4 Environmental Setting, Impacts, and Mitigation Measures

4.0 Introduction to Analyses

This chapter provides a project- and programmatic-level analysis of the physical environmental effects of implementing the Santa Cruz Water Rights Project (Proposed Project). The following sections in this chapter evaluate the environmental impacts of the Proposed Project:

- 4.1 — Impacts Not Found to Be Significant
- 4.2 — Air Quality
- 4.3 — Biological Resources
- 4.4 — Cultural Resources and Tribal Cultural Resources
- 4.5 — Geology and Soils
- 4.6 — Greenhouse Gas Emissions
- 4.7 — Hazards, Hazardous Materials, and Wildfire
- 4.8 — Hydrology and Water Quality
- 4.9 — Land Use, Agriculture and Forestry, and Mineral Resources
- 4.10 — Noise and Vibration
- 4.11 — Recreation
- 4.12 — Transportation
- 4.13 — Utilities and Energy

4.0.1 Scope of Analyses

4.0.1.1 Section Organization

Each environmental resource section listed above generally has a similar format as described below.

- **Existing Conditions.** This section provides a general overview of the existing physical environmental conditions related to the topic being addressed, based on the conditions present at the time that the Notice of Preparation for the EIR was released (2018).
- **Regulatory Framework.** This section describes applicable federal, state, and local, laws and regulations relevant to the environmental resource topic and the Proposed Project.
- **Impacts and Mitigation Measures.** This section identifies thresholds of significance used to evaluate whether an impact is considered significant, based on standards derived from Appendix G of the California Environmental Quality Act (CEQA) Guidelines and from the City of Santa Cruz CEQA Guidelines. In some cases, agency policies and regulations or professional judgment are used to further define CEQA standards of significance.

This section first presents a discussion of the standards of significance for which no impacts have been identified, if any. The section then evaluates and analyzes project impacts, states the level of significance prior to mitigation, and proposes mitigation measures for significant impacts that would reduce such impacts, if feasible. A statement regarding the level of significance of each impact after mitigation precedes the mitigation measures for that impact.

Cumulative impacts are discussed in each environmental resource section following the description of the project-specific impacts. The cumulative impact analysis considers the effects of the Proposed Project together with, and against the backdrop of, other past, present, or reasonably foreseeable future projects proposed in the project vicinity and region. The cumulative impact analysis is based on the same setting, regulatory framework, and significance thresholds presented for each respective resource topic. Additional mitigation measures may be identified if the analysis determines that the Proposed Project's incremental contribution to a significant cumulative impact would be cumulatively considerable and, therefore, significant in and of itself. Section 4.0.2, Cumulative Impacts Overview, below describes the assumptions and methodology for assessing cumulative impacts.

4.0.1.2 Significance Determinations

In accordance with CEQA, specifically Public Resources Code Section 21068, a "significant effect on the environment" means a substantial or potentially substantial adverse change in the environment. The significance thresholds used for each environmental resource topic are presented in each section of this chapter immediately before the discussion of impacts. For each impact described, one of the following significance determinations is made:

- ***No Impact.*** This determination is made if there is no potential that the Proposed Project could affect the resource at issue.
- ***Less than Significant.*** This determination applies if there is a potential for some limited impact on a resource, but the impact is not significant in accordance with the significance standard.
- ***Less than Significant with Mitigation.*** This determination applies if there is the potential for a substantial adverse effect in accordance with the significance standard, but mitigation is available to reduce the impact to a less-than-significant level.
- ***Significant and Unavoidable.*** This determination applies to impacts that are significant, and for which there appears to be no feasible mitigation available to substantially reduce the impact.
- ***Beneficial.*** This determination applies if there is a beneficial change in any of the physical conditions within the area affected by the Proposed Project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance.

4.0.1.3 Project- and Program-Level Analyses

As indicated in Chapter 2, Introduction, the Proposed Project includes components that are considered in the EIR at a "project" level (project components) and components that are considered at a "programmatic" level (programmatic components) and, therefore, this EIR is both a project EIR and a program EIR (See Chapter 2 for information about the distinction between a project and program EIR). The programmatic components of the Proposed Project would include potential future activities that may occur after the City of Santa Cruz's (City's) water rights are modified. Because these activities are considered to be reasonably foreseeable as a logical part in a chain of contemplated actions, but the full physical extent and timing of these improvements are not known at this time, these activities are addressed in the EIR at a programmatic level. Some of these actions would be undertaken

in conjunction with surrounding water districts and some would be undertaken solely by the City. If warranted, additional environmental analysis will be undertaken at the time these foreseeable future activities or actions are under active consideration. Table 4.0-1 identifies the project components and programmatic components. Chapter 4, Environmental Setting, Impacts, and Mitigation Measures, provides the project and programmatic analysis for the various components of the Proposed Project.

Table 4.0-1. Project and Programmatic Components

Proposed Project Components	Project Components	Programmatic Components
WATER RIGHTS MODIFICATIONS		
Place of Use	✓	
Points of Diversion	✓	
Underground Storage and Purpose of Use	✓	
Method of Diversion	✓	
Extension of Time	✓	
Bypass Requirement (Agreed Flows)	✓	
INFRASTRUCTURE COMPONENTS		
Water Supply Augmentation Components		
Aquifer Storage and Recovery (ASR)		✓
New ASR Facilities at Unidentified Locations		✓
Beltz ASR Facilities at Existing Beltz Well Facilities	✓	
Water Transfers and Exchanges and Intertie Improvements		✓
Surface Water Diversion Improvements		
Felton Diversion Fish Passage Improvements		✓
Tait Diversion and Coast Pump Station Improvements		✓

4.0.1.4 Analysis Approach

The Proposed Project includes various water rights modifications that would directly affect the City's water system operations. The Proposed Project also includes other related actions or activities that would be reasonably foreseeable as a logical part in a chain of contemplated actions should the water rights modifications be approved, which includes a number of infrastructure components (i.e., ASR facilities, water transfers and exchanges and intertie improvements, and diversion improvements). The approach to the analyses of the various components of the Proposed Project provided in Chapter 4, Environmental Setting, Impacts, and Mitigation Measures, is further described below.

Water Rights Modifications

As indicated in Chapter 3, Project Description, the Proposed Project would include various water rights modifications that would directly affect the City's water system operations. Specifically, direct impacts associated with the water rights modifications include those related to changes in hydrology of the San Lorenzo River and North Coast streams associated with changed operations. The Proposed Project would modify the hydrology of the San Lorenzo River and the North Coast streams by both increasing and reducing streamflows at different times, in different seasons and in different water-year types. For example, surface water diversions that would support ASR operations could reduce streamflows somewhat in

wetter times. On the other hand, those ASR operations would increase streamflows in Newell Creek, and therefore the San Lorenzo River, at other times because the groundwater storage resulting from those ASR operations would allow Loch Lomond Reservoir to be full more often, which would increase reservoir spills into Newell Creek.

This EIR therefore analyzes the Proposed Project's direct effects on streamflows and reservoir levels and the resulting effects on resources that are dependent on streamflows and reservoir levels, such as the fisheries and other aquatic and near-stream resources that are analyzed in Section 4.3, Biological Resources, surface water hydrology conditions that are analyzed in Section 4.8, Hydrology and Water Quality, and recreational resources that are analyzed in Section 4.11, Recreation. Additionally, changed operations of the City's water system with the Proposed Project would also result in an increase in electrical energy use, which is evaluated in Section 4.6, Greenhouse Gas Emissions and Section 4.13, Utilities and Energy. These analyses are supported by hydrologic, water supply, and fisheries habitat modeling conducted for the Proposed Project and included in Appendix D. To ensure comprehensive evaluation of these operational impacts, the hydrologic, water supply, and fisheries modeling assesses operations with the implementation of the water rights modifications and all infrastructure components of the Proposed Project.

The potential indirect impacts of the proposed water rights modifications are evaluated under the subheading "Infrastructure Components" for each environmental resource topic analyzed in Chapter 4 (Sections 4.2 through 4.13), as once the water rights modifications are approved, they could result in the implementation of the project and programmatic infrastructure components of the Proposed Project.

Infrastructure Components

The analysis of infrastructure components of the Proposed Project evaluates the potential construction and operational impacts, as relevant, for all infrastructure components. For construction impacts, an analysis is provided for each component of the Proposed Project, where warranted. Additionally, where there is potential for construction impacts associated with the overlap of construction schedules for the various infrastructure components, the construction overlap of the components is also analyzed. For operational impacts in some sections in Chapter 4 (i.e., Section 4.3, Biological Resources; Section 4.8, Hydrology and Water Quality related to surface water hydrology; and Section 4.11, Recreation), the analysis of the water rights modifications discussed above addresses the combined effect of the Proposed Project, including the infrastructure components, as described above, and the analysis under "Infrastructure Components" simply refers to the analysis for the water rights modifications. Operational impacts for the remainder of the sections in Chapter 4 are only evaluated where there is the potential for operational impacts to result from one or more of the infrastructure components.

4.0.2 Cumulative Impacts Overview

The section below presents the CEQA requirements pertaining to the cumulative analysis and the cumulative projects that have been considered in the cumulative impact analysis presented for each environmental resource topic.

4.0.2.1 CEQA Guidelines Requirements

CEQA Guidelines Section 15130(a) requires that an environmental impact report (EIR) discuss cumulative impacts of a project "when the project's incremental effect is cumulatively considerable." As defined in CEQA Guidelines Section 15355, a cumulative impact consists of an impact that is created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts. Pursuant to CEQA Guidelines Section 15065(a)(3), "cumulatively considerable" means that the incremental effects of an individual project are

significant when viewed in connection with the effects of past projects, other current projects, and probable future projects. Where a lead agency is examining a project with an incremental effect that is not "cumulatively considerable," the lead agency need not consider the effect significant.

CEQA requires an evaluation of cumulative impacts when they are significant. When the combined cumulative impact associated with the project's incremental effect and the effects of other projects is not significant, the EIR shall briefly indicate why the cumulative impact is not significant and is not discussed in further detail in the EIR. Furthermore, according to CEQA Guidelines Section 15130 (a)(1), there is no need to evaluate cumulative impacts to which the project does not contribute.

An EIR may determine that a project's contribution to a significant cumulative impact will be rendered less than cumulatively considerable and thus not significant when, for example, a project funds its fair share of a mitigation measure designed to alleviate the cumulative impact. An EIR shall examine reasonable, feasible options for mitigating or avoiding the project's contribution to any significant cumulative effects.

The discussion of cumulative impacts shall reflect the severity of the impacts and their likelihood of occurrence, but the discussion need not provide detail as great as that provided for the impacts that are attributable to the project alone. The discussion should be guided by standards of practicality and reasonableness and should focus on the cumulative impact to which the identified project contributes.

CEQA Guidelines Section 15152(f)(1) provides that "[w]here a lead agency determines that a cumulative effect has been adequately addressed in the prior EIR, that effect is not treated as significant for purposes of the later EIR or negative declaration, and need not be discussed in detail." Section 15152(f)(3) provides that "[s]ignificant environmental effects have been 'adequately addressed' if the lead agency determines that: (A) they have been mitigated or avoided as a result of the prior environmental impact report and findings adopted in connection with that prior environmental report; or (B) they have been examined at a sufficient level of detail in the prior environmental impact report to enable those effects to be mitigated or avoided by site specific revisions, the imposition of conditions, or by other means in connection with the approval of the later project."

4.0.2.2 Cumulative Projects and Scope of Analysis

Discussion of cumulative impacts may consider either a list of past, present, and probable future projects producing cumulative impacts or a summary of growth projections contained either in an adopted plan that evaluates conditions contributing to cumulative impacts or in a certified prior environmental document for such a plan. Such projections may also be supplemented with additional information such as a regional modeling program, Examples of plans that can be used for such purposes include a general plan, regional transportation plan, or plans for the reduction of greenhouse gas emissions. Projects that are relevant to the cumulative analysis include projects that could:

- Contribute incremental environmental effects on the same resources as, and would have similar impacts to, those discussed in this EIR applicable to the Proposed Project.
- Be located within the defined geographic scope for the cumulative effect. The defined geographic scope is dependent on the environmental resource affected.
- Contribute impacts that coincide with Proposed Project impacts during construction (short-term) or operation (long-term). Construction of the Proposed Project relates only to the infrastructure components of the Proposed Project. Operations of the Proposed Project relates to operations with the proposed water rights modifications, as well as operation of the proposed infrastructure components. See Chapter 3, Project Description, for a detailed description of the Proposed Project.

This EIR uses a list-based approach for the development of the cumulative projects. Based on the above factors, cumulative projects considered for the analysis include other capital improvement projects planned by the City that would be located in proximity to the project site or whose impacts would otherwise combine with the impacts of the Proposed Project. Santa Cruz County Planning Department and Environmental Health staff were also contacted to determine if other proposed or pending projects are located in proximity to the project and programmatic infrastructure component sites; staff provided information about the more substantive proposed or pending development projects listed in Table 4.0-2 (Drake and Ryan 2020). The City of Scotts Valley list of current projects on its website was also reviewed and the more substantive proposed or pending development projects from that review are listed in Table 4.0-2 (City of Scotts Valley 2020). Additionally, the City of Capitola was also contacted and there are no major cumulative projects pending in Capitola; to date, there is no application yet for the Capitola Mall Redevelopment Project (Orbach 2020). Cumulative projects are discussed below and summarized in Table 4.0-2.

City of Santa Cruz Water Projects

Capital Improvement Program Projects

The City Water Department Capital Improvement Program (CIP) includes plans and funding for numerous capital improvements projects, including rehabilitation or replacement projects, upgrades and improvement projects, water supply augmentation components, and water main replacements (City of Santa Cruz 2020a, 2020b). The City is implementing the City Council-adopted recommendations of the Water Supply Advisory Committee for supplemental water supply, which are incorporated in the 2015 Urban Water Management Plan (City of Santa Cruz 2016), to which some of these projects relate, including the Proposed Project. Table 4.0-2 reflects the comprehensive list of capital projects that were reviewed for this EIR.

Habitat Conservation Plans

Since 2001, the City has been developing two Habitat Conservation Plans (HCPs)[1], one pertaining to anadromous salmonids[2] with the National Marine Fisheries Service and one pertaining to other listed species[3] with the U.S. Fish and Wildlife Service (USFWS). The HCPs will provide for California Endangered Species Act and Federal Endangered Species Act compliance for the City's ongoing operations that may affect special-status species. The Operations and Maintenance HCP (OMHCP) developed with the USFWS and associated incidental take permit, was just completed and the incidental take permit issued in January 2021 (City of Santa Cruz 2021a). For the Anadromous Salmonid HCP (ASHCP) being developed with the National Marine Fisheries Service, the ASHCP was submitted for agency review in spring 2021 (City of Santa Cruz 2021b). Initiation of environmental review for the

1 A HCP is prepared under Section 10 of the Federal Endangered Species Act by nonfederal parties seeking to obtain a permit for incidental take of federally listed fish and wildlife species. A HCP can also form the basis for an application for incidental take of state-listed species under Section 2081 of the California Endangered Species Act. A HCP includes descriptions of likely impacts to the subject species and the steps an applicant will take to avoid, minimize, and mitigate such impacts.

2 The anadromous salmonids covered by the Anadromous Salmonid (ASHCP) include Central California Coast coho salmon (coho) (*Oncorhynchus kisutch*), a state- and federally listed endangered species, and the Central California Coastal steelhead (steelhead) (*Oncorhynchus mykiss*), a federally listed threatened species.

3 Listed species covered by the other HCP include Ohlone tiger beetle (*Cicindela ohlone*), a federally listed endangered species; Mount Hermon June beetle (*Polyphylla barbata*), a federally listed endangered species; tidewater goby (*Eucyclogobius newberryi*), a federally listed endangered species; Pacific lamprey (*Lampetra tridentata*), a species not currently listed under the Endangered Species Act; California red-legged frog (*Rana draytonii*), a federally listed threatened species; western pond turtle (*Actinemys marmorata*), a federal species of concern; Ben Lomond spineflower (*Chorizanthe pungens* var. *hartwegiana*), a federally listed endangered species; Robust spineflower (*Chorizanthe robusta* var. *robusta*), a federally listed endangered species; Santa Cruz tarplant (*Holocarpha macradenia*), a federally listed threatened species; and San Francisco popcornflower (*Plagiobothrys diffuses*), a state-listed endangered species.

ASHCP and associated permit applications is expected to commence in fiscal year 2022 with the goal of completing the permit process by late 2022 or early 2023.

Like the Proposed Project, the ASHCP would also commit the City to maintaining minimum bypass flows for anadromous fisheries at all City diversions. The conservation strategies of the ASHCP are designed to avoid, minimize, and fully mitigate the effects of the City's activities covered by the ASHCP on species and their habitat in support of the long-term viability of these populations within streams and habitats affected by the activities.[4] In particular, the biological goals and objectives of the ASHCP includes: (1) the minimum bypass flows noted above; (2) creating, restoring or enhancing aquatic habitat including removal of passage obstacles, placement of large wood structures, riparian conservation easements, spawning gravel augmentation, riparian restoration, and sediment control projects; and (3) avoiding, minimizing and fully mitigating effects from City operations and maintenance activities by implementing ramping rates during flow changes at diversions to limit flow reductions, reducing the introduction of sediment, upgrading diversion facilities on Laguna, Reggiardo, and Majors creeks (see Table 4.0-1) to provide sediment transport during high flows, and enhancing fish passage through the Felton and Tait Diversions (included in the Proposed Project).

Other than the Felton and Tait Diversions upgrades included in the Proposed Project, the only construction that the ASHCP biological goals and objectives anticipate in the project area includes upgrading the Laguna, Reggiardo and Majors Creek diversions to improve sediment transport during high flows. Retrofits of the existing Laguna Creek Diversion Facility and Majors Creek Diversion Facility are already in the City's CIP, as shown in Table 4.0-2. Specifically, the ASHCP calls for modifying the Laguna, Reggiardo and Majors Creek diversions within 10 years of the signed Incidental Take Permit to provide improved sediment transport during high flows.

The OMHCP with the USFWS does not include construction projects that improve habitat conditions. The biological goals and objectives and conservation measures include restoring habitat temporarily disturbed by activities covered by the permit, contributing to protected and managed lands that support covered species populations, implementing bypass flows consistent with the ASHCP, pursuing other conservation actions that will result in conservation benefits to covered species, and implementing general and species-specific minimization and best management practices.

The City has one other low-effect HCP and related Incidental Take Permit covering the Mount Hermon June beetle, Zayante band-winged grasshopper, and the Ben Lomond spineflower at the Graham Hill Water Treatment Plant (GHWTP) (City of Santa Cruz 2013). This HCP has been implemented since 2013 at the GHWTP and it also includes establishment of a permanent 17-acre preserve in the Laguna Watershed, which serves as off-site mitigation for Mount Hermon June beetle. This preserve is in place and is being managed by the City under a Habitat Management and Monitoring Plan for the Laguna Sandhills Preserve (City of Santa Cruz 2014). Ongoing management activities are intended to protect and preserve habitat at the preserve and would not contribute to cumulative impacts. Therefore, this preserve and its Habitat Management and Monitoring Plan are not further evaluated in the cumulative analysis.

Other Projects

There are several infrastructure and public projects that are proposed in the vicinity of the project and programmatic infrastructure sites. These include: Pure Water Soquel Groundwater Replenishment and Seawater Intrusion Prevention project, Conjunctive Use Plan for the San Lorenzo River Watershed, San Lorenzo River Culvert, segments of the Monterey Bay Sanctuary Scenic Trail, and segments of the Highway 1 Auxiliary Lanes improvements.

[4] The activities covered by the ASHCP include water diversion and operation, rehabilitation, replacement, repair, and maintenance of conveyance facilities and other existing infrastructure. Activities also include municipal facility operations and maintenance (including flood control channel operation and maintenance), land management, monitoring, and habitat restoration.

Additionally, the University of California, Santa Cruz 2021 Long Range Development Plan is also included because it constitutes a project of regional significance, even though it is not located in proximity to the infrastructure component sites associated with the Proposed Project.

These cumulative projects could have construction periods that overlap with the Proposed Project depending on the ultimate timing of construction of these projects, as well as on the timing of construction of the various components of the Proposed Project. Additionally, the operation of these cumulative projects in conjunction with the operation of the Proposed Project are considered in the cumulative analysis as some of these projects could influence conditions in the San Lorenzo River and the Mid-County Groundwater Basin.

Several other approved or pending development projects in the City of Santa Cruz, County of Santa Cruz and City of Scotts Valley could result in construction periods that overlap with the Proposed Project depending on the ultimate timing of construction of these projects and/or result in cumulative effects within a specific geographic area.

Table 4.0-2. Cumulative Projects

#	Project Name	Project Location	Project Description	Estimated Construction Schedule
City of Santa Cruz Water Projects in Capital Improvement Program (CIP)[1]				
1	Felton Diversion Pump Station Assessment	***At the Felton Diversion improvement site*** Unincorporated Santa Cruz County, near community of Felton	Evaluation of the existing dam and pump station with recommendations to rehabilitate or replace existing facilities. A hydraulic assessment of the existing facility will be conducted to determine what, if any, improvements or operational changes are needed to pump from the diversion directly to the Graham Hill Water Treatment Plant (GHWTP). To improve energy efficiency, new pumps and drives at the diversion are also anticipated.	2027-2028
2	River Bank Filtration Study	***Near Tait Diversion improvement site*** Unincorporated Santa Cruz County	Assesses the feasibility of locating new vertical wells along the San Lorenzo River near the Tait Diversion If found feasible, locations and design parameters for installation of wells would be recommended.	2024-2026
3	Newell Creek Dam Inlet/Outlet Replacement Project	Unincorporated Santa Cruz County, near the community of Ben Lomond	Replacement of the existing aging inlet/outlet works at the Newell Creek Dam (NCD), which impounds Loch Lomond Reservoir (Reservoir), and replacement of the northern segment of the Newell Creek Pipeline that transports water to the Reservoir from Felton Diversion and from the Reservoir to the GHWTP. Construction commenced in spring 2020.	2020-2023
4	Newell Creek Pipeline Rehab/ Replacement	Unincorporated Santa Cruz County, in the Santa Cruz Mountains	Replacement of the Newell Creek Pipeline between the pipeline segment completed as part of the NCD Inlet/Outlet Replacement Project and GHWTP.	2022-2023 2030-2031
5	Habitat Conservation Plans	Unincorporated and incorporated locations in Santa Cruz County	Anadromous Salmonid HCP under development (National Marine Fisheries Service) and Operations and Maintenance HCP recently completed (U.S. Fish and Wildlife Service).	Not applicable

Table 4.0-2. Cumulative Projects (continued)

#	Project Name	Project Location	Project Description	Estimated Construction Schedule
6	GHWTP Tube Settlers Replacement	City of Santa Cruz	Design and replacement of tube settlers and related appurtenances at the GHWTP on Graham Hill Road. As part of the project, the tube settlers for three basins will be replaced-in-kind and will also include the replacement of associated valves and piping, and making concrete crack repairs in the basins.	Completed
7	GHWTP Flocculator Rehab/ Replacement	City of Santa Cruz	Design and repair or replacement of aging paddle wheel flocculators at the GHWTP. A condition assessment and alternatives analysis will be performed to determine the best path forward considering cost, schedule, and operations.	Completed
8	GHWTP Concrete Tanks Project	City of Santa Cruz	Infrastructure improvements to the GHWTP are necessary to meet regulatory requirements, improve operations and increase overall reliability. The design phase of this project is nearly complete for the replacement of the Filtered Water Tank, Wash Water Reclamation Tank (Reclaim Tank), and Sludge Storage Tank.	2021-2024
9	GHWTP Facility Improvement Project	City of Santa Cruz	Process improvements to the GHWTP are necessary to meet regulatory requirements, improve operations and increase overall system reliability. This project currently includes condition assessments, alternatives analyses, preliminary designs and preparation of a Facilities Improvement Project report. Final design and construction services are future phases included in this project.	2024-2028
10	North Coast System Repair and Replacement Project (Phases 4 and 5)	Unincorporated Santa Cruz County, on the North Coast	Replacements/repairs to the following pipeline reaches: Liddell Pipeline, Laguna Pipeline, Laguna-Liddell Pipeline, Majors Pipeline, and a segment of the North Coast Pipeline from west of the entrance to Wilder Ranch State Park through Moore Creek Preserve to the Westside of Santa Cruz. The Laguna Pipeline and the Laguna-Liddell Pipeline reaches would be within the Laguna Watershed and the Laguna Pipeline reach would partially occur within the project site for the Proposed Project.	2027-2031
11	North Coast System Laguna Diversion Rehabilitation	Unincorporated Santa Cruz County, on the North Coast	Retrofit of the existing Laguna Creek Diversion Facility to provide for natural sediment transport past the diversion and to protect fish species and habitats. The retrofit would be comprised of the following primary components: new intake structure and screen; new intake structure appurtenances; new valve control vault; bank protection and armoring; new monitoring and control equipment; new access and safety provisions; and modifications to the existing intake and sediment control bypass valves. The project would not increase the diversion rates, which would remain consistent with existing operations.	2021

Table 4.0-2. Cumulative Projects (continued)

#	Project Name	Project Location	Project Description	Estimated Construction Schedule
12	North Coast System Majors Diversion Rehab	Unincorporated Santa Cruz County, on the North Coast	Retrofit of the existing Majors Creek Diversion Facility to include fish screening improvements, sediment management, remote operation and monitoring, improved accessibility and safety, and other upgrades (e.g., future pumping and pipe alignment changes).	2027-2030
13	University Tank No. 4 Rehab/ Replacement	City of Santa Cruz on the University of California, Santa Cruz (UCSC) campus	Engineering analysis and condition assessment of the aging University 4 tank and associated piping to ensure reliable service. Project will include condition assessment, design, acquisition of construction easements from UCSC, permitting, and construction.	2023-2024
14	Main Replacements	Unincorporated and incorporated locations in Santa Cruz County	Ongoing program to replace distribution system water mains, identified and prioritized based on maintaining water system reliability, delivering adequate fire flows, improving circulation and water quality, and reducing maintenance costs.	To be determined
15A	Beltz 10 and 11 Rehab and Development	***At or near proposed Beltz ASR facilities*** Unincorporated Santa Cruz County	Rehabilitation of Beltz 10 (an existing groundwater production well) and the conversion of an existing monitoring well to a production well (Beltz 11). This project will shift pumping to different geologic layers of the basin.	To be determined
15B	Beltz ASR Pilot Testing	***At or near proposed Beltz ASR facilities*** Unincorporated Santa Cruz County	Field verify and determine specific hydrogeologic and water quality factors to inform future ASR implementation.	Ongoing, expected to be completed by 2022
Other Infrastructure Projects				
16	San Lorenzo River Lagoon Culvert Project	City of Santa Cruz, in the San Lorenzo River lagoon	Installation of the water-level control structure—a passive, head-driven culvert (pipe drain) system—in the San Lorenzo River lagoon at the mouth of the San Lorenzo River, which would provide a stabilized water elevation of 5.0 feet NGVD29, the elevation determined to protect habitat for salmonids and tidewater goby and to lessen localized flooding.	2021
17	Pure Water Soquel: Groundwater Replenishment and Seawater Intrusion Prevention Project	***Pipeline options near proposed Beltz ASR facilities*** City of Santa Cruz and unincorporated Santa Cruz County	This Soquel Creek Water District project is a water supply project that would supplement natural recharge of the Santa Cruz Mid-County Groundwater Basin with purified water. The project would pump a portion of secondary effluent from the Santa Cruz Wastewater Treatment Facility to an Advanced Water Purification Facility located in Live Oak in unincorporated Santa Cruz County. The project also includes a conveyance system to/from the treatment facilities and from the advanced water treatment facility to groundwater recharge and monitoring wells located at three sites in unincorporated Santa Cruz County.	2021-2023

Table 4.0-2. Cumulative Projects (continued)

#	Project Name	Project Location	Project Description	Estimated Construction Schedule
18	Conjunctive Use Plan for the San Lorenzo River Watershed	Unincorporated Santa Cruz County	The San Lorenzo Valley Water District (SLVWD) and the County of Santa Cruz are developing a Conjunctive Use Plan to increase stream baseflow for fish and increase reliability of surface and ground water supplies for the SLVWD. This project would interconnect SLVWD's three independent water systems to allow for increased reliability and allow the distribution systems to utilize surplus surface water from each other, providing in-lieu recharge to the groundwater aquifers through conjunctive-use. Project components identified to date that would allow for conjunctive use of the SLVWD's service areas and with the Scotts Valley Water District include water rights changes, use of existing interties to move water between service areas, use of SLVWD's Loch Lomond Reservoir water rights, and injection of excess surface water during wet periods and extraction of groundwater during dry periods in the Olympia area.	To be determined
19	Monterey Bay Sanctuary Scenic Trail Network (Coastal Rail Trail), Santa Cruz County Regional Transportation Commission	*Segment 10 near proposed Beltz 8, 9, and 10 ASR facilities* *Segment 11 near proposed McGregor pump station upgrade site* *Segment 12 in immediate vicinity of the proposed Freedom Boulevard pump station* Unincorporated Santa Cruz County, North Coast, Live Oak and Aptos; cities of Santa Cruz and Capitola	The Monterey Bay Sanctuary Scenic Trail Network is a 50-mile bicycle and pedestrian pathway along the coast of Santa Cruz County, from the San Mateo County line in the north to the Monterey County line at Pajaro. The Trail Network merges plans for a bicycle/pedestrian trail along the rail line into a connected network to provide safe and convenient route choices. The Trail Networks system's "spine" will be the Coastal Rail Trail, a bicycle and pedestrian trail within the 32-mile Santa Cruz Branch Rail right-of-way, adjacent to the train tracks. The segments most relevant to the Proposed Project are listed below: • Segment 5 – North Coast (Wilder Ranch to Davenport) • Segment 7 – Natural Bridges to Downtown Santa Cruz • Segment 8 and 9 – Downtown Santa Cruz to 17th Avenue; Trestle Bridge section is already completed • Segment 10 and 11 – 17th Avenue to State Park Drive • Segment 12 – State Park Drive to Freedom Boulevard; to be completed as part of the Highway 1 Auxiliary Lanes and Bus-on-Shoulder project	 2021 Under construction 2022 2024 2024

Table 4.0-2. Cumulative Projects (continued)

#	Project Name	Project Location	Project Description	Estimated Construction Schedule
20	Highway 1, 41st Avenue to Soquel Avenue/Drive Auxiliary Lanes, Bus-on-Shoulder and Chanticleer Bike/Ped Overcrossing	*Near proposed Beltz 12 ASR facility* Unincorporated Santa Cruz County	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.	2021
21	Highway 1, Bay Avenue/Porter Street to State park Drive Auxiliary Lanes, Bus- on-Shoulder and Mar Vista Bike/Ped Overcrossing	*Immediate vicinity of McGregor Drive pump station upgrade site* City of Capitola and unincorporated Santa Cruz County	The project will construct northbound and southbound auxiliary lanes and bus-on-shoulder improvements between Bay Avenue/Porter Street and Park Avenue interchanges and between Park Avenue and State Park Drive interchanges and construct a new bicycle and pedestrian overcrossing at Mar Vista.	2022-2025
Residential, Commercial, and Mixed-Use Projects				
22	1930 Ocean View Extension Project	*Near Tait Diversion and Coast Pump Station improvement site* City of Santa Cruz, Ocean Street Extension	32 condominium units.	Unknown; approved in September 2018
23	La Madrona Mixed-Use Project	*Immediate vicinity of proposed City/ SVWD intertie* City of Scotts Valley	Development of up to a 180-room hotel with a 6,600 square foot (sf) restaurant and 184 residential units (110 senior/74 family) in two, four-story buildings on La Madrona Drive.	Unknown; project under CEQA review
24	Oak Creek Park Mixed- Use Development	City of Scotts Valley	Mixed-use commercial (25,000 square feet) and residential (52 units) development at Mt. Hermon Road and Glen Canyon.	Unknown; project under CEQA review
25	Bay Photo Apartments	City of Scotts Valley	Conversion of an existing 92-space parking lot into a 19-unit apartment project, at 4627 Scotts Valley Drive.	Unknown; project revisions pending
26	Dunslee Way Planned Development	City of Scotts Valley	Construction of a 5,000-square-foot commercial building and 25 residential townhouses on a vacant parcel at the corner of Scotts Valley Drive and Dunslee Way.	Project approved in December 2016

Table 4.0-2. Cumulative Projects (continued)

#	Project Name	Project Location	Project Description	Estimated Construction Schedule
27	Mission Drive Townhouses	Unincorporated Santa Cruz County	21 new townhouse units at 3212 Mission Drive. Includes demolition of 1 single-family unit for 20 net units.	Unknown; project pending approval
28	Prather Lane Residential Units	Unincorporated Santa Cruz County	60 new residential units of affordable senior housing at 3071 Prather Lane.	Unknown; project pending approval
29	Erlach Planned Unit Development	*Near proposed Park Avenue pipeline* Unincorporated Santa Cruz County	102 new units in Planned Unit Development at 3250 Cunnison Lane.	Unknown; project pending approval
30	Interlight	*Near proposed Park Avenue pipeline* Unincorporated Santa Cruz County	82 beds within a new Assisted Living facility at 5630 Soquel Drive.	Approved
31	Dominican Hospital Addition	Unincorporated Santa Cruz County	84,000-square-foot surgery center addition to existing hospital including 410-space parking garage at 1555 Soquel Drive.	Unknown; project pending approval
32	Santa Cruz Medical Office Building Project	Unincorporated Santa Cruz County	160,000-square-foot medical office building and detached parking garage for approximately 720 parking spaces at 5940 Soquel Avenue in Live Oak.	Unknown; project pending approval
33	CVS	Unincorporated Santa Cruz County	13,111 SF retail pharmacy at 1505 Commercial Way.	Unknown; project pending approval
34	Nissan Dealership	*Near proposed Beltz 12 ASR facility* Unincorporated Santa Cruz County	22,547-square-foot auto dealership at Soquel Drive/41st Avenue.	Unknown; approved

Table 4.0-2. Cumulative Projects (continued)

#	Project Name	Project Location	Project Description	Estimated Construction Schedule
Other Projects				
35	University of California, Santa Cruz (UCSC) 2021 Long Range Development Plan (LRDP)	UCSC main residential campus and Westside Research Park in the City of Santa Cruz	The UCSC 2021 LRDP would guide physical campus growth through 2040 on two of the three UCSC campus properties located in the City of Santa Cruz: (1) the UCSC main residential campus and (2) the Westside Research Park (2300 Delaware Avenue). The 2021 LRDP proposes a mix of land use categories to accommodate academic, open space, residential, and campus support uses. The LRDP envisions a compact academic core with housing around the periphery and includes improvements to the campus roadway network and alternative transportation. The 2021 LRDP planning effort anticipates that the on-campus student population could grow from approximately 18,518 full-time equivalent (FTE) to a potential enrollment of 28,000 FTE students by the 2040–2041 academic year. UCSC faculty and staff are also anticipated to increase from approximately 2,800 FTE to approximately 5,000 FTE in the same timeframe.	2021–2041

Notes:

[1] The Santa Cruz Water Rights Project (Proposed Project) includes the following CIP projects and therefore these projects are not listed above: Felton Diversion and Tait Diversion and Coast Pump Station upgrades, and aquifer storage and recovery in Mid-County and Santa Margarita Groundwater Basins.

4.0.3 References

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