

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
DISTRICT 5 – SCr – 1 (PM 8.1/10.7)
EA 05-0C734

Cumulative Impact Analysis



Prepared by
State of California Department of Transportation

February 2023



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1.0 Introduction

This Technical Report presents the cumulative impact analysis of the State Highway Route 1 Auxiliary Lanes and Bus-on-Shoulder Improvements —Freedom Boulevard to State Park Drive— and Coastal Rail Trail Segment 12 Project (Proposed Project). The analysis was conducted in accordance with the eight-Step cumulative impact analysis methodology developed by Caltrans in cooperation with the Federal Highway Administration and the Environmental Protection Agency (Caltrans 2005).

Where applicable, this report includes information from the 2018 Cumulative Impact Analysis for the Santa Cruz Route 1 Tier I High Occupancy Vehicle (HOV) and Tier II Auxiliary Lanes from 41st Avenue to Soquel Avenue project (Caltrans 2018a), and the Natural Environment Study (NES) for the proposed project (Caltrans 2022). The Proposed Project is located within the Tier I Corridor studied in the 2018 Cumulative Impact Analysis for the Tier I/Tier II Project.

2.0 Organization of the Technical Report

This technical report provides a detailed discussion of Steps 1 through 8 of the eight-Step analysis of cumulative impacts. Table 2-1 shows how the sections of this Technical Report correspond with the 8-Step methodology.

Table 2-1. Organization of the Technical Report

Section of the Report	Section Title	Step(s) of the 8-Step Methodology
1	Introduction	None
2	Organization of the Technical Report	None
3	Project Description	None
4	Identify Resources (Step 1)	Step 1 identifies the resources considered in the Cumulative Impact Analysis
5	Identify Resource Study Area and Current Health and Historical Context of Resources (Steps 2 and 3)	Step 2 describes the resource study area (RSA) for each resource, for the purpose of identifying other projects that may affect each resource Step 3 presents conclusions concerning the health and historical context of each resource included in the analysis
6	Impacts of Proposed Project that May Contribute to a Cumulative Impact (Step 4)	Step 4 identifies the direct and indirect impacts from each of the proposed project alternatives on the resources included in the analysis
7	Other Reasonably Foreseeable Actions that Affect Each Resource (Step 5)	Step 5 identifies other current and reasonably foreseeable projects to be considered in the cumulative impact analysis
8	Assessment of Cumulative Impacts (Step 6)	Step 6 assesses the potential cumulative impacts

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Section of the Report	Section Title	Step(s) of the 8-Step Methodology
9	Summary and Documentation of Results (Step 7)	Step 7 summarizes and documents the results of Steps 1 through 6
10	Mitigation Needs and Recommendations (Step 8)	Step 8 summarizes the mitigation measures included in the proposed project and recommends actions to sustain the resources included in the analysis

3.0 Project Description

The California Department of Transportation (Caltrans), in cooperation with the Santa Cruz County Regional Transportation Commission (SCCRTC) and the County of Santa Cruz, proposes to widen State Route (SR) 1 to include auxiliary lanes, accommodate bus-on-shoulder (BOS) operations between the Freedom Boulevard and State Park Drive interchanges, and construct Coastal Rail Trail Segment 12.

One build alternative and the no-build alternative are proposed for further consideration. The project is located in Santa Cruz County on SR 1 from post mile (PM) 8.1, south of Freedom Boulevard, to PM 10.7, north of State Park Drive, with 1.14 miles of trail along the SCCRTC-owned Santa Cruz Branch Rail Line (SCBRL) between State Park Drive and Rio Del Mar Boulevard. The total length of the project on SR 1 is 2.6 miles, and on the SCBRL is 1.14 miles. Within the limits of the proposed project, SR 1 is a controlled access freeway with two 12-foot lanes; shoulder width varies within project limits. The average width of the inside shoulders is approximately 5 feet, and the average width of the outside shoulders is approximately 10 feet. Within the project area, the existing railroad right-of-way is generally in the range of 40 to 55 feet wide, with the existing railroad tracks generally in the center of the right-of-way. The existing railroad has at-grade crossings at State Park Drive, Aptos Creek Road, and Trout Gulch Road, with bridges over SR 1 at two locations, Soquel Drive, Aptos Creek and Valencia Creek, and crosses under Rio Del Mar Boulevard. The SCBRL is currently an active freight railroad. The project vicinity and location are shown in Figures 1 and 2, respectively. Figure 3 shows the project components.

3.1 Purpose and Need

The purpose of the project is to do the following.

- Reduce congestion along SR 1 through the project limits.
- Enhance bicycle and pedestrian connectivity along Segment 12 of the Coastal Rail Trail.
- Promote the use of alternative transportation modes to increase transportation system capacity and reliability.
- Provide Coastal Rail Trail access across SR 1 at the two railroad bridges.

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Figure 1. Project Vicinity



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Figure 2. Project Location



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Figure 3. Project Components (page 1 of 3)



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Figure 3. Project Components (page 2 of 3)



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Figure 3. Project Components (page 3 of 3)



This project is needed for the following reasons.

- Several bottlenecks along SR 1 in the southbound and northbound directions cause congestion during peak hours, significantly delaying drivers.
- Cut-through traffic, or traffic on local streets, is increasing because drivers are seeking to avoid congestion on SR 1.
- There are limited opportunities for pedestrians and bicyclists to safely cross SR 1 and navigate the project corridor, even though portions of the project area are designated as regional bicycle routes.
- There are insufficient incentives to increase transit service in the SR 1 corridor because congestion threatens reliability and cost-effective transit service delivery

3.2 Project Alternatives

3.2.1 Build Alternative

Auxiliary Lanes

Auxiliary lanes are designed to improve merging operations and reduce conflicts between traffic entering and exiting SR 1 by connecting the on-ramp of one interchange to the off-ramp of the next; they are not designed to serve through traffic. A southbound auxiliary lane and a northbound auxiliary lane would be added to the following segments of SR 1.

- Between the Freedom Boulevard and Rio Del Mar Boulevard interchanges.
- Between Rio Del Mar Boulevard and State Park Drive interchanges.

The total roadway widening would be approximately 2.6 miles in length. Southbound, the auxiliary lanes would begin at the existing State Park Drive loop on-ramp and end at the existing off-ramp to Freedom Boulevard. Northbound, the auxiliary lanes would begin at the existing Freedom Boulevard on-ramp and end at the existing diagonal off-ramp to State Park Drive.

The new auxiliary lanes would be 12 feet wide. From Freedom Boulevard to Rio Del Mar Boulevard, the width needed for the new lane would be added in the median. The existing median barrier would be reconstructed in its current location. From Rio Del Mar Boulevard to State Park Drive, the width needed for the new lane would be added outside the existing shoulders; the outside shoulders would be standard 10-foot-wide.

Moosehead Drive to the south of SR 1, south of Aptos Creek, would be realigned where it runs parallel to SR 1 due to the outside widening of SR 1. A new retaining wall would be placed along the outside freeway shoulder to support the realignment that would include horizontal and vertical adjustments.

Structures – State Route 1

The Build Alternative would include the replacement of the two Santa Cruz Branch Line railroad bridges over SR 1 and widening of the SR 1 bridge over Aptos Creek and Spreckels Drive to accommodate the proposed auxiliary lanes. The existing two-span Santa Cruz Branch Line railroad bridges (underpass structures) are proposed to be replaced with longer spans to

accommodate the planned SR 1 ultimate improvements that are a six-through-lane concept plus an auxiliary lane in each direction between interchanges. The ultimate SR 1 configuration was approved in the *Final Environmental Impact Report/Environmental Assessment with a Finding of No Significant Impact for the Tier I High Occupancy Vehicle (HOV) Lanes and Tier II 41st Avenue to Soquel Avenue/Drive Auxiliary Lanes Project* (Tier I/Tier II Final EA/EIR/FONSI). In addition to the railroad bridges, new trail overcrossings would be constructed adjacent to the new railroad bridges for the ultimate trail configuration of the Coastal Rail Trail Segment 12 for the SR 1 improvements.

The widening of the SR 1 bridge over Aptos Creek and Spreckels Drive would occur on the south side of SR 1 only and require abutment walls along the existing embankments along the south side of Aptos Creek and the embankment on the north side of Spreckels Drive. The widened bridge would accommodate six lanes, each 12-feet wide (four through-lanes plus an auxiliary lane in each direction), 10-foot-wide outside shoulders, and a 9-foot-wide median with a 2-foot-wide inside shoulder in the northbound direction and 5-foot-wide inside shoulder in the southbound direction. To accommodate the SR 1 ultimate improvements of six through-lanes plus an auxiliary lane in each direction, the SR 1 bridge over Aptos Creek and Spreckels Drive would be widened to the north (inland) side as part of a future project.

Retaining Walls – State Route 1

The build alternative would include retaining walls at the following locations along SR 1 (Figure 3).

Northbound

- “SR1” Station 258+90 - 261+26; max height = 15 feet
- “SR1” Station 288+07 - 296+00; max height = 15 feet

Southbound

- “SR1” Station 258+55 - 263+01; max height = 20 feet
- “SR1” Station 265+55 - 268+56; max height = 12 feet
- “SR1” Station 269+71 - 270+70; max height = 12 feet
- “SR1” Station 273+20 - 277+02; max height = 20 feet
- “SR1” Station 277+02 - 278+98; max height = 30 feet
- “SR1” Station 281+56 - 284+41; max height = 35 feet
- “SR1” Station 284+41 - 296+45; max height = 15 feet

The build alternative would evaluate sound walls at the following locations along SR 1 (Figure 3).

Northbound

- “SR1” Station 258+57 – 267+49

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Southbound

- “SR1” Station 263+18 – 266+78
- “SR1” Station 267+31 – 272+50
- “SR1” Station 284+79 – 291+52

Bus-on-Shoulder Features

BOS features are proposed, which would allow future bus operations on the outside shoulders of SR 1 through the interchanges during peak congestion periods. At the Freedom Boulevard, Rio Del Mar Boulevard, and State Park Drive interchanges, the project would widen and improve SR 1 shoulders, which currently lack the width and pavement structural section to support bus operations.

Cross Section – State Route 1 Bus-on-Shoulder

The added auxiliary lanes coupled with the BOS improvements allow the transit operator to use the auxiliary lane in between interchanges and use the shoulder between the off-ramp and on-ramps through the interchanges. Within the Freedom Boulevard, Rio Del Mar Boulevard, and State Park Drive interchange areas, the highway shoulders would be 12 feet wide.

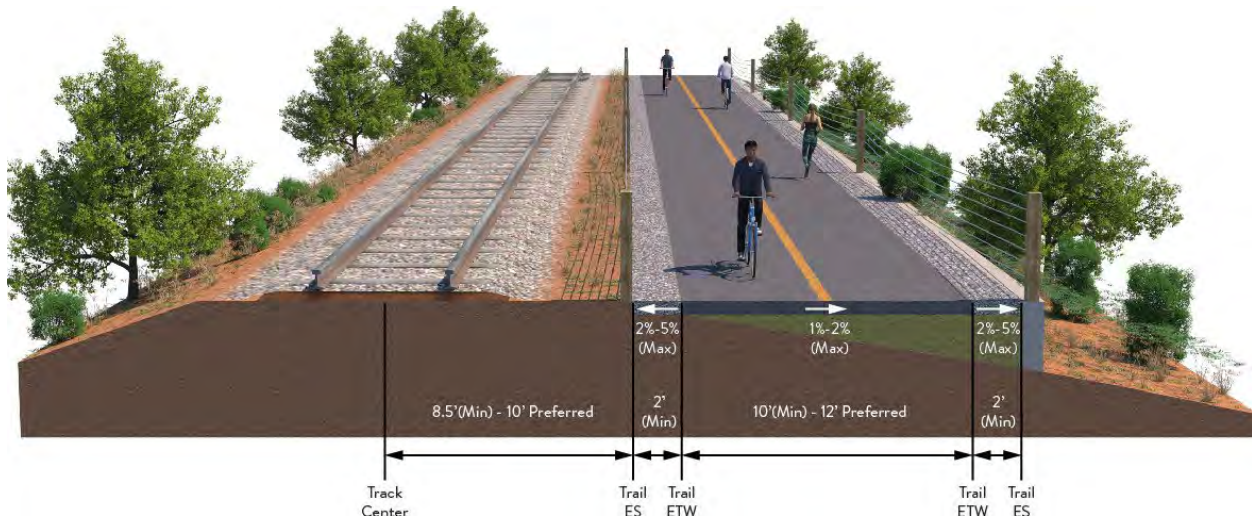
Other Features – State Route 1 Bus-on-Shoulder

New signs would be installed to advise motorists that only buses are allowed to use the highway shoulders through interchanges during peak traffic hours. Along northbound SR 1, a sign would be provided south of each of the three interchanges in the project area. Along southbound SR 1, a sign would be installed north of each interchange. Shoulders would be painted red to indicate bus-only use.

Coastal Rail Trail Segment 12

The limits of Coastal Rail Trail Segment 12 extend from the southern terminus of the trail segment at Sumner Avenue, just south of the Rio Del Mar Boulevard underpass, to the northern terminus at State Park Drive. The proposed Coastal Rail Trail Segment 12 includes the construction of a paved bicycle and pedestrian shared use trail within the SCBRL right-of-way on the inland side of the tracks, consistent with the approved *Monterey Bay Sanctuary Scenic Trail (MBSST) Network Master Plan* (MBSST Network Master Plan) (Figure 4), with an optional first phase. The trail segment would include a new at-grade trail connection to Sumner Avenue just south of the Rio Del Mar Boulevard underpass where the existing railroad tracks pass under Rio Del Mar Boulevard and a new sidewalk on the north side of Sumner Avenue between the terminus of the trail and the existing sidewalk on Rio Del Mar Boulevard.

Figure 4. Coastal Rail Trail Segment – Ultimate Trail Configuration



The SCCRTC wishes to preserve the SCBRL corridor for transportation uses, which includes recreational passenger rail, freight rail, a multiuse trail, and future commuter rail transit. The ultimate configuration to accommodate all proposed transportation uses along the SCBRL is a bicycle and pedestrian shared use trail adjacent to railroad tracks. The SCBRL is currently an active freight railroad with SCCRTC owning the right of way. SCCRTC contracts to serve freight and recreational passenger rail along the freight easement. The SCCRTC's contracted freight operator has indicated that they may file for abandonment of freight along the SCBRL.

As a method of preserving the right of way of a corridor that otherwise could be abandoned, the SCCRTC could consider railbanking the corridor. The Department of Interior defines railbanking as the preservation of a railroad corridor for future rail use. Railbanking is accomplished under the National Trails System Act through provisions that allow a railbanked corridor to be used for interim trail use purposes through a voluntary agreement reached between a railroad and a trail manager. The right of way is preserved for future freight reactivation and could allow the removal of the railroad tracks and construction of a trail in the interim condition.

For this reason, an optional first phase is being considered for Segment 12 of the Coastal Rail Trail, where all or a portion of the trail could be located along the alignment of the existing railroad tracks.

Ultimate Trail Configuration

Trail Alignment

The ultimate trail configuration includes construction of a paved bicycle and pedestrian shared use trail alongside the existing railroad track alignment. New trail bridge crossings of SR 1 at two locations and adjacent to the existing railroad bridges at Soquel Drive, Aptos Creek, and Valencia Creek would be constructed. New at-grade trail crossings will be constructed at Aptos Creek Drive, Parade Street, and Trout Gulch Road. An at-grade trail connection from the new trail to the Aptos Village County Park between Aptos Creek and Aptos Creek Road would be constructed.

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Structures

- At the two locations where the existing railroad bridges cross over SR 1, the Rail Trail will be placed adjacent to the reconstructed rail underpasses.
- Where the Rail Trail crosses over Aptos Creek, Valencia Creek and Soquel Drive, the existing structures have been evaluated for their load bearing capacities, and it has been determined there is not enough data to cantilever the Rail Trail. Therefore, the project would include construction of new Rail Trail bridges adjacent to the existing railroad structures.
- For areas where the Rail Trail is on an independent structure from the railroad bridges or grade, the separation between the two structures would be a minimum of 5 feet.

Retaining Walls

Retaining walls would be constructed in the following locations for the Coastal Rail Trail Segment 12 alignment.

- North of SR 1 (towards State Park Drive) – An approximate 6-foot high, 300-foot long retaining wall on the inland side of the trail.
- SR 1 to Soquel Drive—Retaining wall varying in height between approximately 5-feet and 20-feet, approximately 300-feet long on the inland side of the trail.
- Aptos Creek to Aptos Creek Road—Retaining wall varying in height between approximately 2-feet and 18-feet, approximately 400-feet long on the inland side of the trail.
- Trout Gulch Road to Valencia Creek—Retaining wall varying in height between approximately 2-feet and 18-feet, approximately 450-feet long on the inland side of the trail.
- South of SR 1 (towards Rio Del Mar Boulevard)—An approximate 12-foot-high, 400-foot long retaining wall on the inland side of the trail.
- Under Rio Del Mar Boulevard - Retaining wall varying in height between approximately 4-feet and 16-feet, approximately 1,000-feet long on the inland side of the trail.

Fencing

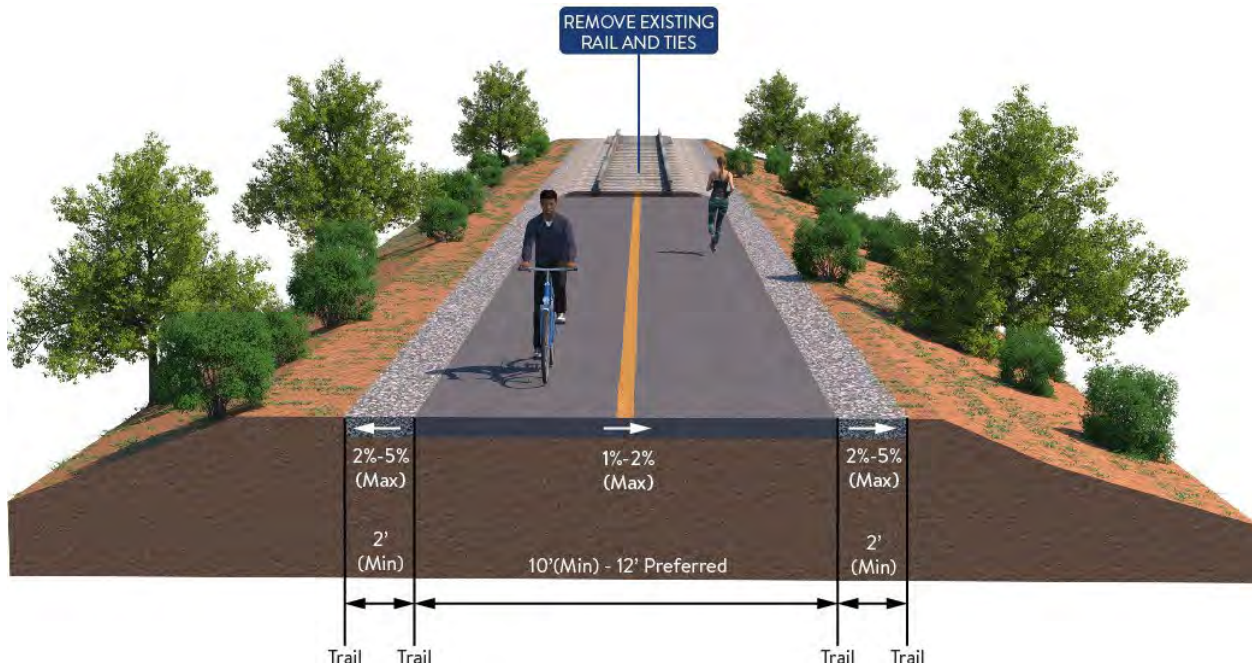
Fencing to separate trail users and the railroad for the ultimate trail improvements is proposed as shown in Figure 4. In accordance with the Federal Railroad Administration guidelines, there would be a 10-foot offset from the centerline of the railroad to the edge of the trail, although an 8-foot-6-inch offset from the centerline of the railroad may be allowed in some circumstances. The fencing would be constructed using concrete posts (4 feet 6 inches in height) etched to resemble wood, and multiple smooth wire strands. Fence post construction is anticipated to require 3-foot-deep excavation. The new trail bridges over Aptos Creek, Valencia Creek, and Soquel Drive would include a railing.

Construction of Optional First Phase for Coastal Rail Trail Segment 12

It is possible that the common carrier could file for abandonment of freight operations with the STB along the SCBRL at any time, in which case all or a portion of the SCBRL would likely be railbanked to preserve the corridor for future freight re-activation but could then be used for a multiuse trail as an interim condition.

All or a portion of the trail would be constructed in approximately the same location of the existing railroad tracks by removal of the rails and ties from just south of Rio Del Mar Boulevard at the southern terminus with Sumner Avenue to the northern terminus at State Park Drive, as shown in Figure 5. The two existing railroad bridges over SR 1 would be removed and two new trail overcrossings over SR 1 would be constructed in their place. The existing railroad bridges at Aptos Creek and Valencia Creek/Soquel Drive (south) would be repurposed for the new trail by removing the railroad decking and replacing with a new trail deck and railing system. The existing single span railroad bridge superstructure over Soquel Drive (north) would be removed and replaced with a new trail deck and railing system.

Figure 5. Coastal Rail Trail Segment – Optional First Phase



Stair access between the new trail and existing Soquel Drive (north) is proposed. A stair connection from the trail to Soquel Drive would begin on the south side of the trail west of the existing railroad bridge over Soquel Drive with a terminus at the Soquel Drive/Spreckels Drive signalized intersection. A new crosswalk would be provided at the Soquel Drive/Spreckels Drive signalized intersection. All trail users can access Soquel Drive via the at-grade trail crossing with Aptos Creek Road as an alternative to using the stairs. The alternative route would be identified with new signage. An at-grade trail connection from the new trail to the Aptos Village County Park between Aptos Creek and Aptos Creek Road would be constructed.

New at-grade trail crossings will be constructed at Aptos Creek Drive, Parade Street, and Trout Gulch Road in the approximate location of the existing railroad tracks.

Structures

- At the two locations where the existing railroad bridges cross over SR 1, the existing railroad bridges would be removed, and new single-span trail overcrossings would be constructed over SR 1 in the same general location as the existing railroad bridges. The bridge abutments constructed on either side of Highway 1 would be constructed to freight railroad standards and be positioned and sized to account for the ultimate trail configuration.
- Where the trail crosses over Aptos Creek, Valencia Creek, and Soquel Drive (south), the existing bridge structures would remain, the railroad tracks removed, and new trail constructed along the existing rail centerline.
- The existing single span railroad bridge superstructure over Soquel Drive (north) would be removed and replaced with a new trail deck and railing system.
- Slight modifications of the existing railroad bridge abutments are proposed to meet current seismic requirements.

Retaining walls

Retaining walls would be constructed in the following locations:

- Just west of Soquel Drive — An approximate 5-foot high, 60-foot long retaining wall on the south side of the trail.
- Just east of Aptos Creek — An approximate 18-foot high, 140-foot long retaining wall on the south side of the trail and an approximate 6-foot high, 140-foot long retaining wall on the inland side of the trail.

Fencing

The new trail overcrossings over SR 1 would include railings with fencing and the repurposed bridges over Aptos Creek, Valencia Creek, and Soquel Drive would have fencing added. No additional fencing is anticipated due to the railroad tracks being removed.

Removal of Optional First Phase for Coastal Rail Trail Segment 12

If all or a portion of the optional first phase of the trail is implemented, the trail along the existing railroad track alignment would need to be removed, a trail would be constructed adjacent to the tracks as described by the proposed ultimate trail project, and the railroad tracks re-installed in their approximate existing location. At-grade railroad crossings of Aptos Creek Drive, Parade Street, and Trout Gulch Road would need to be reconstructed.

Structures

- At the two locations where new trail overcrossings are constructed over SR 1 as part of the optional first phase improvements, the trail overcrossings would be relocated to be adjacent to the existing railroad alignment, and new railroad bridges would be constructed over SR 1 adjacent to the trail overcrossings, as described by the ultimate trail configuration. Construction of the new two-span railroad bridges over SR 1 would

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require the construction of support columns in the median of SR 1 to support the new railroad bridges.

- Repurpose bridges over Soquel Drive (south), Aptos Creek, and Valencia Creek from trail use to rail use by removing the trail deck and railing system and reconstructing railroad infrastructure.
- The trail deck and railing system over Soquel Drive (north) would be removed and replaced with a single span railroad bridge with reconstructed railroad infrastructure.

Design Standards

Coastal Rail Trail Segment 12 would be designed as a multi-use paved path per the guidelines identified in Chapter 5 of the *Monterey Bay Sanctuary Scenic Trail (MBSST) Master Plan*. The design standards used for this segment of the Coastal Rail Trail follow the MBSST guidelines and are listed under *Cross Section Standards*. The MBSST Network Master Plan incorporates and refers to design elements from the Class I Bikeways identified in Chapter 1000 of the Highway Design Manual (HDM).

In areas where existing constraints limit the available width for the trail to be adjacent to the railroad tracks, other alternative design standards than those listed in the MBSST Master Plan may be utilized for design.

Cross Section Standards

- The paved traveled way of the Coastal Rail Trail would be a minimum of 12 feet wide but may be reduced to 10 feet in areas with existing constrained conditions.
- Shoulders would be provided on each side of the traveled way and would be 2 feet in width where possible.
- For accessibility and drainage, the cross slope of the traveled way would be between 1% and 2%.
- The shoulder cross slope would be between 2% and 5% and would angle away from the surface of the traveled way.

Horizontal Design

- The design speed for the trail would be established at 20 miles per hour and correlates to a minimum stopping sight distance of 125 feet.
- To meet a minimum stopping sight distance of 125 feet, a radius of no less than 500 feet would be used for the Coastal Rail Trail alignment where possible.
- The minimum horizontal clearance between the railroad centerline and the edge of the Coastal Rail Trail, inclusive of shoulders, is 8 feet, 6 inches.
- Where roadways are adjacent to the trail, such as Soquel Drive through Aptos Village, a minimum horizontal separation of 12 feet on tangents and 10 feet on curves is recommended between edge of pavement of the roadway and edge of the trail. This standard would be modified at constrained locations along the corridor where necessary

to maintain the absolute minimum horizontal separation. Such separation variances may include vertical separation, fence, or other barriers.

Vertical Design

- The vertical grade slope for the Coastal Rail Trail would be limited to no more than 5%.
- Vertical obstructions and signs would be 10 feet above the entire Coastal Rail Trail, except in limited situations where the vertical clearance may be reduced to 8 feet over the travel way and 7 feet over the shoulders.
- The Coastal Rail Trail would either be constructed following closely the existing grade or on widened segments and new bridges requiring new cuts/fills and retaining walls. Minor grading of the existing ground surface in segments on existing grade is anticipated and may involve excavation of approximately one-foot depth.

Vegetation Removal and Planting

Construction work for the Build Alternative would require removal of existing mature landscape plantings along SR 1 and along the Coastal Rail Trail Segment 12 route. Where proper setback requirements allow, plantings would be replaced as per Caltrans' policies, and include an automated irrigation system and a 3-year plant establishment period. The replacement planting effort would include vegetation impacted by the contractor's staging, storage, and construction activities. Vegetation needed for the optional first phase trail improvements is significantly less than for the ultimate trail improvements.

Construction Activities

Construction work for the Build Alternative would be done primarily during daylight hours from 7:00 a.m. to 6:00 p.m. However, night-time work and temporary closures of lanes and roadways may be necessary to avoid major disruption for tasks that could interfere with traffic or create safety hazards such as demolition of the existing railroad bridges. Construction activities would include excavation, drilling, dewatering, pavement demolition, bridge demolition, mass grading, concrete form work, pavement installation, storm system installation, landscaping and irrigation, sign installation, striping operations, and traffic control. Such activities would require the use of the following types of equipment: drilling rig, forklift, scissor lift, backhoe, track excavator, compactor, concrete pump, crane, bulldozer, grader, front-end loader, dump trucks, jackhammer, and vibratory roller. These activities may require temporary freeway, ramp, and local street partial lane closures or full closures with possible detours.

A Transportation Management Plan (TMP) would be developed as part of the project construction planning phase. The TMP would address potential impacts to circulation of all modes of travel (i.e., transit, bicycles, pedestrians, and vehicles). Roadway and/or pedestrian access to all occupied businesses and respective parking lots would be maintained during project construction. The TMP would include an evaluation of potential detour impacts and would also include measures to minimize, avoid, and/or mitigate impacts to alternate routes. The TMP would address coordination with local agencies for traffic through or near the construction zone. Staging areas would be located within the existing Caltrans right-of-way and within the SCBRL right-of-way along Coastal Rail Trail Segment 12.

Construction Schedule

Construction of the SR 1 and Coastal Rail Trail improvements including the auxiliary lanes and BOS features is anticipated to begin in 2025 subject to availability of funds for construction and is estimated to take approximately 3 years to complete.

Demolition

Demolition work would generally comprise removal of existing bridge structures, abutments, columns, overhead sign foundations, rails and ties, clearing and grubbing, tree removal, pavement removal, and drainage system removal.

Stormwater Drainage and Treatment Facilities

The Build Alternative would include drainage system improvements and permanent stormwater treatment facilities for the SR 1 and Coastal Rail Trail Segment 12 improvements. Hydromodification measures would be included, if needed. During construction, the contractor would be required to develop and implement a Storm Water Pollution Prevention Plan (SWPPP) in compliance with the statewide Construction General Permit and consistent with the guidelines and procedures in Caltrans' Statewide Storm Water Management Plan. The SWPPP will provide detailed, site-specific information regarding best management practices to avoid and minimize water quality impacts. The project would be constructed to minimize erosion by disturbing slopes only when necessary, minimizing cut and fill areas to reduce slope lengths, providing cut and fill slopes flat enough to allow revegetation to limit erosion rates, and providing concentrated flow conveyance systems such as storm drains, ditches, and gutters.

Utilities

Existing utilities located in areas subject to construction that conflict with the proposed improvements would be relocated as needed. This is anticipated to include 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.

Property Acquisitions

The Build Alternative would require full or partial acquisitions for the construction of the SR 1 and Coastal Rail Trail Segment 12 ultimate trail improvements, as well as temporary easements for construction activities such as the construction of sound walls and retaining walls along SR 1 and the SCBRL.

Table 3-1 lists the temporary and partial property acquisitions that would occur for the SR 1 improvements, as well as underground and aerial easements.

Along the SCBRL corridor, the acquisitions shown in Table 3-2 would be needed for the construction of the proposed ultimate trail configuration of Coastal Rail Trail Segment 12. No new property acquisitions would be needed to construct the optional first phase of the Coastal Rail Trail Segment 12, but the STB would have to approve railbanking the corridor.

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Table 3-1. State Route 1 Property Acquisitions

Assessor's Parcel No.	Street Address	Temporary Construction Easement (square feet)	Partial Acquisition (square feet)	Underground Easement
041-052-03	9016 Soquel Drive	329		
041-052-08	9028 Soquel Drive	723		
041-052-14	9012 Soquel Drive	1757		
041-052-15	9010 Soquel Drive	1154		
041-052-19	9018 Soquel Drive	1185		
041-052-20	9020 Soquel Drive	1212		
044-282-10	421 Robin Drive	522		
044-282-11	414 Robin Drive	838		
041-052-16	9006 Soquel Drive	1219		
042-067-15	326 Moosehead Drive	2135		
042-067-16	Moosehead Drive - Vacant	1519	566	
042-067-17	Moosehead Drive - Vacant	1271	742	
042-067-18	345 Moosehead Drive	1260	641	
042-071-01	345 Moosehead Drive	665	466	
042-071-02	345 Moosehead Drive	874	314	
042-071-03	345 Moosehead Drive	1134	13	
042-073-24	240 Carrera Circle	558		
042-073-25	230 Carrera Circle	241		
042-073-26	220 Carrera Circle	254		
042-073-39	361 Moosehead Drive	259		
042-071-10	351 Moosehead Drive	837		
042-073-40	Carrera Circle - Vacant	1915		
039-233-12	246 Seacliff Drive	3239		

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Assessor's Parcel No.	Street Address	Temporary Construction Easement (square feet)	Partial Acquisition (square feet)	Underground Easement
039-233-13	335 Spreckels Drive			291
042-066-21	321 Moosehead Drive	681		
039-231-09	7960 Soquel Drive			3840
039-232-03	7992 Soquel Drive			405
042-041-48	56 Seacliff Drive	2994		402

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Table 3-2. Coastal Rail Trail Segment 12 Property Acquisitions

Assessor's Parcel No.	Street Address	Temporary Construction Easement (square feet)	Partial Acquisition (square feet)	Underground Easement	Aerial Easement
044-282-47	369 Sandalwood Drive	3829	45		
041-042-11	Soquel Drive - Vacant	3317	387		
041-052-16	9006 Soquel Drive	471			561
041-052-17	Soquel Drive - Vacant	6884	2407		
044-282-48	369 Sandalwood Drive	2732	3407		
039-241-02	Aptos Village County Park	15,007	1219		1221
041-011-35	8049 Soquel Drive		1752		
041-011-41	15 Parade Street		177		
041-011-42	10 Parade Street		155		
041-011-55	8045 Soquel Drive		1777		
041-561-04	8019 Soquel Drive	1005			
041-561-11	8035 Soquel Drive		1670		
039-231-09	7960 Soquel Drive	59			
039-232-01	7996 Soquel Drive	1127	1646		
039-232-02	7994 Soquel Drive	312	385		
039-232-03	7992 Soquel Drive	1168	1331		
039-233-10	347 Spreckels Drive	267			
039-471-10	7957 Soquel Drive	7331			
041-561-04	8019 Soquel Drive	8109			
042-011-06	280 State Park Drive	9954			

3.2.2 No-Build Alternative

Under the No-Build Alternative, there would be no construction of auxiliary lanes or BOS features on SR 1 within the project area, and Coastal Rail Trail Segment 12 would not be constructed. The existing transportation facilities within the project area would remain unchanged. The No-Build Alternative assumes the construction of other planned and programmed projects in the region, including other auxiliary lanes projects on SR 1 and other segments of the Coastal Rail Trail.

4.0 Resources Considered in the Analysis (Step 1)

Step 1 identified the resources to consider in the cumulative impact analysis. The identification of resources was based on Caltrans guidance, which states that the cumulative impact analysis must consider impacts of resource areas in which there are significant impacts. Additionally, the cumulative impact analysis must consider impacts to resource areas that at risk or are in poor or declining health, even if the impact is less than significant. Analysis of impacts and resource area health was based primarily on information presented in the Cumulative Impact Analysis for the Tier I/Tier II Project (Caltrans 2018).

The proposed project would have no impact on the following resource areas:

- Wild and Scenic Rivers
- Farmlands and Timberlands
- Mineral Resources

The following resources have less-than-significant impacts but are currently in good/stable health and are therefore not discussed in this cumulative impact analysis:

- Land Use
- Consistency with State and Local Plans and Policies
- Community Character and Cohesion
- Relocations and Real Property Acquisition
- Environmental Justice
- Recreation
- Utilities and Emergency Services
- Hydrology and Floodplain
- Water Quality and Stormwater Runoff
- Geology/Soils/Seismic/Topography
- Paleontology

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- Hazardous Waste/Materials
- Noise
- Energy
- Plant Species
- Invasive Species
- Dusky-footed woodrat

The following resources are at risk or are in poor or declining health, but were not included in the eight-Step cumulative impacts 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

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

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

5.0 Identify Resource Study Areas and Current Health and Historical Context of Resources (Steps 2 and 3)

Step 2 defines the resource study area (RSA) for each resource addressed by the analysis, recognizing that the RSA needs to consider contributions from the proposed project and other projects that may affect each resource. Step 3 assesses the current health and historical context of resources. Table 5-1 includes a description of the RSA for each of these resources

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and presents the conclusions regarding the health of the resources. This analysis utilized RSAs established for the Cumulative Impact Analysis for the Tier I/Tier II Project. Figures showing these RSAs are located in Appendix 1.

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Table 5-1. Resource Study Areas and Current Health/Historic Context

Resource		Resource Study Area (RSA) Definition	Current Health/Historic Context
No.	Name		
1	Visual Resources	The visual RSA encompasses the project limits, including the State Park Drive overcrossing above SR 1 on the north and the Freedom Boulevard overcrossing above SR 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 RSA 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 RSA extends only to properties adjacent to the highway.	The sweeping changes to the visual environment that accompanied the rapid development of the mid-20th Century have left visual resources in poor health; however, the growth management policies instituted more recently, even as development continues, suggests that the trend is for conditions to remain in a stable condition of poor health.
2	Wetlands and Other Waters	Encompasses the areas of freshwater marsh/ riverine habitat in the Coastal Zone within the BSA, which consists of a linear area within and adjacent to the SR 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 BSA 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.	<p>Wetlands - 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.</p> <p>Other Waters - Over the past 200 years, 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.</p>

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Resource		Resource Study Area (RSA) Definition	Current Health/Historic Context
No.	Name		
3	Riparian Non-Wetlands (Riparian Forest)	This RSA encompasses the areas of riparian habitat within the BSA and extends beyond the BSA to include the watersheds of the following resources: Ord Gulch, Borregas Creek, Potbelly Creek, Tannery Gulch, tributary to Tannery Gulch, and Noble Creek.	The extent of riparian habitats has been significantly decreased within the 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 significant 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, as well as the presence of mature trees in upper watersheds of Aptos and Valencia creeks, and the full array of tree size classes and active recruitment along Soquel Creek, suggest that conditions are remaining stable, with a potential for improvement.
4	Coast Live Oak Woodland Habitat	Encompasses the riparian forest RSA (described above), the oak woodland, mixed conifer woodland, and eucalyptus woodland habitats mapped within the BSA, 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.	Grazing, wood harvesting, invasive species, land clearing, and urban expansion 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.
5	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 are 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.
6	Central California Coast Steelhead Distinct Population Segment (DPS)	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 DPS. 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.

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Resource		Resource Study Area (RSA) Definition	Current Health/Historic Context
No.	Name		
7	California Giant Salamander	Encompasses the areas of freshwater marsh and riparian forest habitat mapped within the BSA, 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 (same as California red-legged frog below).	Historic conversion of California giant salamander habitat to agricultural and urban land uses has caused habitat fragmentation and loss. 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.
8	Santa Cruz Long-Toed Salamander	Encompasses the water bodies identified in the mapping of Santa Cruz long-toed salamander (SCLTS) 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.
9	California Red-Legged Frog	Encompasses the areas of freshwater marsh and riparian forest habitat mapped within the BSA, 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 (CRLF) 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, CRLF is considered to be in poor health with a declining population trend.
10	Foothill Yellow Legged Frog	Encompasses the areas of freshwater marsh and riparian forest habitat mapped within the BSA, 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.	Due to historic population declines and continued threats from exotic species and changes in climate, the health of this resource is considered to be poor with a declining trend going forward.

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Resource		Resource Study Area (RSA) Definition	Current Health/Historic Context
No.	Name		
11	Santa Cruz Black Salamander	Same as California Red-legged Frog above	Historic conversion of Santa Cruz black salamander habitat to agricultural and urban land uses has caused habitat fragmentation and loss. 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.
12	Western Pond Turtle	Same as Foothill Yellow Legged Frog above	Given historic and recent population declines and existing threats and age trends, the health of this resource is considered to be poor and likely to continue to decline.
13	Coopers Hawk	Includes the oak woodland and riparian forest habitat mapped within the BSA and extends along each stream crossed by the Tier I or Tier II projects, 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, except in stream segments, such as in foothill areas and at the southern end of the proposed project, where undeveloped land extends beyond 3 miles; in such areas the RSA includes all undeveloped or largely undeveloped land, extending as far inland as the ridgeline above Route 1, and extending 3 miles south of the southern terminus of the proposed project. The RSA also includes areas of open land immediately surrounding New Brighton State Park; aerial imagery was used to identify areas of open land.	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.
14	White-Tailed Kite	Same as California Red-legged Frog above	Following a severe decline in population in the early 1900s, populations and distribution increased from the 1940s – 1970s. This species is considered to be in fair health and have a stable or increasing population trend.

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Resource		Resource Study Area (RSA) Definition	Current Health/Historic Context
No.	Name		
15	Least Bell's Vireo	Encompasses the RSA for riparian corridors and riparian forest habitat, plus a 200-foot buffer around those areas.	Once widespread and abundant, this species 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.
16	Southwestern Willow Flycatcher	Same as Least Bell's Vireo above.	The current health of this species is considered poor due to its listing as an endangered species, though the population trend may be stable.
17	Monarch Butterfly	Encompasses the riparian forest RSA (described above), the oak woodland, mixed conifer woodland, and eucalyptus woodland habitats mapped within the BSA, 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.	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 RSA 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.
18	Pallid Bat	Encompasses the areas of grassland, riparian forest, and oak woodland habitat mapped within the BSA, 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 Tier I or Tier II projects cross. The RSA includes areas of open land immediately surrounding New Brighton State Park, as well as open land from Freedom Boulevard to San Andreas Road, extending from the Pacific shoreline to the ridgeline above Route 1, and extending 3 miles south of the southern terminus of the proposed project.	This species 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.

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Resource		Resource Study Area (RSA) Definition	Current Health/Historic Context
No.	Name		
19	Hoary Bat	Same as Pallid Bat above	While the urbanization of the RSA may have been a factor in the lack of recorded occurrences of this species since 1940, statewide and nationwide the Hoary Bat is thought to be in relatively good health and be in stable condition.
20	Townsend's Big-eared Bat	Same as Pallid Bat above	This species is in poor health and is likely declining in California.
21	Cultural/Historic Resources	Monterey Bay Sanctuary Scenic Trail network (Coastal Rail Trail), approximately 50 miles	The railroad was closed to passenger service in 1959 which was subsequently purchased by the Santa Cruz County Regional Transportation Commission (SCCRTC) in 2012 and is currently not in use. The railroad alignment itself is the most important character-defining feature. Other contributing resources and character-defining features include numerous historic bridge structures and three historic depot buildings. Less important contributing resources/character-defining features of the railroad include culverts, earthen embankments, and the materials of the railroad structure - the ballast, steel rails, wood railroad ties - typical features of railroads. Railroad ties and rails are embedded in pavement in many locations within urbanized communities, while rural segments of the alignment are installed directly on stone ballast, which in some locations is overgrown with vegetation. The railroad and its associated features are generally in fair condition. The Santa Cruz Railroad has been evaluated and recommended as eligible to the California Register of Historical Resources (CRHR) and the National Register of Historic Places (NRHP) under Criterion A/1 within the theme of railroad development and transportation.

6.0 Impacts of Proposed Project that May Contribute to a Cumulative Impact (Step 4)

6.1 Methods

To identify direct and indirect impacts of the proposed project that might contribute to a cumulative impact, the impacts identified in the technical studies for the proposed project were reviewed. For each impact of the proposed project for the topics identified in Step 1, the specific contributions to cumulative impacts that could result from the proposed project was considered.

6.2 Results

Table 6-1 describes the direct and indirect impacts of the proposed project that might contribute to a cumulative impact area, organized by resource topic area.

Table 6-1. Summary of Impacts of the Proposed Project, Step 4

Resource		Impacts of the Proposed Project
No.	Name	
1	Visual Resources	Impacts of the proposed project would include the loss of mature vegetation during construction of sound/retaining walls and the widening of the SR 1 and the Aptos Creek Bridge; and the blocking of existing residential views by sound and retaining walls, most notably those properties which are directly adjacent to Aptos Creek and the rail trail. Measures are identified in the NES and VIA to avoid, minimize, and mitigate potential impacts.
2	USACE Jurisdiction (Other Waters)	0.226 acre temporary, 0 permanent
	RWQCB Jurisdiction	1.473 acres temporary, 0.061 acre permanent
	CDFW Jurisdiction	1.473 acres temporary, 0.061 acre permanent
	Coastal Zone / California Coastal Commission Jurisdiction	0.697 acre temporary, 0.061 acre permanent
3	Riparian Forest Natural Community and Riparian Corridors	0.081 acres permanent, 1.471 acres temporary

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Resource		Impacts of the Proposed Project
No.	Name	
4	Coast Live Oak Woodland Habitat	1.565 acres permanent and 1.019 acres temporary
5	Tidewater Goby	It is unexpected that tidewater goby would occupy the creeks within the BSA. However, impacts to tidewater goby habitat could occur in the wetted portion of Aptos Creek downstream of the BSA from construction activities. Therefore, potential impacts to habitat for tidewater goby would be the same as impacts to Other Waters as described above. Permanent impacts are likely to be minimal. Fill and dewatering during construction activities have the potential to impact the species. Measures are identified in the NES to avoid and minimize potential impacts.
6	Central California Coast Steelhead Distinct Population Segment (DPS)	<p>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. Impacts to critical habitat would be reduced and mitigated, as identified in the NES. Nevertheless, impacts to central California coast steelhead critical habitat was determined to be may affect, and likely to adversely affect.</p> <p>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 SB-857. Mitigation is identified in the NES to address the fish passage barrier.</p>
7	California Giant Salamander	The BSA is within the known range of California giant salamander and suitable habitat is present. This species has potential to occur in the BSA within Aptos and Valencia Creeks and adjacent riparian areas. Grading or other earthwork could impact California giant salamanders in the BSA, particularly in riparian areas and uplands adjacent to streams. Individuals could therefore be subjected to injury or mortality as a result of ground-disturbing activities, or accidental crushing. Capturing or relocating individual California giant salamanders, if encountered, could subject these animals to stresses that could result in adverse effects. Measures are identified in the NES to avoid and minimize potential impacts.
8	Santa Cruz Long-Toed Salamander	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 SR 1 right-of-way are anticipated to prevent individual SCLTS from entering the area of construction. Measures are identified in the NES to avoid and minimize potential impacts. Because of the fully protected status of the SCLTS, all impacts will be avoided.

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Resource		Impacts of the Proposed Project
No.	Name	
9	California Red-Legged Frog	<p>The BSA contains suitable upland and aquatic dispersal habitat within riparian areas but lacks breeding habitat. Presence of CRLF is inferred within the BSA. Construction activities such as excavation and installation of fill for bridges have the potential to result in adverse effects on CRLF and their habitat. In-water construction work would cause temporary and permanent alternations within Aptos and Valencia Creeks and potentially affect CRLF if present. The project would qualify for coverage under the programmatic Biological Opinion, which includes measures that would result in the capture, handling, and relocation of CRLF. The project may affect, and is likely to adversely affect CRLF. Measures are also identified in the NES to avoid and minimize potential impacts.</p> <p>There is no designated critical habitat for CRLF in the BSA and there would be no effect on critical habitat for CRLF.</p>
10	Foothill Yellow Legged Frog	<p>The BSA contains marginally suitable aquatic non-breeding habitat and upland habitat for FYLF in riparian areas but lacks breeding habitat. In the unlikely event that FYLF did occur in the BSA, construction activities involving in-water work could affect FYLF. If present in the BSA, construction activities including the excavation and installation of fill for bridges or other structures in areas that could result in direct impacts to individuals in the form of injury and/or mortality, or reduce habitat quality. Dewatering could cause temporary alterations to conditions in Aptos Creek and adjacent channel bank and potentially affect FYLF, if present. Areas with the greatest potential for impacts to FYLF would be along Aptos Creek. Measures are identified in the NES to avoid and minimize potential impacts.</p>
11	Santa Cruz black salamander	<p>The BSA is within the known range of Santa Cruz black salamander and suitable habitat is present. While no CNDDDB occurrence records are known from within two miles of the BSA and Santa Cruz black salamander was not observed during biological surveys of the BSA, it is possible that this species could disperse into the BSA. Grading or other earthwork could impact Santa Cruz black salamanders in the BSA, particularly in uplands adjacent to streams. Individuals could therefore be subjected to injury or mortality as a result of ground-disturbing activities, or accidental crushing. Capturing or relocating individual Santa Cruz black salamanders, if encountered, could subject these animals to stresses that could result in adverse effects. Measures are identified in the NES to avoid and minimize potential impacts.</p>
12	Western Pond Turtle	<p>The BSA 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 BSA. 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 the NES to avoid and minimize potential impacts.</p>

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Resource		Impacts of the Proposed Project
No.	Name	
13, 14	Cooper's Hawk & White-Tailed Kite	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. Measures are identified in the NES to avoid and minimize potential impacts.
15, 16	Least Bell's Vireo & Southwestern Willow Flycatcher	Marginal suitable foraging and breeding habitat is present within the BSA. 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 BSA 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 the NES to avoid and minimize potential impacts.
17	Monarch Butterfly	Marginally suitable overwintering habitat is present within the eucalyptus woodland where the Santa Cruz Branch Rail Line crosses SR 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 the NES to avoid and minimize potential impacts.
18, 19,20	Pallid Bat, Hoary Bat, and Townsend's Big-eared Bat	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 BSA. 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 the NES to avoid and minimize potential impacts.
21	Cultural/Historic Resources	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 SCBRL would be railbanked to preserve the corridor for future freight re-activation. Also, the replacement of the railroad bridges over SR 1 would require rail replacement. The ultimate configuration would replace the rail on the two new railroad bridges over SR 1. 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 as a result of the project. Therefore, there would be limited removal only where required, thereby minimizing potential impacts.

7.0 Other Reasonably Foreseeable Actions that Affect Each Resource (Step 5)

7.1 Methods

To identify current and reasonably foreseeable projects, a spreadsheet of projects was compiled by first identifying projects listed on the Santa Cruz County and City of Santa Cruz websites and the Governor's Office of Planning and Research's CEQANet database. The locations of the identified reasonably foreseeable projects were compared to the boundaries of the Resource Study Areas (RSA) identified in Step 2. This information was used to prepare a list of reasonably foreseeable projects located in each RSA. Information about the projects, including anticipated environmental impacts and mitigation was obtained to the extent available.

7.2 Results

Table 7-1 provides the list of current and reasonably foreseeable future projects located within any of the proposed project's RSAs.

Table 7-1. Summary of Impacts from Future Actions, Step 5

Project Name	Location	Project Description	Status
Trout Gulch Road Storm Damage Repair Project (California Department of Fish and Wildlife 2022)	Trout Gulch Road PM 1.16 & 1.18	Construction of a soldier pile wall with tiebacks and timber lagging, RSP and soil-wrap slope repair, pavement repairs, guardrail installation, and landscaping.	Under Construction
Medical Office Building Project County of Santa Cruz 2020)	5940 Soquel Ave., Santa Cruz	New four-story medical office building measuring approximately 60 feet in height to finished roof and approximately 74 feet to top of mechanical screens on the rooftop. The proposed building would provide approximately 160,000 gross square feet of medical office use for specialty outpatient services.	Environmental phase
Pure Water Soquel: Groundwater Replenishment and Seawater Intrusion Prevention Project (Soquel Creek Water District 2022)	Multiple	Recycled water will be purified and transported via pipeline to seawater intrusion prevention wells. The Project includes facilities in portions of the cities of Santa Cruz and Capitola, and in the Live Oak, Soquel, and Aptos communities of unincorporated Santa Cruz County.	Under construction
Dominican Hospital PUD (Dignity Health 2022)	1555 Soquel Drive	Establishing a Planned Unit Development for construction of an approximately 84,000 square foot addition to the existing hospital facility. Project includes construction of a new surgery center, reconfiguring the existing emergency room and construction of a three-story parking structure.	Project approved, construction not yet started

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Project Name	Location	Project Description	Status
Arana Sewer Trunk Line Replacement Project (County of Santa Cruz 2021a)	Soquel Avenue and La Fonda Avenue	The project involves replacement of approximately 2,900 linear feet of aging and deteriorated sewer trunk line and associated manholes between Brookwood Drive and La Fonda Avenue.	Not yet started
Valencia Creek Sewer Relocation Project (County of Santa Cruz 2021b)	Valencia Creek near Soquel Dr.	Approximately 535 feet of gravity sanitary sewer would be abandoned in-place. Approximately 1,355 feet of new gravity sanitary sewer will be constructed.	NOD approved in Feb 2021
Capitola Wharf Renovation (City of Capitola 2020)	Capitola Wharf in Capitola	Increase Wharf resiliency and improve public safety by expanding a section of the Wharf's existing narrow trestle system and by completing necessary repairs.	Construction not yet started
Front St. Riverfront Project (City of Santa Cruz 2020)	Downtown Santa Cruz	Demolition of existing commercial buildings and the construction of a seven-story, mixed-use building with 175 residential condominium units and 11,498 square feet of ground floor and levee-front commercial space.	Approved 1/12/21
Sustainability Policy and Regulatory Update (County of Santa Cruz 2022)	Santa Cruz County	Update of the County's General Plan/Local Coastal Program (LCP) and County Code (Sustainability Update)	Final EIR complete in 2022
9041 Soquel Drive, Aptos Mixed Use project (County of Santa Cruz 2021)c	9041 Soquel Drive, Aptos	Construction of 10,81 sf mixed-use building for office space and three residential units. A portion of the parking lot and an associated retaining wall encroach into the riparian corridor within the arroyo along Valencia Creek.	Environmental Phase (Initial Study)
The 41st Avenue to Soquel Drive Auxiliary Lanes Project (Caltrans 2018b)	Soquel	The project will construct northbound and southbound auxiliary lanes and bus on shoulder improvements between the 41st Avenue and Soquel Avenue/Drive interchanges, and construct a new bicycle and pedestrian overcrossing at Chanticleer Avenue.	Plans, Specifications, and Estimates (PS&E) phase.
State Park Drive to Bay Avenue/Porter Street Auxiliary Lanes Project (Caltrans 2021)	County of Santa Cruz, Capitola	The project will construct northbound and southbound auxiliary lanes between the Bay Avenue/Porter Street and State Park Drive interchanges and replace the existing Capitola Avenue local roadway overcrossing.	EIR/EA complete in 2021

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Project Name	Location	Project Description	Status
MBSST Master Plan (Santa Cruz County Regional Transportation Commission 2013)	San Mateo/Santa Cruz county line to the town of Pajaro in Monterey County	50-mile trail network that would establish continuous alignment, connecting spurs, and design standards for a multi-use trail for the length of Santa Cruz County along the Santa Cruz Branch Rail Line right-of-way. Segment 7 has been constructed, as well as phase 1 of Segment 18. Segment 5 is in the final design phase. Segments 8 & 9, and Segments 10 & 11 are in the environmental review phase. All other segments have not started environmental review phase.	Final EIR completed in 2013, Addendum certified in 2014.
Aptos Branch Library (Santa Cruz Public Libraries 2022)	Aptos	Demolition of existing library and construction of new larger library.	Under construction
Soquel Dr Buffered Bike Lane and Congestion Management Project (County of Santa Cruz 2022b)	Santa Cruz County	Pedestrian and bicycle improvements along 5.6 miles of the busiest segment of Soquel Drive from La Fonda Avenue to State Park Drive.	Under construction
1N900 Valencia creek improvement project	Santa Cruz County	Abandon/remove culvert, construct retaining wall/bridge at Aptos Bridge	Scoping phase

Table 7-2, below, provides summary information about the anticipated impacts of reasonably foreseeable projects for each resource.

Table 7-2. Summary of Impacts from Future Actions, Step 5

Resource		
No.	Name	Impacts from Future Actions Identified in Step 5
1	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.
2	Wetlands and Other Waters	Potential impacts include the permanent and temporary loss of wetlands and other waters.
3	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.
4	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.
5	Tidewater Goby	Potential impacts include disturbance of identified tidewater goby habitat or project-induced runoff to identified habitat.

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Resource		
No.	Name	Impacts from Future Actions Identified in Step 5
6	Central California Coast Steelhead	Potential impacts include the disturbance of habitat, runoff to habitat, or changed streamflow.
7	California Giant Salamander	Potential impacts include the disturbance of habitat.
8	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.
9	California Red-Legged Frog (CRLF)	Potential impacts include the disturbance of habitat.
10	Foothill Yellow-Legged Frog (FYLF)	Potential impacts include the permanent and temporary loss of habitat.
11	Santa Cruz black salamander	Potential impacts include the disturbance of habitat.
12	Western Pond Turtle	Potential impacts include the permanent and temporary loss of habitat.
13, 14	Cooper's Hawk & White-Tailed Kite	Potential impacts include the permanent and temporary loss of nesting habitat.
15, 16	Least Bell's Vireo & Southwestern Willow Flycatcher	Potential impacts include any disturbance of brush or trees which may affect habitat.
17	Monarch Butterfly	Potential impacts include the permanent and temporary loss of overwintering habitat.
18, 19, 20	Pallid Bat, Townsend's Big-eared Bat, and Hoary Bat	Potential impacts include disturbance or tree removal.
21	Cultural/Historic Resources	Potential impacts include temporary and permanent removal of rail in Segment 12 of the Coastal Rail Trail.

8.0 Assessment of Cumulative Impacts (Step 6)

This section describes the assessment of cumulative impacts performed as part of Step 6 in the cumulative impact analysis.

8.1 Methods

The Step 6 analysis began with a review of the information gathered in steps 3 through 5 regarding the historic context and current health of each resource included in the cumulative impact analysis and the impacts of reasonably foreseeable future projects on the resources.

The next Step was to assess, for each resource, whether cumulative impacts exist, and whether the identified cumulative impacts could be considered beneficial or adverse. This assessment was based on the information regarding the historic context, current health, the anticipated impact of the proposed project, and the impacts anticipated from reasonably foreseeable actions.

After cumulative impacts were identified, the project team assessed whether the proposed project would have a considerable contribution to the cumulative impact. For each resource found to have an adverse cumulative impact, this included a consideration of the current health and trend of the resource, the sensitivity of the resource, whether the project's impact to the resource is proposed to be fully mitigated (no net contribution), and any available information regarding the abundance of the resource.

8.2 Results

Table 8-1 below, provides summary information about the potential cumulative impacts of reasonably foreseeable projects to each resource. For each resource in the table, the analysis concluded that there is an existing cumulative impact occurring to it within the RSA. The table also indicates whether the proposed project's contribution to an adverse cumulative impact would be considerable, along with an explanation of the factors that led to these conclusions.

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Table 8-1. Summary of Overall Cumulative Impact from Past, Present, and Reasonably Foreseeable Future Projects

Resource		Would the Proposed Project Contribute to An Adverse Cumulative Impact?	Would the Proposed Project's Contribution Be Considerable?	Considerations for Identifying Adverse Cumulative Impacts and the Proposed Project's Contribution
No.	Name			
1	Visual Resources	Yes	Yes	Although the trend for visual resources is considered to be a generally stable condition, 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 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 was considered, noting the distribution of visual impacts of the project, including soundwalls, retaining walls, and removal of mature vegetation, and the extent of visual impacts that are anticipated to remain even with the implementation of avoidance, minimization, and/or mitigation measures. These factors suggest that the incremental contribution of the proposed project to the cumulative visual impact may be considerable.
2	Wetlands and Other Waters	Yes	No	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 the NES, 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.

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Resource		Would the Proposed Project Contribute to An Adverse Cumulative Impact?	Would the Proposed Project's Contribution Be Considerable?	Considerations for Identifying Adverse Cumulative Impacts and the Proposed Project's Contribution
No.	Name			
3	Riparian Forest	Yes	No	Although the trend for the riparian forest natural community is considered to be generally stable with a potential for improvement, 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 project area is an existing transportation corridor, the project would implement the avoidance and minimization measures and compensatory mitigation described in the NES. These factors indicate that the incremental contribution of the proposed Project to the cumulative impact to the riparian forest natural community would not be considerable.
4	Coast Live Oak Woodland	Yes	No	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 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 project area is an existing transportation corridor, the project would implement the avoidance and minimization measures and compensatory mitigation described in the NES. These factors indicate that the incremental contribution of the proposed Project to the cumulative impact to the coast live oak woodland natural community would not be considerable.

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Resource		Would the Proposed Project Contribute to An Adverse Cumulative Impact?	Would the Proposed Project's Contribution Be Considerable?	Considerations for Identifying Adverse Cumulative Impacts and the Proposed Project's Contribution
No.	Name			
5	Tidewater Goby	Yes	No	Although the trend for tidewater goby is considered to be generally stable condition, 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 the 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 and would be addressed by avoidance and minimization measures and compensatory mitigation as described in the NES. These factors indicate that the incremental contribution of the proposed project to the cumulative impact affecting tidewater goby would not be considerable.
6	Central California Coast Steelhead	Yes	No	Central California coast steelhead is considered to be in a condition of poor health, with potential for a trend of decline. 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, including a temporary fish passage solution, as described in the NES. These factors indicate that the incremental contribution of the proposed project to the cumulative impact affecting Central California coast steelhead would not be considerable.

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Resource		Would the Proposed Project Contribute to An Adverse Cumulative Impact?	Would the Proposed Project's Contribution Be Considerable?	Considerations for Identifying Adverse Cumulative Impacts and the Proposed Project's Contribution
No.	Name			
7	California Giant Salamander	Yes	No	California giant salamanders are considered to be in a condition of poor health, with a trend of decline. 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 proposed project's contribution to this cumulative impact was considered, noting that the proposed project would implement the avoidance and minimization measures and compensatory mitigation described in the NES. These factors indicate that the incremental contribution of the proposed project to the cumulative impact on California giant salamanders would not be considerable.
8	Santa Cruz Long-Toed Salamander	Yes	No	SCLTS is considered to be in a condition of poor health, with a trend of decline. 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 Project would implement the avoidance and minimization measures described in the NES. Because impacts would be avoided, the project would not have a substantial contribution to potential impacts to SCLTS in the region and the contribution of proposed Project to the cumulative impact to SCLTS would not be considerable.
9	California Red-Legged Frog (CRLF)	Yes	No	CRLF is considered to be in a condition of poor health, with a trend of decline. 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 project area is an existing transportation corridor, the project would implement the avoidance and minimization measures and compensatory mitigation described in the NES. These factors indicate that the incremental contribution of the proposed Project to the cumulative impact to CRLF would not be considerable.

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Resource		Would the Proposed Project Contribute to An Adverse Cumulative Impact?	Would the Proposed Project's Contribution Be Considerable?	Considerations for Identifying Adverse Cumulative Impacts and the Proposed Project's Contribution
No.	Name			
10	Foothill Yellow-Legged Frog (FYLF)	Yes	No	FYLF is considered to be in a condition of poor health, with a trend of decline. 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 project area is an existing transportation corridor, the project would implement the avoidance and minimization measures and compensatory mitigation described in the NES. These factors indicate that the incremental contribution of the proposed Project to the cumulative impact to FYLF would not be considerable.
11	Santa Cruz Black Salamander	Yes	No	Santa Cruz black salamanders are considered to be in a condition of poor health, with a trend of decline. 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 proposed project's contribution to this cumulative impact was considered, noting that the proposed project would implement the avoidance and minimization measures and compensatory mitigation described in the NES. These factors indicate that the incremental contribution of the proposed project to the cumulative impact on Santa Cruz black salamanders would not be considerable.
12	Western Pond Turtle	Yes	No	Western pond turtle is considered to be in a condition of poor health, with a trend of decline. 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 project area is an existing transportation corridor, the project would implement the avoidance and minimization measures and compensatory mitigation described in the NES. These factors indicate that the incremental contribution of the proposed Project to the cumulative impact to western pond turtle would not be considerable.

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Resource		Would the Proposed Project Contribute to An Adverse Cumulative Impact?	Would the Proposed Project's Contribution Be Considerable?	Considerations for Identifying Adverse Cumulative Impacts and the Proposed Project's Contribution
No.	Name			
13	Cooper's Hawk	Yes	No	Cooper's hawk is considered to be in a condition of good health, with a trend that is stable or improving. However, the effect 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 was 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 the NES. These factors indicate that the incremental contribution of the proposed Project to the cumulative impact to Cooper's hawk would not be considerable.
14	White-Tailed Kite	Yes	No	White-tailed kite is considered to be in a condition of fair health, with a stable or improving trend. 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 project area is an existing transportation corridor, the project would implement the avoidance and minimization measures and compensatory mitigation described in the NES. These factors indicate that the incremental contribution of the proposed Project to the cumulative impact to white-tailed kite would not be considerable.

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Resource		Would the Proposed Project Contribute to An Adverse Cumulative Impact?	Would the Proposed Project's Contribution Be Considerable?	Considerations for Identifying Adverse Cumulative Impacts and the Proposed Project's Contribution
No.	Name			
15	Least Bell's Vireo	Yes	No	Least Bell's vireo is considered to be in a condition of poor health. Although the trend for this species is thought to be stable, 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 project area is an existing transportation corridor, the project would implement the avoidance and minimization measures and compensatory mitigation described in the NES. These factors indicate that the incremental contribution of the proposed Project to the cumulative impact to least Bell's vireo would not be considerable.
16	Southwestern Willow Flycatcher (SWWF)	Yes	No	SWWF is considered to be in a condition of poor health. Although the trend for this species may be stable, 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 project area is an existing transportation corridor, the project would implement the avoidance and minimization measures and compensatory mitigation described in the NES. These factors indicate that the incremental contribution of the proposed Project to the cumulative impact to SWWF would not be considerable.

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Resource		Would the Proposed Project Contribute to An Adverse Cumulative Impact?	Would the Proposed Project's Contribution Be Considerable?	Considerations for Identifying Adverse Cumulative Impacts and the Proposed Project's Contribution
No.	Name			
17	Monarch Butterfly	Yes	No	This resource is in a condition of poor and currently declining health, but may stabilize in the future. 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 project area is an existing transportation corridor, the project would implement the avoidance and minimization measures and compensatory mitigation described in the NES. These factors indicate that the incremental contribution of the proposed Project to the cumulative impact to monarch butterfly would not be considerable.
18	Pallid Bat	Yes	No	Pallid bat is considered to be in a condition of declining health in California, although global populations are stable. 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 project area is an existing transportation corridor, the project would implement the avoidance and minimization measures and compensatory mitigation described in the NES. These factors indicate that the incremental contribution of the proposed Project to the cumulative impact to pallid bat would not be considerable.

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Resource		Would the Proposed Project Contribute to An Adverse Cumulative Impact?	Would the Proposed Project's Contribution Be Considerable?	Considerations for Identifying Adverse Cumulative Impacts and the Proposed Project's Contribution
No.	Name			
19	Hoary Bat	Yes	No	This species is considered to be in relatively good health and stable condition. However, the effect 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 was 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 the NES. These factors indicate that the incremental contribution of the proposed Project to the cumulative impact to hoary bat would not be considerable.
20	Townsend's Big-eared Bat	Yes	No	Townsend's big-eared bat is considered to be in a condition of poor and declining health in California, although nationally the populations may be more stable. 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 project area is an existing transportation corridor, the project would implement the avoidance and minimization measures and compensatory mitigation described in the NES. These factors indicate that the incremental contribution of the proposed Project to the cumulative impact to Townsend's big-eared bat would not be considerable.

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Resource		Would the Proposed Project Contribute to An Adverse Cumulative Impact?	Would the Proposed Project's Contribution Be Considerable?	Considerations for Identifying Adverse Cumulative Impacts and the Proposed Project's Contribution
No.	Name			
21	Cultural/Historic Resources	No	No	<p>This historic resource is considered to be in relatively stable condition. There are seven aspects of historical integrity: location, design, setting, materials, workmanship, feeling, and association. The Santa Cruz Railroad has not been moved outside the period of significance and therefore retains integrity of location. The setting of the railroad line surveyed has been altered modestly since its construction. Likewise, maintenance and replacement of bridges, ties, tracks, signals, and other features has had some impact on integrity. These elements contribute in the areas of feeling and association. The primary character-defining feature of the Santa Cruz Railroad is its alignment, and also the contributing features, including the San Lorenzo and Capitola bridges and depots.</p> <p>Despite 6.2% rail removal in this section under the optional first phase, SCCRTC 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.</p> <p>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.</p>

9.0 Summary and Documentation of Results (Step 7)

The purpose of Step 7 is to document the results of the step-wise 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 4 through 8 of this technical report.

10.0 Mitigation Needs and Recommendations (Step 8)

Step 8 of the cumulative impact analysis involves assessing the need for mitigation to address the overall cumulative impact to each resource.

10.1 Methods

In accordance with the Caltrans guidance for conducting cumulative impact analyses (Caltrans 2005), Step 8 of the cumulative impact analyses included a review and summary of the mitigation measures identified in the project's technical reports. The Step 8 analysis also identified the agencies with regulatory authority over each resource identified in Step 6 as receiving adverse cumulative impacts. Additionally, given the difficulty associated with identifying feasible mitigation measures for cumulative impacts, in accordance with Caltrans guidance for conducting cumulative impact analyses (Caltrans 2005), the Step 8 analysis recommends actions to sustain these resources, which the identified agencies could potentially take to influence the sustainability of the resource.

10.2 Results

The results of the Step 8 analysis are organized by habitat type, with individual resources discussed together with the appropriate habitat. Following the discussions of mitigation recommendations by habitat type, Table 8-1 provides a summary overview of mitigation recommendations.

There are three types of natural habitats, plus a category of “developed areas” within the project area that include resources addressed by this cumulative impact analysis and could be impacted by construction activities:

- wetlands and other waters
- riparian forest
- coast live oak woodland
- developed areas

Resources that are found within each habitat, or as part of developed areas, are discussed according to habitat type, in the following sections. Each section provides summary information regarding the mitigation for project impacts, refers the reader to the applicable technical study for more information, identifies the agencies with regulatory authority over each resource, and provides recommendations for these agencies to mitigate overall cumulative impacts. For biological resources, general avoidance and minimization measures will be implemented that protect all biological resources, including flagging or fencing of the project site, the implementation of an erosion control plan and hazardous materials response plan and biological

monitoring – as discussed in the Discussion of Potentially Jurisdictional Waters section of the NES.

10.2.1 Resources Associated with Developed Areas

Developed areas are associated with a number of resources included in the cumulative impact analysis, including visual resources, pallid bat, hoary bat, Townsend's big-eared bat, and cultural/historic resources. Mitigation measures for project impacts on these resources are presented in the first section below, followed by recommendations for agencies with regulatory authority over the resources to mitigate overall cumulative impacts.

Mitigation for Project Impacts – Resources Associated with Developed Areas

The following paragraphs provide information regarding mitigation for project impacts that is specific to resources associated with developed areas.

Resource 1 – Visual

As described in the Visual Impact Assessment, mitigation measures include the implementation of replacement plantings and the development of aesthetic treatments as part of the design phase of the project. The mitigation of visual impacts resulting from the project will be guided by Corridor Aesthetic Guidelines, which incorporate community input through a formalized structure.

Resource 18, 19 and 20 – Pallid Bat, Hoary Bat and Townsend's Big-Eared Bat

Mitigation measures for impacts to pallid bat, hoary bat, and Townsend's big-eared bat, and other roosting bats, include pre-construction surveys and avoidance measures. In the event of any permanent affects to a major roost location, the replacement of suitable habitat will be implemented. Suitable habitat includes trees and existing structures, such as bridges over the highway. The Discussion of Hoary Bat (*Lasiurus Cinereus*), Pallid Bat (*Antrozous Pallidus*), Townsend's Big-Eared Bat (*Corynorhinus Townsendii*), and Other Roosting Bats section of Chapter 4 of the NES provides more detail on measures to address impacts to these bat species.

Resource 21 – Cultural/Historic Resources

As described in the DPR form, the proposed project would not contribute to an adverse cumulative impact. No mitigation is required. This resource is pending SHPO concurrence.

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.

Recommendations for Agencies – Developed Areas / Associated Resources

Recommendations for agencies to mitigate overall cumulative impacts for resources associated with developed areas are described below.

Resource 1 – Visual

The County of Santa Cruz has 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.

Resources 18, 19, and 20 – Pallid Bat, Hoary Bat, and Townsend's Big-eared 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).

Resource 21 – Cultural/Historic Resources

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

10.2.2 Wetlands and Other Waters

Wetlands and other waters habitat is associated with a number of resources included in the cumulative impact analysis that utilize this habitat type in a variety of ways. These resources are: tidewater goby, central California coast steelhead, Santa Cruz long-toed salamander, California red-legged frog, California yellow-legged frog, and western pond turtle. Mitigation measures for impacts to these resources are presented at the beginning of this section, followed by recommendations for agencies with regulatory authority over these resources to mitigate overall cumulative impacts. Please note that, although wetlands and other waters habitat is important to various species of birds, such as white-tailed kite, all bird species are addressed in Section 10.2.2, Riparian Forest, due to the similarity of mitigation requirements for avian species.

Mitigation for Project Impacts – Wetland and Other Waters / Associated Resources

The following paragraphs summarize the mitigation for project impacts specific to wetlands and other waters habitat and resources associated with this habitat type.

Resource 2 – Wetlands and Other Waters

The project will implement avoidance and minimization measures related to temporary construction work in stream channels. In addition, as described in the Jurisdictional Wetlands and Other Waters section of Chapter 4 of the NES, compensatory mitigation will be provided for impacts to wetlands and other waters, which will address impacts to tidewater goby, central California coastal steelhead, California red-legged frog, foothill yellow-legged frog, and western pond turtle.

Resource 5 – Tidewater Goby

As described in the Discussion of Tidewater Goby section of Chapter 4 of the NES, the project will implement avoidance and minimization measures specific to tidewater goby, including post-construction restoration of vegetation used as sheltering areas, and additional measures in the event of dewatering.

Resource 6 – Central California Coast Steelhead

The project will implement avoidance and minimization measures specific to central California coastal steelhead, including the implementation of a Diversion and Dewatering Plan (if dewatering/stream diversion is necessary), and the relocation of steelhead if necessary during dewatering/diversion activities, or if tidal fluctuations breach a formerly dewatered and isolated project site. More information is provided in the Discussion of Central California Coast Steelhead (*Oncorhynchus mykiss*) section of Chapter 4 of the NES.

As stated above, 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 SB-857. Mitigation is identified in the NES to address the fish passage barrier.

Resource 8 – Santa Cruz Long-Toed Salamander

Because the proposed project will avoid construction in Valencia Lagoon, as well as areas of upland habitat that may be utilized by the Santa Cruz long-toed salamander, no mitigation measures specific to this species are needed, as discussed in the Discussion of Santa Cruz Long-Toed Salamander (*Ambystoma macrodactylum croceum*) section of Chapter 4 of NES.

Resources 9, 10 and 12 – California Red-Legged Frog, Foothill Yellow-legged Frog, and Western Pond Turtle

The project will implement avoidance and minimization measures specific to California red-legged frog, as discussed in the Discussion of California Red-legged Frog (*Rana draytonii*) Section of Chapter 4 of the NES, including pre-construction surveys and relocation of identified individuals to suitable habitat. These measures will also address project impacts to foothill yellow-legged frog and western pond turtle, as discussed in the NES, respectively, in Discussion of Foothill Yellow-legged Frog (*Rana boylei*), and Discussion of Western Pond Turtle (*Actinemys marmorata*).

Recommendations for Agencies - Wetlands and Other Waters / Associated Resources

Recommendations for agencies to mitigate overall cumulative impacts for resources within this habitat include are described below.

Resource 2 – 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.

Resource 5 – 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).

Resource 6 – 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).

As stated above, 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 SB-857. Mitigation is identified in the NES to address the fish passage barrier.

Resource 8 – Santa Cruz Long-toed Salamander

The California Department of Fish and Wildlife and U.S. Fish and Wildlife Service have regulatory authority over SCLTS. 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 multibenefit conservation in its Conservation Blueprint (Caltrans 2018).

Resources 9, 10 and 12 – California Red-Legged Frog, Foothill Yellow-legged Frog, 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 (CRLF). California Department of Fish and Wildlife has regulatory authority over foothill yellow-legged frog and 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 CRLF habitat, including habitat restoration and enhancement. An example of local efforts to protect CRLF habitat is the partnership between the non-profit organization Save The Frogs! and the Land Trust of Santa Cruz County to restore habitat for CRLF 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 CRLF and provide environmental education to the public.

10.2.3 Riparian Forest

Riparian habitat is associated with a number of resources included in the cumulative impact analysis that utilize this habitat type, including Santa Cruz black salamander, California giant salamander, Cooper's hawk, white-tailed kite, least Bell's vireo, and southwestern willow flycatcher. Mitigation measures for project impacts to these resources are presented at the beginning of this section, followed by recommendations for agencies with regulatory authority over these resources to mitigate overall cumulative impacts.

Mitigation for Project Impacts – Riparian Forest / Associated Resources

The following paragraphs provide information regarding mitigation for project impacts that is specific to riparian forest habitat and resources associated with this habitat type.

Resource 3 – Riparian Forest

As described in the Discussion of Potentially Jurisdictional Waters section of Chapter 4 of the NES, compensatory mitigation for impacts to riparian forest habitat will be included in the project and will be accomplished with onsite or offsite replacement planting. Compensatory mitigation for riparian habitat will address any riparian habitat that may be utilized by nesting migratory bird species.

Resources 7 and 11 – California Giant Salamander and Santa Cruz black salamander

As described in Chapter 4 of the NES, 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.

Resources 13 through 16 – 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 discussed in the Discussion of Cooper's Hawk (*Accipiter cooperii*), White-tailed Kite (*Elanus leucurus*), and Other Nesting Migratory Birds section of Chapter 4 of the NES. 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.

Recommendations for Agencies – Riparian Forest / Associated Resources

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. Examples that are specific to certain resources are described individually below.

Resources 3, 7, 11, 13, 15, and 16 – Riparian Forest, California Giant Salamander, Santa Cruz black salamander, Cooper's Hawk, Least Bell's Vireo, and Southwestern Willow Flycatcher

Agencies with regulatory authority over riparian forest resources associated with the build alternative are the Army Corps of Engineers, the California Department of Fish and Wildlife, Central Coast Regional Water Quality Control Board, and the County of Santa Cruz. Within the Coastal Zone, the California Coastal Commission, also has jurisdiction over riparian corridors. The California Department of Fish and Wildlife has regulatory authority over the Santa Cruz black salamander and California giant salamander. The agencies with regulatory authority over Cooper's hawk, least Bell's vireo, and southwestern willow flycatcher are the California Department of Fish and Wildlife and the U.S. Fish and Wildlife Service.

Recommendations for these agencies to mitigate overall cumulative impacts include supporting local efforts to restore riparian forest habitats, which would in turn benefit species that utilize riparian forest habitat, including Santa Cruz black salamander, Cooper's hawk, least Bell's vireo and southwestern willow flycatcher. For example, the Santa Cruz County Resource Conservation District's current Soquel Corridor Restoration Project is focused on restoring 2,500 feet of riparian corridor, reconnecting portions of the historic floodplain to the main channel, and stabilizing a landslide that is discharging significant amounts of fine sediment into Soquel Creek (Caltrans 2018).

Resource 14 – White-tailed Kite

The California Department of Fish and Wildlife is the agency with regulatory authority over white-tailed kite. As discussed in the Discussion of Potentially Jurisdictional Waters Section of Chapter 4 of the NES, efforts to restore wetlands and other waters would benefit white-tailed kite.

10.2.4 Coast Live Oak Woodland

For the purposes of the cumulative impact analysis Coast Live Oak woodland habitat is considered to be associated monarch butterfly, because the two resources share the same resource study area as the same wooded areas within and surrounding the project corridor that were identified as likely to include areas of oak woodland are also likely to include some groves of Monterey pine, Monterey cypress, and eucalyptus trees, which are used by monarch butterfly. Mitigation measures for project impacts to oak woodland and monarch butterfly are presented at the beginning of this section, followed by recommendations for agencies with regulatory authority over these resources to mitigate overall cumulative impacts.

Mitigation for Project Impacts – Coast Live Oak Woodland / Associated Resources

The following paragraphs provide information regarding mitigation for project impacts specific to Coast Live Oak woodland habitat and monarch butterfly.

Resource 4 – Coast Live Oak Woodland

Compensatory mitigation for impacts to Coast Live Oak woodland habitat will be provided by the project and will be accomplished with onsite replacement planting, as described in the Coast Live Oak Woodland Section of Chapter 4 of the NES.

Resource 17 – Monarch Butterfly

As described in the Discussion of Monarch Butterfly (*Danaus plexippus*) section of Chapter 4 of the NES, the project will implement avoidance and minimization measures specific to monarch butterfly. This will include limiting tree removal operations to months outside of the November 1st to March 1st window for eucalyptus trees and other suitable habitat for monarch butterfly.

Recommendations for Agencies – Coast Live Oak Woodland / Associated Resources

Recommendations for agencies to mitigate overall cumulative impacts to oak woodland and monarch butterfly are described below.

Resource 4– Coast Live Oak Woodland

The California Department of Fish and Wildlife, and the County of Santa Cruz have regulatory authority over 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. In addition, recommendations would also include encouraging sustainable and ecosystem beneficial larger mitigation efforts rather than smaller, piecemeal mitigation efforts by looking at advanced mitigation and establishing mitigation banking opportunities.

Resource 17 – Monarch Butterfly

The California Department of Fish and Wildlife has regulatory authority over monarch butterfly. Recommendations for agencies to mitigate overall cumulative impacts include supporting efforts to restore habitat restoration for monarch butterfly. 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 (Caltrans 2018).

Table 10-1 provides a summary overview of mitigation recommendations described above.

Table 10-1. Overview of Mitigation Recommendations

Habitat Type	No.	Resource	Agencies with Regulatory Authority over Resource	Recommendations for Agencies with Regulatory Authority over Resource to Mitigate Overall Cumulative Impacts		
				Enhance/ Restore	Prioritize Preservation and/ or Planting	Establish Protections
Developed Areas	1	Visual Resources	Santa Cruz County		X	X
	18	Pallid Bat	CDFW	X		

State Route Highway 1 Auxiliary Lanes and Bus-on-Shoulder Improvements—Freedom Blvd. to
State Park Dr.—and Coastal Rail Trail Segment 12 Project
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Habitat Type	No.	Resource	Agencies with Regulatory Authority over Resource	Recommendations for Agencies with Regulatory Authority over Resource to Mitigate Overall Cumulative Impacts		
				Enhance/Restore	Prioritize Preservation and/ or Planting	Establish Protections
	19	Hoary Bat	CDFW	X		
	20	Townsend's Big-eared Bat	CDFW	X		
	21	Cultural/Historic Resources	SHPO			
Wetlands and Other Waters	2	Wetlands and Other Waters	USACE, CDFW, CCC, Central Coast RWQCB, Santa Cruz County	X		
	5	Tidewater Goby	CDFW, USFWS	X		
	6	Central California Coastal Steelhead	CDFW, NOAA/National Marine Fisheries Service	X		
	8	Santa Cruz Long-toed Salamander	CDFW, USFWS		X	
	9	California Red-legged Frog	CDFW, USFWS	X		
	10	Foothill Yellow-legged Frog	CDFW	X		
	12	Western Pond Turtle	CDFW	X		
Riparian	3	Riparian Forest	USACE, CDFW, CCC, Central Coast RWQCB, Santa Cruz County	X		
	7	California Giant Salamander	CDFW	X		
	11	Santa Cruz Black Salamander	CDFW	X		
	12	Coopers Hawk	CDFW, USFWS	X		

State Route Highway 1 Auxiliary Lanes and Bus-on-Shoulder Improvements—Freedom Blvd. to
State Park Dr.—and Coastal Rail Trail Segment 12 Project
Cumulative Impact Analysis

Habitat Type	No.	Resource	Agencies with Regulatory Authority over Resource	Recommendations for Agencies with Regulatory Authority over Resource to Mitigate Overall Cumulative Impacts		
				Enhance/Restore	Prioritize Preservation and/ or Planting	Establish Protections
	14	White-tailed Kite	CDFW, USFWS	X		
	15	Least Bell's Vireo	CDFW, USFWS	X		
	16	Southwestern Willow Flycatcher	CDFW, USFWS	X		
Coast Live Oak Woodland	4	Coast Live Oak Woodland Community	CDFW, Santa Cruz County		X	
	17	Monarch Butterfly	CDFW	X		

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Appendix 1: Resource Study Area Figures

The following table identifies the applicable Resource Study Area (RSA) figure for each resource evaluated in the Cumulative Impact Analysis.

Resource No.	Resource Name	Figure No. of Resource Study Area	
1	Visual Resources	Figure 1	RSA for Visual/Aesthetics
2	Wetlands and Other Waters	Figure 2	RSA for Wetlands and Other Waters
3	Riparian Non-Wetlands (Riparian Forest)	Figure 3	RSA for Riparian Non-Wetlands
4	Coast Live Oak Woodland Habitat	Figure 4	RSA for Coast Live Oak Woodland Habitat Monarch Butterfly
5	Tidewater Goby	Figure 5	RSA for Tidewater Goby
6	Central California Coast Steelhead	Figure 6	RSA for Steelhead – Central California Coast Distinct Population Segment (DPS)
7	Santa Cruz Long-Toed Salamander	Figure 7	RSA for Santa Cruz Long-Toed Salamander
8	California Red-Legged Frog (CRLF)	Figure 8	RSA for California Red-Legged Frog, White-Tailed Kite, Santa Cruz Black Salamander, and California Giant Salamander
9	Foothill Yellow-Legged Frog (FYLF)	Figure 9	RSA for Yellow-Legged Frog and Western Pond Turtle
10	Santa Cruz black salamander	Figure 8	RSA for California Red-Legged Frog, White-Tailed Kite, Santa Cruz Black Salamander, and California Giant Salamander
11	Western Pond Turtle	Figure 9	RSA for Yellow-Legged Frog and Western Pond Turtle
12	Cooper's Hawk	Figure 10	RSA for Cooper's Hawk
13	White-Tailed Kite	Figure 8	RSA for California Red-Legged Frog, White-Tailed Kite, Santa Cruz Black Salamander
14	Least Bell's Vireo	Figure 11	RSA for Least Bell's Vireo and Southwestern Willow Flycatcher
15	Southwestern Willow Flycatcher	Figure 11	RSA for Least Bell's Vireo and Southwestern Willow Flycatcher
16	Monarch Butterfly	Figure 4	RSA for Coast Live Oak Woodland Habitat Monarch Butterfly
17, 18, 19	Pallid Bat, Townsend's Big-eared Bat, and Hoary Bat	Figure 12	RSA for Bat Species
20	Cultural/Historic Resources	Figure 13	RSA for Cultural/Historic Resources Monterey Bay Sanctuary Scenic Trail



Figure 1
RSA for Visual/Aesthetics



Figure 2
RSA for Wetlands and Other Waters



Figure 3
RSA for Riparian Non-Wetlands



Figure 4
RSA for Coast Live Oak Woodland Habitat and Monarch Butterfly



Figure 5
RSA for Tidewater Goby



Figure 6
RSA for Central California Coast Steelhead Distinct Population Segment (DPS)



Figure 7
RSA for Santa Cruz Long-Toed Salamander



Figure 8
RSA for California Red-Legged Frog, White-Tailed Kite, Santa Cruz Black Salamander, and California Giant Salamander



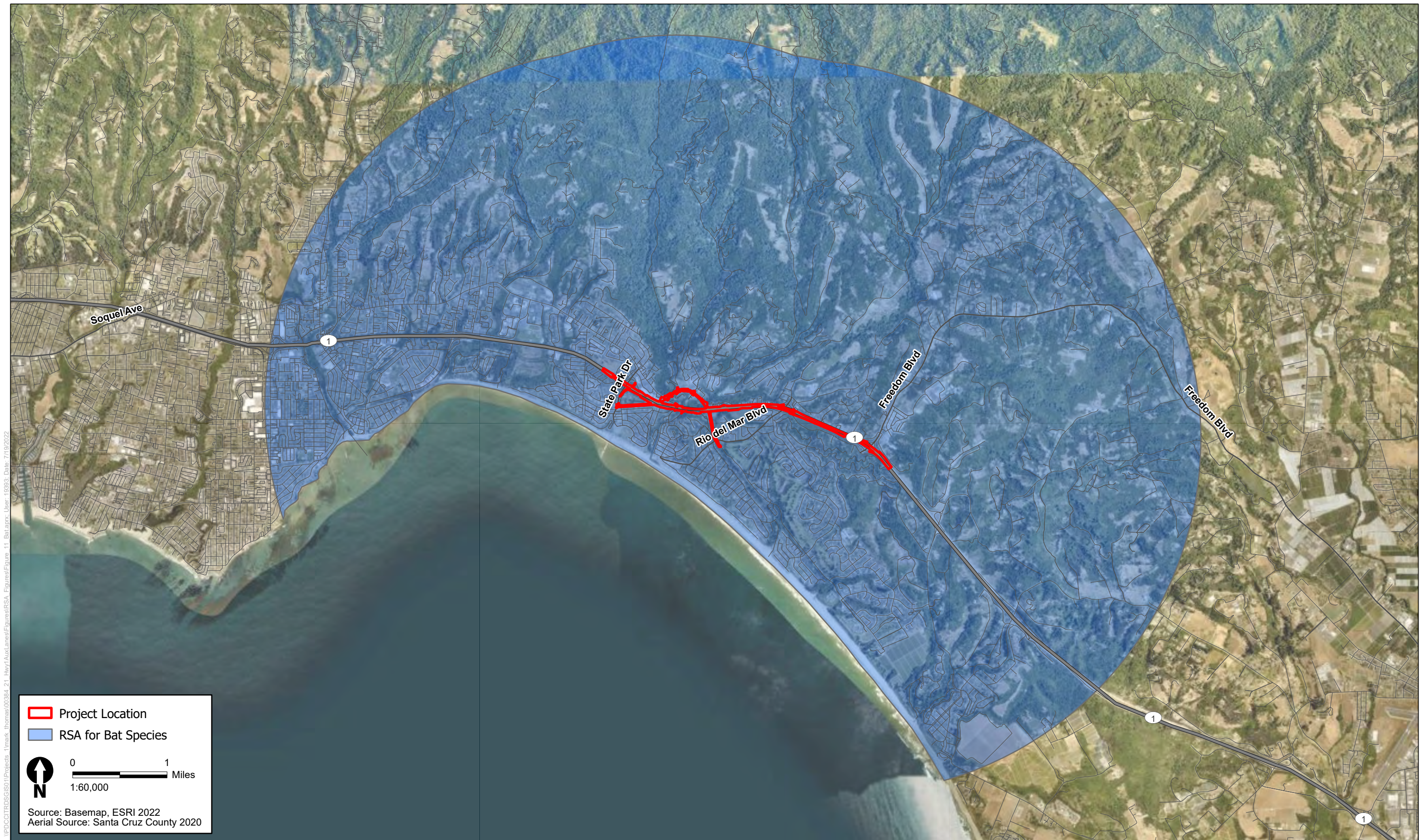
Figure 9
RSA for Foothill Yellow Legged Frog
and Western Pond Turtle



Figure 10
RSA for Cooper's Hawk



Figure 11
RSA for Least Bell's Vireo and Southwestern Willow Flycatcher



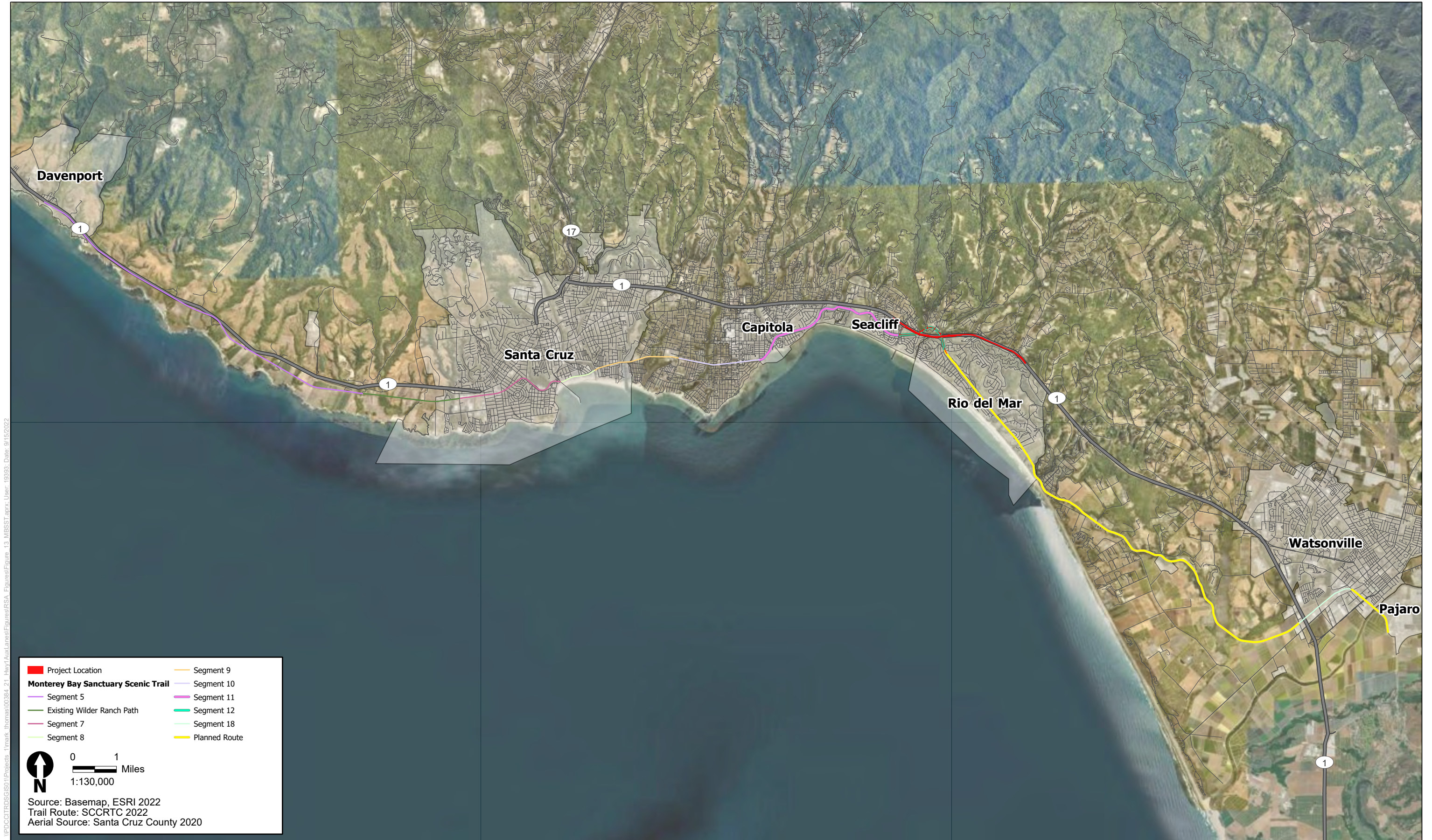


Figure 13
RSA for Cultural/Historic Resources
Monterey Bay Sanctuary Scenic Trail