salamanders also include the disturbance of habitat.

Santa Cruz black salamanders and California giant salamanders are considered to be in a condition of poor health, with a declining trend. The effects of past, current, and future development, including the proposed project, has the potential to degrade this resource further. Therefore, an adverse cumulative impact was identified. The context and extent of the proposed project's contribution to this cumulative impact were considered, noting that the proposed project would implement the avoidance and minimization measures and compensatory mitigation described in Section 2.3, Biological Environment. These factors indicate that the incremental contribution of the proposed project to the cumulative impact on Santa Cruz black salamanders and California giant salamanders would not be considerable.

Santa Cruz Long-Toed Salamander

The Resource Study Area for Santa Cruz long-toed salamander encompasses the water bodies identified in the mapping of Santa Cruz long-toed salamander habitat and a 1.3-mile radius of these water bodies.

As a result of urbanization and cultivation that have occurred since the mid-19th Century, areas of upland and aquatic habitats suitable for Santa Cruz long-toed salamanders have been removed and altered, and barriers to dispersal have been created, resulting in subpopulations which are isolated

from each other. Given the endangered status of this species, it is considered to be in poor health. The threats of habitat fragmentation, drought, and pollution are likely to continue, therefore this species' population is likely to trend downwards. This species is documented at the Valencia Lagoon. No project-related construction activities will occur within Valencia Lagoon or within upland habitat areas. The repairs to the fence separating the Valencia Ecological Preserve from the State Route 1 right-of-way are anticipated to prevent individual Santa Cruz long-toed salamander from entering the area of construction. Measures are identified in Section 2.3.4, Animal Species to avoid and minimize potential impacts. Because of the fully protected status of the Santa Cruz long-toed salamander, all impacts will be avoided.

California Red-Legged Frog

The Resource Study Area for California red-legged frog encompasses the areas of freshwater marsh and riparian forest habitat mapped within the Biological Study Area, and extends beyond these areas to include the entirety of Valencia Lagoon, Valencia Channel, and Soquel Lagoon, as well as the length of the streams the project corridor crosses (and upstream to the ridgeline above Route 1, and downstream to the Pacific coast), encompassing a 3-mile buffer.

Once widespread in California, the California red-legged frog has been extirpated from 70 percent of its former range and faces continued threats in the form of habitat loss, predation, and competition. While a recovery plan has been developed and initiated for this threatened species, California red-legged frog is considered to be in poor health with a declining population trend.

The health and historical context of the California red-legged frog is that, although once widespread in California, it has been weeded out from 70 percent of its former range and faces continued threats in the form of habitat loss, predation, and competition. While a recovery plan has been developed and initiated for this threatened species, it is considered to be in poor health with a declining population trend.

Construction within the Biological Study Area could result in direct impacts on California red-legged frogs, which could result in injury or death to individual California red-legged frogs if they are found to be breeding in riparian areas or estivating in nearby uplands. Grading or another earthwork could impact California red-legged frogs where Caltrans proposes shoulder improvements for the project, particularly in uplands next to streams along State Route 1. Individuals could, therefore, be subjected to injury or mortality as a result of ground-disturbing activities. Potential impacts from reasonably foreseeable future projects to California red-legged frogs include the disturbance of habitat.

California red-legged frogs are considered to be in a condition of poor health, with a declining trend. The effects of past, current, and future development, including the proposed project, has the potential to degrade this species' condition further. Therefore, an adverse cumulative impact was identified. The context and extent of the project's contribution to this cumulative impact were considered, noting that the project area is an existing transportation corridor, the project would implement the avoidance and minimization measures and compensatory mitigation described in Section 2.3, Biological Environment, and the overall scale of riparian forest habitat would not be substantially affected. These factors indicate that the incremental contribution of the project to the cumulative impact on California red-legged frogs would not be considerable.

Western Pond Turtle

The Resource Study Area for western pond turtle encompasses riparian forest habitat mapped within the Biological Study Area, and extends beyond these areas to include the entirety of Valencia Lagoon, Valencia Channel, and Soquel Lagoon, as well as the length of streams (extending upstream to the first ridgeline and downstream to the Pacific coast), encompassing a 1,400-foot buffer. The health and historical context for the western pond turtle includes adverse conditions that affect several coastal drainages between the San Francisco Bay and the Santa Clara River. Most of the San Joaquin Valley and the Salinas and Pajaro drainages include the effects of drought, habitat alteration, changes in land and water use, and abusive grazing practices. Given the historical and recent population declines, existing threats, and age trends, the health of this resource is considered to be poor and likely to continue to decline.

The Biological Study Area is within the known range of western pond turtle and suitable habitat is present. Construction activities involving in-water work and dewatering could result in direct injury or mortality, if western pond turtles are inhabiting aquatic or upland areas within the Biological Study Area. Construction activities including the excavation and installation of fill for bridges or other structures would result in the permanent loss of aquatic habitat and degradation. Dewatering could result in a temporary reduction in the quantity of available aquatic habitat. Areas with the greatest potential for impacts to western pond turtle would be along Aptos Creek. Measures are identified in Section 2.3.4, Animal Species to avoid and minimize potential impacts.

Western pond turtles are considered to be in a condition of poor health, with a declining trend. The effects of past, current, and future development, including the proposed project, has the potential to degrade these species' condition further. Therefore, an adverse cumulative impact was identified. The context and extent of the project's contribution to this cumulative impact were considered, noting that the impacts would occur in an existing transportation corridor, would be addressed by avoidance and minimization measures and

compensatory mitigation as described in Section 2.3, Biological Environment, and the overall scale of riparian forest habitat would not be substantially affected. These factors indicate that the incremental contribution of the proposed project to the cumulative impact on the western pond turtle would not be considerable.

Cooper's Hawk

The Resource Study Area for Cooper's hawk includes the oak woodland and riparian forest habitat mapped within the Biological Study Area and extends along each stream crossed by the proposed project, downstream to the Pacific Coast, and upstream to ridgelines above the urbanized areas (thereby encompassing foothill areas). A 3-mile buffer is included along each stream. The Resource Study Area also includes New Brighton State Park and areas of open land between the western and eastern portions of New Brighton State Park; aerial imagery was used to identify areas of open land.

The health and historical context of Cooper's hawk includes the gradual loss of habitat (logging in forested areas as well as development), which has been identified as a current threat for Cooper's hawk population in California. The current population is considered to be at or near carrying capacity in available nesting territories. In recent years, Cooper's hawk populations have increased, and range expansions have been seen, especially the colonizing of urban and suburban areas by breeding pairs. Given recent increases in population and range expansions, the health of this resource is considered to be good and is expected to be either stable or improving.

The removal of vegetation and/or nests as a result of the proposed project could directly impact bird nests and any eggs or young living in nests. Because birds can be sensitive to noise disturbances, temporary indirect impacts could also result from noise and disturbance associated with construction, which could alter perching, foraging, and/or nesting behaviors. No evidence of nests were seen on the Capitola Avenue overcrossing (which would be replaced during construction), but future nesting attempts under the bridge could occur and could be impacted if present during construction. Potential impacts from reasonably foreseeable future projects to Cooper's hawks include the permanent and temporary loss of nesting habitat through tree removal or nest disturbance.

Cooper's hawk is considered to be in a condition of good health, with a trend that is stable or improving. However, the effects of past, current, and future development, including the proposed project, could potentially degrade this resource. Therefore, an adverse cumulative impact was identified. The context and extent of the project's contribution to this cumulative impact were considered, noting that the impacts would occur in an existing transportation corridor, would be addressed by avoidance and minimization measures and compensatory mitigation as described in Section 2.3, Biological Environment, and the overall scale of riparian forest and potential nesting habitat would not

be substantially affected. These factors indicate that the incremental contribution of the proposed project to the cumulative impact on Cooper's hawk would not be considerable.

White-Tailed Kite

The Resource Study Area for the white-tailed kite encompasses the areas of riparian forest habitat mapped within the Biological Study Area and extends beyond these areas to include the length of the streams the project corridor crosses (and upstream to the ridgeline above State Route 1, and downstream to the Pacific Coast), encompassing a 3-mile buffer.

The health and historical context of white-tailed kites include a severe decline in population in the early 1900s, followed by an increase in population and distribution from the 1940s to 1970s. This species is considered to be in fair health and have a stable or increasing population trend.

The removal of vegetation and/or nests resulting from the proposed project could directly impact bird nests and any eggs or young living in nests. Because birds can be sensitive to noise disturbances, temporary indirect impacts could also result from noise and disturbance associated with construction, which could alter perching, foraging, and/or nesting behaviors. No evidence of nests were seen on the Capitola Avenue overcrossing (which would be replaced during construction), but future nesting attempts under the bridge could occur and could be impacted if present during construction. Potential impacts from reasonably foreseeable future projects to white-tailed kites also include the permanent and temporary loss of nesting habitat through tree removal or nest disturbance.

The white-tailed kite is considered to be in a condition of fair health, with a stable or improving trend. The effects of past, current, and future development, including the proposed project, has the potential to degrade this species' condition further. Avoidance and minimization measures would avoid all take of white-tailed kites; however, as described in Section 2.3, Biological Environment, birds can be sensitive to noise disturbances, and temporary indirect impacts may result from noise and disturbance associated with construction, which could alter perching, foraging, and/or nesting behaviors. Therefore, an adverse cumulative impact was identified. The context and extent of the project's contribution to this cumulative impact were considered, noting that the project would implement the avoidance and minimization measures and compensatory mitigation described in Section 2.3, Biological Environment. These factors indicate that the incremental contribution of the proposed project to the cumulative impact on white-tailed kites would not be considerable.

Least Bell's Vireo and Southern Willow Flycatcher

The Resource Study Area for these species encompasses the same Resource Study Area for riparian corridors and riparian forest habitat, plus a 200-foot buffer around those areas.

Once widespread and abundant, least bell's vireo populations declined in the post-World War II era due to habitat loss and the expansion of the brown-headed cowbird. The current health of this species is considered poor due to its listing as an endangered species, however the population has been increasing and that is expected to continue. The current health of the southern willow flycatcher species is considered poor due to its listing as an endangered species, though the population trend may be stable. Potential impacts from reasonably foreseeable projects include disturbance of brush or trees which may affect habitat.

Direct impacts to active bird nests and any young or eggs residing in nests could occur during the removal of trees and vegetation and/or the removal of nests. Temporary indirect impacts to birds could result from disturbance and noise associated with construction activities, which could alter nesting and/or foraging behaviors.

Marginal suitable foraging and breeding habitat for these species is present within the Biological Study Area. Due to the distance from known occurrences of these species, there is a low potential for forage and nest within the riparian habitat. As proposed, the Project would permanently impact 0.081 acre of riparian habitat and temporarily impact 1.471 acre of riparian habitat, which could be utilized by LBV and SWWF for nesting or foraging purposes. Impacts to active nests belonging to Southwestern willow flycatcher and least Bell's vireo could occur within riparian habitat in the Biological Study Area from construction activities. Indirect effects including project-related noise and vibration generated from nearby construction activities may disrupt nesting or foraging activity. Measures are identified in Section 2.3.5, Threatened and Endangered Species to avoid and minimize potential impacts.

Monarch Butterfly

The Resource Study Area for the monarch butterfly encompasses the oak woodland, mixed conifer woodland, and eucalyptus woodland habitats mapped within the Biological Study Area, New Brighton State Park, and areas of open land between the western and eastern portions of New Brighton State Park, extending to the Pacific shore.

Monarch butterfly counts conducted in the winters of 2018-2020 suggest continued and dramatic declines in monarch populations in California. In addition to habitat loss and land use practices, the widespread contamination of milkweed with pesticides is thought to play a major role in the declining population. Given historic habitat loss and recent population declines, the current health of this resource is poor. Monarch populations are impacted by

habitat loss and land use practices in the Resource Study Area and elsewhere (including other states and countries) due to their migration patterns. Efforts to monitor, protect and improve habitat for this species are underway though threats remain, therefore the health of this resource is expected to remain poor but stabilize. Impacts of reasonably foreseeable projects include permanent and temporary loss of overwintering habitat.

Marginally suitable overwintering habitat is present within the eucalyptus woodland where the Santa Cruz Branch Rail Line crosses State Route 1. While not currently known to be occupied as an overwintering site, it could be in the future. Indirect impacts to monarch butterflies could result in reduction of potential overwintering habitat, which would require monarch butterflies to find alternative overwintering habitat. Measures are identified in Section 2.3.5, Threatened and Endangered Species to avoid and minimize potential impacts.

Although the trend for the monarch butterfly is considered to be generally stable, monarch butterfly habitat is in a condition of poor health, and the effects of past, current, and future development, including the proposed project, has the potential to degrade monarch butterfly habitat further. Therefore, an adverse cumulative impact was identified. The context and extent of the project's contribution to this cumulative impact were considered, noting that the impacts would occur in an existing transportation corridor and would be addressed by avoidance and minimization measures and compensatory mitigation, as described in Section 2.3, Biological Environment. These factors indicate that the incremental contribution of the proposed project to the cumulative impact on monarch butterflies would not be considerable.

Pallid Bat, Townsend's Big-Eared Bat, and Hoary Bat

There is one Resource Study Area for the pallid bat, Townsend's big-eared bat, and hoary bat. This Resource Study Area encompasses the areas of grassland, riparian forest, and oak woodland habitat mapped within the Biological Study Area and extends downstream to the Pacific Coast and upstream to ridgelines above the urbanized areas encompassing a 3-mile buffer of the streams that the project crosses. The Resource Study Area also includes New Brighton State Park and areas of open land between the western and eastern portions of New Brighton State Park.

The health and historical context of these bat species varies. The pallid bat is believed to be intolerant of urban development, and populations are thought to have declined in recent decades. While populations are stable nationally, the health of this species is likely declining in coastal areas of California. Townsend's big-eared bat's perceived susceptibility to human disturbance at roost sites is usually cited as a key behavioral characteristic, putting the species at conservation risk. Based on the limited available information about this species, it appears to be in a condition of poor health, and there is

potential that the condition of Townsend's big-eared bat in California is declining. While the urbanization of the Resource Study Area may have been a factor in the lack of recorded occurrences of the hoary bat since 1940, statewide and nationwide, the hoary bat is thought to be in relatively good health and be in stable condition.

Direct impacts to bat species that utilize existing trees or structures, including the Santa Cruz Branch Rail Line overcrossings, as roosting habitat could occur during the removal of trees and/or structures within the Biological Study Area. Temporary indirect impacts to roosting bats could result from disturbance and noise associated with construction activities, which could alter roosting behavior. Measures are identified in Section 2.3.5, Threatened and Endangered Species to avoid and minimize potential impacts.

These species are in varied health, as described above. The effects of past, current, and future development, including the proposed project, could potentially degrade this resource. Therefore, an adverse cumulative impact was identified. The context and extent of the project's contribution to this cumulative impact were considered, noting that the impacts would occur in an existing transportation corridor and would be addressed by avoidance and minimization measures and compensatory mitigation, as described in Section 2.3, Biological Environment. These factors indicate that the incremental contribution of the proposed project to the cumulative impact on the pallid bat, Townsend's big-eared bat, and the hoary bat would not be considerable.

Historic Resources

There is one Resource Study Area for the Southern Pacific Railroad (Santa Cruz Branch Line). This historic resource runs along Segment 12 of the Coastal Rail Trail in the project area, and other segments of the 50-mile Monterey Bay Sanctuary Scenic Trail network. Potential impacts include temporary and permanent removal of rail in Segment 12 of the Coastal Rail Trail. The optional first phase would entail approximately 1.25 miles of temporary rail removal representing 6.2% of the 20.2 miles of the Santa Cruz Branch Railroad. Rail removal would be necessary due to the possibility that all or a portion of the railroad would be railbanked to preserve the corridor for future freight re-activation. Also, the replacement of the railroad bridges over State Route 1 would require rail replacement. The ultimate configuration would replace the rail on the two new railroad bridges over State Route 1.

The railroad was closed to passenger service in 1959 which was subsequently purchased by Santa Cruz County Regional Transportation Commission in 2012 and is currently not in use. The alignment is the primary contributing feature. 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 because of the project. Therefore, there would be limited removal only where required, thereby minimizing potential impacts.

Impacts from reasonably foreseeable projects include permanent removal of historic rail.

The railroad and its associated features are generally in fair condition. The Santa Cruz Branch Line has been evaluated and recommended as eligible to the California Register of Historical Resources and the National Register of Historic Places under Criterion A/1 within the theme of railroad development and transportation. Despite 6.2% rail removal in this section under the optional first phase, Santa Cruz County Regional Transportation Commission is committed to preserving as much of the character-defining features (including rail) of the overall alignment as is possible. Rail is already being preserved within other sections of the Coastal Rail Trail. Segments 5 through 9 and the Ultimate Trail configuration of segments 10 and 11 are leaving tracks in place over the majority of the line and replacing in kind for short stretches where they need to be realigned. For these reasons, the Santa Cruz Railroad retains sufficient integrity to convey its historical significance.

Cumulative impacts will be readdressed in any future projects that propose any amount of rail removal and avoidance, minimization, and /or mitigation measures would be implemented as needed. Because contributing features would not change as a result of the project, the project's contribution to significant cumulative impacts on cultural/historic resources would be less than cumulatively considerable.

Avoidance, Minimization and/or Mitigation Measures

The following avoidance, minimization, and/or mitigation measures from Sections 2.1.8, Visual/Aesthetics, 2.3.1, Natural Communities, 2.3.2, Wetlands and Other Waters, 2.3.4, Animal Species, and 2.3.5, Threatened and Endangered Species, would be implemented to avoid, minimize, and/or mitigate cumulative impacts:

- Visual Resources: AMM-VA-1 through AMM-VA-18
- Wetlands and Other Waters: AMM-BIO-1 through BIO-16, Mitigation Measures BIO-17
- Riparian forest: AMM-BIO-1 through BIO-16, Mitigation Measure BIO-17
- Coast live oak woodlands: AMM BIO-18 through BIO-21, Mitigation Measure BIO-22
- Central California Coast Steelhead: AMM BIO-23, Mitigation Measure BIO-24
- California Giant Salamander: AMM BIO-25, Mitigation Measure BIO-17
- Santa Cruz Black Salamander: AMM BIO-26, Mitigation Measure BIO-17

- Western Pond Turtle: AMM BIO-27, Mitigation Measure BIO-17
- Cooper's Hawk and White-Tailed Kite: Standard Measure BIO-1, AMM BIO-28 through BIO-32, Mitigation Measure BIO-17
- Hoary Bat, Pallid Bat, Townsend's Big-Eared Bat: AMM BIO-33 through 37, Mitigation Measure BIO-17
- Monarch butterfly: AMM BIO-43 and AMM BIO-44
- California red-legged frog: AMM BIO-45 through BIO-62, Mitigation Measure BIO-17
- Cultural/Historic Resources: No mitigation required

In addition to the avoidance and minimization measures and mitigation measures listed above, the following agency recommendations are provided for future projects within the Resource Study Areas to consider:

Visual/Aesthetics

The County of Santa Cruz and the City of Capitola have regulatory authority over visual resources associated with the project. Recommendations for agencies to mitigate overall cumulative impacts include prioritizing tree preservation and planting and encouraging or requiring screening plantings.

Wetlands and Other Waters

Agencies with regulatory authority over wetlands and other waters include the Army Corps of Engineers, Central Coast Regional Water Quality Control Board, and the County of Santa Cruz. Within the Coastal Zone, the California Coastal Commission also has regulatory authority over this resource. Recommendations for agencies to mitigate overall cumulative impacts include supporting local efforts to restore these resources. As an example, the U.S. Fish and Wildlife Service is undertaking efforts at the Ellicott Slough National Wildlife Refuge to remove non-native invasive plant species such as eucalyptus species and pampas grass, and to revegetate with native plant species. Efforts to restore wetland and other waters would benefit species that utilize these habitats, including white-tailed kite.

Riparian Forest

Recommendations for agencies to mitigate overall cumulative impacts for resources within this habitat include supporting local efforts to restore these resources, and identifying opportunities for habitat enhancement.

Coast Live Oak Woodland

The California Department of Fish and Wildlife, County of Santa Cruz, and the City of Capitola have regulatory authority over coast live oak woodland. Recommendations for agencies to mitigate overall cumulative impacts include prioritizing preservation and planting of coast live oaks via building permits,

development approvals, and project permitting. Additionally, recommendations would also include encouraging sustainable and larger ecosystem mitigation efforts rather than smaller, piecemeal mitigation efforts by looking at advanced mitigation and establishing mitigation banking opportunities.

Tidewater Goby

Agencies with regulatory authority over this resource are the California Department of Fish and Wildlife and the U.S. Fish and Wildlife Service. Recommendations for agencies to mitigate overall cumulative impacts include supporting local efforts to restore habitats for tidewater goby. As a specific example, in 2016, the Friends of Santa Cruz State Parks, California State Parks and the Watershed Stewards Program hosted a volunteer-driven restoration effort to remove invasive species along Moore Creek, which supports tidewater goby (Caltrans 2018).

Central California Coast Steelhead

The National Marine Fisheries Service of the National Oceanic and Atmospheric Administration and the California Department of Fish and Wildlife have regulatory authority over Central California coast steelhead. Recommendations for agencies to mitigate overall cumulative impacts include the support and funding of fish passage projects, and identifying opportunities for habitat enhancement, such as enlarging bridges and culverts to better facilitate the passage of woody debris in creeks that support Central California coast steelhead. The enlargement of bridges and culverts can support the movement of woody debris within creeks, which is important for salmonid habitat, and may also result in long-term lower annual maintenance costs (Caltrans 2018). The arch culvert at Valencia Creek has been identified as a priority fish passage barrier; therefore, the project would construct a temporary fish passage solution to comply with Senate Bill 857. Mitigation is identified in the Natural Environment Study to address the fish passage barrier.

California Giant Salamander and Santa Cruz Black Salamander

As described in Section 2.3.5, the project will implement avoidance and minimization measures specific to the California Giant Salamander and Santa Cruz black salamander including preconstruction surveys and potential relocation to suitable habitat outside of the area of impact. Compensatory mitigation proposed for impacts to aquatic habitats would also compensate for potential impacts to Santa Cruz black salamander habitat.

Santa Cruz Long-toed Salamander

The California Department of Fish and Wildlife and U.S. Fish and Wildlife Service have regulatory authority over Santa Cruz long-toed salamander. Recommendations for agencies to mitigate overall cumulative impacts include prioritizing the preservation of areas of undeveloped land that would benefit

this resource, and support connectivity and genetic exchange between subpopulations of the species. An example of taking measures to preserve these undeveloped areas is the efforts of the Land Trust of Santa Cruz County to identify important areas for multiple benefit conservation in its Conservation Blueprint (Caltrans 2018).

California Red-Legged Frog and Western Pond Turtle

The U.S. Fish and Wildlife Service and the California Department of Fish and Wildlife have regulatory authority over California red-legged frog. California Department of Fish and Wildlife has regulatory authority over western pond turtle. Due to the similarities in habitat requirements for these species, recommendations for agencies to mitigate overall cumulative impacts to these species include supporting local efforts to protect California red-legged frog habitat, including habitat restoration and enhancement. An example of local efforts to protect California red-legged frog habitat is the partnership between the non-profit organization Save The Frogs! and the Land Trust of Santa Cruz County to restore habitat for California red-legged frog at Antonelli Pond in the City of Santa Cruz (Caltrans 2018). These organizations are involving the community in efforts to plant native vegetation, and to eradicate invasive weeds, predatory fish and bullfrogs in order to protect habitat for California red-legged frog and provide environmental education to the public.

Cooper's hawk, White-tailed Kite, Least Bell's Vireo, and Southwestern Willow Flycatcher

The project will implement avoidance and minimization measures for the bird species identified above, which apply to all other birds protected by the Migratory Bird Treaty Act and California Fish and Game Code as described in Sections 2.3.4 and 2.3.5. , These measures will include pre-construction surveys, if any construction activities are proposed to occur during the typical nesting season, and the establishment of environmentally-sensitive areas around active nests to be avoided by the contractor. Due to the fully protected status of white-tailed kite, impact to this species will be avoided.

Monarch Butterfly

The California Department of Fish and Wildlife has regulatory authority over monarch butterflies. Recommendations for agencies to mitigate overall cumulative impacts include supporting efforts to restore habitat restoration for monarch butterflies. For example, the Environmental Defense Fund is partnering with the Monarch Joint Venture and the Iowa Monarch Conservation Consortium to develop a Monarch Butterfly Habitat Exchange, which would incentivize farmers and ranchers to maintain and increase the availability of milkweed, which is vital to the monarch butterfly life cycle. (Environmental Defense Fund 2019)

Pallid Bat, Townsend's Big-Eared Bat, and Hoary Bat

The California Department of Fish and Wildlife has regulatory authority over pallid bat, hoary bat, and Townsend's big-eared bat. Recommendations for agencies to mitigate overall cumulative impacts include supporting efforts to monitor bats in the Central Coast. For example, the Central Coast Bat Survey, the primary research project of the Pacific Coast Conservation Alliance, is seeking to investigate the relationship between Central Coast bats and viticulture and the effects of habitat enhancements on bat populations. The Central Coast Bat Survey is intended to address concerns regarding the economic impact that declines in bat populations could have on agricultural productivity, and the effectiveness of measures to improve bat survivorship, such as the installation of bat boxes, reduction of pesticide application, and creation of bat-friendly habitats (Caltrans 2018).

Cultural/Historic Resources

This resource is pending State Historic Preservation Officer concurrence. As stated above, the proposed project would not contribute to an adverse cumulative impact. No mitigation is required.

Further, SCCRTC is committed to preserving character-defining features and retaining as much rail as possible. The long-term goal is to reestablish a rail line along this corridor

References

California Department of Transportation. 2022. Cumulative Impact Analysis. State Highway Route 1 Auxiliary Lanes and Bus-on-Shoulder Improvements—Freedom Boulevard to State Park Drive—and Coastal Rail Trail Segment 12 Project. Santa Cruz County, California. November.