

San Luis Low Point Improvement Project Environmental Impact Statement / Environmental Impact Report

Appendix S: Cumulative Effects

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Appendix S

Cumulative Effects

This appendix describes, in detail, the cumulative effects analysis completed in this Environmental Impact Statement/Environmental Impact Report (EIS/EIR). Included here are descriptions of the regulatory requirements, methodology, cumulative projects considered, and resource-specific cumulative effects analyses.

Cumulative effects are those environmental effects that on their own, may not be considered adverse, but when combined with similar effects over time, result in substantial adverse effects. Cumulative effects are an important part of the environmental analysis because they allow decision makers to look not only at the impacts of an individual proposed project, but the overall impacts to a specific resource, ecosystem, or human community over time from many different projects. This section describes the cumulative effects analysis for the three action alternatives proposed in this EIS/EIR including the regulatory requirements, the methodology, the projects considered in the analysis, and the potential cumulative effects for each environmental resource.

S.1 Regulatory Requirements

This section provides an overview of the regulatory setting associated with cumulative effects.

S.1.1 Regulatory Setting

Both the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA) require consideration of cumulative effects in an EIS/EIR.

S.1.1.1 National Environmental Policy Act

Cumulative effects are defined as “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (Federal or non-Federal) or person undertakes such actions (40 Code of Federal Regulations [CFR] Section 1508.7).”

NEPA regulations require an analysis of direct, indirect, and cumulative effects and define “effects” as “ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative (40 CFR Section 1508.8).” In addition, the NEPA regulations state that when determining the scope of an EIS, both connected and cumulative actions must be discussed in the same document as the proposed action (40 CFR Section 1508.25[a][1] and [2]).

S.1.1.2 California Environmental Quality Act

Cumulative effects are defined in the CEQA Guidelines as:

“Two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts.”

1. The individual effects may be changes resulting from a single project or a number of separate projects.
2. The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time (CEQA Guidelines Section 15355).”

According to the CEQA Guidelines, a Lead Agency must discuss the cumulative impacts of a project when the cumulative effect is significant and the project's incremental contribution to the cumulative effect would be “cumulatively considerable,” that is, when the incremental effects of a project would be significant when viewed in connection with the effects of past, present, and probable future projects (CEQA Guidelines Section 15065[a][3]; Section 15130[a]).

If the combined cumulative impact associated with the project's incremental effect and the effects of other projects would not be significant, an EIR should briefly indicate why the cumulative impact is not significant (CEQA Guidelines Section 15130[a][2]).

Additionally, an EIR can determine that a project's contribution to a significant cumulative impact will be rendered less than cumulatively considerable and therefore not significant. A project's contribution can also be less than cumulatively considerable if the project is required to implement or fund its fair share of a mitigation measure or measures designed to alleviate the cumulative impact. The Lead Agency must identify facts supporting this conclusion (CEQA Guidelines Section 15130[a][3]).

S.2 Methodology for Assessing Cumulative Effects

This section provides an overview of the methodology used to analyze cumulative effects.

S.2.1 Area of Analysis

Table S-1 describes the specific cumulative effects area of analysis for each resource area.

Table S-1. Cumulative Effects Area of Analysis

Section	Resource	Area of Analysis
4.1	Water Quality	San Luis Reservoir; Sacramento/San Joaquin River Delta, Pacheco Reservoir; and Santa Teresa WTP in San Jose.
4.2	Surface Water Supply	Same as Water Quality with the addition of the California Aqueduct and South-of-Delta CVP Contractors (SLDMWA).
4.3	Groundwater Resources	San Joaquin Valley/Tulare Lake Hydrologic Region, San Francisco Bay Hydrologic Region, South Lohantan Hydrologic Region, Colorado River Hydrologic Region, South Coast Hydrologic Region
4.4	Flood Control	Merced, San Benito, and Santa Clara counties
4.5	Geology, Seismicity, and Soils	Merced and Santa Clara counties
4.6	Indian Trust Assets	Merced and Santa Clara counties
4.7	Air Quality	Merced County and the San Joaquin Valley Air Basin; and, Santa Clara County and the San Francisco Bay Area Air Basin.
4.8	Greenhouse Gases	Regional and Global
94.9	Visual Resources	San Luis Reservoir and O'Neill Forebay; Pacheco Reservoir; sightlines in relation to properties associated with the Santa Teresa WTP in the SCVWD Service Area.
4.10	Noise and Vibration	San Luis Reservoir, Merced County; Pacheco Reservoir and Santa Teresa WTP, Santa Clara County.
4.11	Traffic and Transportation	Roadways in Santa Clara and Merced counties as well as local roads in the cities of Gustine, Los Banos, Gilroy, San Jose, and the village of Santa Nella.
4.12	Hazards and Hazardous Materials	San Luis Reservoir and the SRA; Pacheco Reservoir; SCVWD facilities where construction is proposed.
4.13	Aquatic Resources	San Luis Reservoir and the associated SRA, SCVWD service area, Pacheco Reservoir and Pacheco Creek, Sacramento/San Joaquin River Delta.
4.14	Terrestrial Resources	Santa Clara Basin; Pacheco Reservoir; San Luis Reservoir and the SRA
4.15	Regional Economics	Santa Clara County, Merced County

Table S-1. Cumulative Effects Area of Analysis

Section	Resource	Area of Analysis
4.16	Land Use	San Luis Reservoir, Merced County, including the SRA, O'Neill Forebay, Los Banos Creek Reservoir, San Luis Wildlife Area, Pacheco State Park, and Cottonwood Creek Wildlife Area; Pacheco Reservoir; and, CVP agricultural contractors receiving water from the San Felipe Division (counties include Santa Clara, Monterey, Santa Cruz, and San Benito).
4.17	Recreation	San Luis Reservoir and the SRA; Pacheco Reservoir.
4.18	Environmental Justice	Communities close to San Luis Reservoir and the SRA including Volta, Trent, Los Banos, Ingomar, Gustine, and unincorporated Santa Nella; Santa Clara County and the City of San Jose.
4.19	Public Utilities, Services, and Power	San Luis Reservoir, Merced County; Pacheco Reservoir, Santa Clara County; SCVWD service area including Santa Teresa WTP in San Jose; and San Felipe Division Facilities.
4.20	Cultural Resources	San Luis Reservoir, Merced County, Pacheco Reservoir, Santa Clara County, San Benito County
4.21	Population and Housing	The cities of Los Banos, Newman, Gilroy, Gustine, and San Jose.

Key: CVP = Central Valley Project; SCVWD = Santa Clara Valley Water District; SLDMWA = San Luis & Delta-Mendota Water Authority; SRA = State Recreation Area; WTP = Water treatment plant

S.2.2 Timeframe for Cumulative Effects Analysis

The timeline for the cumulative effects analysis with the exception of greenhouse gasses and traffic and transportation, is 7 years for all short-term construction-related impacts. These impacts would be temporary and would only occur during construction. The timeframe for all long-term impacts is 20 years, which represents the planning horizon addressed in this EIS/EIR. The analysis in Section S.3.6 relies on a 30-year timeframe for long-term impacts consistent with the Bay Area Air Quality Management District (BAAQMD) emission amortization requirements. The analysis in Section S.3.10 utilizes a 25-year timeframe for long-term impacts consistent with the Merced County and Santa Clara Valley Transportation Authority analysis guidelines.

S.2.3 Identifying Past, Present, and Future Actions and Projects Contributing to Cumulative Effects

CEQA Section 15130(b)(1) identifies two methods that may be used to analyze cumulative impacts:

1. “A list of past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of the agency,” and/or
2. “A summary of projections contained in an adopted local, regional, or statewide plan or related planning document, that describes or evaluates conditions contributing to the cumulative effect. Such plans may include: a general plan, regional transportation plan, or plans for the reduction of greenhouse gas emissions. A summary of projections may also be contained in an adopted or certified prior environmental document for such a plan. Such projections may be supplemented with additional information such as a regional modeling program. Any such document shall be referenced and made available to the public at a location specified by the Lead Agency.”

This EIS/EIR analyzes cumulative impacts using both CEQA methods identified above. These methods are sufficient to satisfy NEPA and CEQA requirements for identifying past, present, and future actions and projects that may contribute to cumulative effects. Most EIS/EIR resources use one method or the other, but several resource areas use a combination of both methods.

A variety of Federal, State, county, and local government sources were reviewed to identify and collect information on past, present, and reasonably foreseeable actions in the project area that could contribute to cumulative effects. These include:

- City and county general plans;
- Future population, housing, traffic, and other projections found in existing city and county general plans;
- Published reports, documents, and plans;
- Biological Management Plans (Biological Opinions, Habitat Conservation Plans, etc.);
- Environmental documents (such as EIS/EIRs).
- Scoping comments; and
- Consultation with Federal, State, and local agencies.

Sections S.2.5 and S.2.6 below describe the project and projections considered for this cumulative effects analysis.

S.2.4 Mitigation

The EIS/EIR must identify potential mitigation measures if a project would result in cumulatively considerable effects.

S.2.4.1 National Environmental Policy Act

According to NEPA, a discussion on mitigation for adverse environmental effects is required in an EIS (40 Section Part 1502.16[h], 40 CFR Section 1502.14[f]); however, a final set of mitigation measures that are selected for implementation are adopted in a Record of Decision (ROD). If mitigation measures presented in the EIS are not adopted, the reasons why must be explained in the ROD (40 CFR Section 1505.2[c]). The cumulative effects analysis will identify potential feasible mitigation for significant cumulative effects; the ROD will present the final mitigation measures adopted as part of the project that will be completed with the respective alternative selected for implementation.

S.2.4.2 California Environmental Quality Act

Mitigation requirements of CEQA differ from those of NEPA. An EIR must examine reasonable, feasible options for mitigating or avoiding the project's contribution to any significant cumulative effects (CEQA Guidelines Section 15130). If there are feasible mitigation measures or alternatives that would avoid or substantially lessen the significant impacts of a project, as identified in the final EIR, such measures or alterations must be required in, or incorporated into, the project in order for it to be approved (CEQA Guidelines Section 15091). Therefore, CEQA requires each public agency to mitigate or avoid the significant effects of projects that it carries out or approves whenever it is feasible to do so (Public Resource Code § 21002.1[b]). The cumulative effects analysis will identify all feasible mitigation measures for effects of the project determined to be “cumulatively considerable” and thus significant. The approval of the EIR and subsequent CEQA findings will contain the feasible mitigation measures adopted as part of the project.

S.2.5 Cumulative Projects Considered for All Resources

This section describes the past, present, and reasonably foreseeable future cumulative actions and projects considered in this cumulative effects analysis.

S.2.5.1 Addendum to the Agreement for Coordinated Operation of the CVP and SWP

In December 2018, Reclamation and DWR amended four key elements of the Coordinated Operation Agreement as follows:

- Article 6(c) of the Agreement is amended to share the responsibility for meeting Sacramento Valley inbasin use with storage withdrawals during balanced water conditions;

- Article 10(b) of the Agreement is amended to have the State transport CVP water through the California Aqueduct and provide available capacity at the Banks Pumping Plant to the CVP;
- Article 10(i) is added to the Agreement to share the applicable export capacity when exports are constrained; and
- Article 14(a) of the Agreement is amended to have the U.S. and the State review and revise the Agreement (Reclamation 2018a).

S.2.5.2 Bay-Delta Conservation Plan/California Water Fix/Delta Conveyance

The *Bay Delta Conservation Plan* (BDCP)/California Water Fix is being prepared by the United States Department of the Interior, Bureau of Reclamation (Reclamation) and Department of Water Resources (DWR), along with Kern County Water Agency, Metropolitan Water District of Southern California, San Luis and Delta-Mendota Water Authority, Santa Clara Valley Water District (SCVWD), State and Federal Water Contractors Agency, Westlands Water District, and Zone 7 Water Agency (referred to as Potential Authorized Entities).

The BDCP/California WaterFix planning process began in 2006 when updates to the State Water Project (SWP) and coordinated operations of the Central Valley Project (CVP) were initially proposed as the BDCP. The BDCP envisioned updating the SWP by adding new points of diversion in the north Delta and by providing for large-scale species conservation through a 50- year habitat conservation plan (HCP)/natural communities conservation plan (NCCP). The HCP/NCCP was intended to comply with Section 10 of the federal Endangered Species Act and to achieve compliance with the California Endangered Species Act through the California Natural Community Conservation Planning Act. A Draft EIS/EIR was released in December 2013.

Following release of the Draft EIS/EIR, Reclamation and DWR issued a Supplemental Draft EIS/Partially Recirculated Draft EIR that included for consideration three additional alternatives that would update the SWP without the large-scale conservation efforts in an HCP/NCCP. The lead agencies proposed that one of these non-HCP alternatives, known as California WaterFix Alternative 4A, be identified as the preferred alternative in replacement of the BDCP alternative (DWR and Reclamation 2015). The preferred WaterFix alternative (4A) consists of three new diversion points in the north Delta, tunnel conveyance and ancillary facilities, operational elements, restoration measures, and an adaptive management program (DWR and Reclamation 2015). The Supplemental Draft EIS/Partially Recirculated Draft EIR also included updates to the BDCP alternative as well as other revisions and updates to the 2013 Draft EIR/EIS analyses. In addition, the state proposed as a separate program, California EcoRestore, to provide restoration efforts for species conservation independent of the SWP facility upgrades.

The Final EIS/EIR for the BDCP/California WaterFix that identified the California WaterFix for implementation was released in December 2016 (DWR and Reclamation 2016). Biological Opinions for the California WaterFix were release in June 2017 and a Notice of Determination was filed in July 2017. In July 2018, DWR released a Draft Supplemental EIR/EIS for California WaterFix, which analyzes several proposed changes designed to reduce the project's footprint and costs, and minimize impacts on environmental resources in the Delta (DWR and Reclamation 2018). In May 2019, the California Water Fix effort was halted to allow for a new environmental evaluation of a modified Delta Conveyance Project that would shift from a previously proposed two conveyance tunnels down to one tunnel (DWR 2019). That evaluation is currently underway by DWR in coordination with the Delta Conveyance Design and Construction Authority (DWR 2019).

S.2.5.3 Bay-Delta Plan Update for the Lower San Joaquin River and Southern Delta

The State Water Resources Control Board adopted Bay-Delta Plan Update for the Lower San Joaquin River and Southern Delta in December 2018, which is designed to restore water flows through the Lower San Joaquin River and its tributaries. The plan sets a starting point for increased flows but also makes allowances for reduced river flows on tributaries where stakeholders have reached voluntary agreements to pursue a combination of flow and “non-flow” measures that improve conditions for fish and wildlife, such as habitat restoration and reducing predation (SWRCB 2018). The update includes improved instream flows February through June, the critical months for migrating fish on the Stanislaus, Tuolumne and Merced rivers, and a revision of the salinity standard for the southern Delta (SWRCB 2018).

S.2.5.4 B.F. Sisk Safety of Dams Modification Project

Reclamation and DWR are evaluating alternatives for the B.F. Sisk Dam Safety of Dams (SOD) Modification Project to address dam stability and safety concerns at B.F. Sisk Dam. These concerns are associated with several sections of the B.F. Sisk Dam and select foundation materials in the event of seismic activity. The analyzed alternatives for the B.F. Sisk Dam SOD Modification Project would help prevent destabilization of the dam embankment, reduce safety concerns and maintain water supply deliveries to state and federal contractors. Reclamation and DWR released a Draft EIS/EIR for public review in May 2019 that identified a Crest Raise Alternative as the Proposed Action (Reclamation and DWR 2019). The Crest Raise Alternative would raise sections of the B.F. Sisk Dam crest by 12 feet and develop stability berms along sections of the embankment. The San Luis Reservoir Expansion Alternative evaluated in this EIS/EIR is as was noted in Chapter 2, would build upon and is a connected action under NEPA to the B.F. Sisk Dam SOD Modification Project Crest Raise Alternative. As a connected action the B.F. Sisk Dam SOD Modification Project Crest Raise Alternative to effects generated by the San

Luis Reservoir Expansion Alternative reported in this chapter already include the cumulative contribution of that connected action. The B.F. Sisk Dam SOD Modification Project Crest Raise Alternative's contribution to the other alternatives are detailed in this appendix.

S.2.5.5 California High Speed Rail Project

The California High Speed Rail Authority (CHSRA) and United States Department of Transportation Federal Railroad Administration completed a programmatic EIS/EIR for the San Francisco to Central Valley portion of an approximately 800 mile long high speed rail network connecting San Francisco to San Diego. The track alignments considered in the EIS/EIR included one configuration traversing Pacheco Pass adjacent to State Route (SR) 152 and San Luis Reservoir. The railway is being designed to support train speeds in excess of 125 miles per hour and would construct both at grade and tunnel sections through Pacheco Pass (CHSRA 2010).

The Final Partially Revised Programmatic EIS/EIR was released by the CHSRA April 6, 2012. The EIS/EIR identified the Pacheco Pass Network Alternative as the preferred alternative for consideration in future project level engineering and environmental compliance (CHSRA 2012).

The San Jose to Merced project section is part of the first phase of the California High-Speed Rail System that will provide a critical rail link between the Silicon Valley and the Central Valley. The approximately 84-mile project section would travel between stations in San Jose and Gilroy and (after passing through the Central Valley Wye) north to Merced or south to Fresno (CHSRA 2017). The Pacheco Pass tunnels and the extension to Merced will be the last link of the Silicon Valley to Central Valley Line to be constructed, with geotechnical analysis, environmental review, design, and right-of-way acquisition to be completed by 2022 (CHSRA 2018).

S.2.5.6 CVP Municipal & Industrial Water Shortage Policy

Allocation of CVP water supplies for any given water year is based upon forecasted reservoir inflows and Central Valley hydrologic conditions, amounts of storage in CVP reservoirs, regulatory requirements, and management of Section 3406(b)(2) resources and refuge water supplies in accordance with implementation of the Central Valley Project Improvement Act (CVPIA). In some cases, Municipal and Industrial (M&I) water shortage allocations may differ between CVP divisions due to regional CVP water supply availability, system capacity, or other operational constraints.

The purposes of the M&I Water Shortage Policy (WSP) are to:

- Define water shortage terms and conditions applicable to all CVP M&I contractors.

- Establish a water supply level that (a) with M&I contractors' drought water conservation measures and other water supplies will sustain urban areas during droughts, and (b) during severe or continuing droughts will, as far as possible, protect public health and safety.
- Provide information to help M&I contractors develop drought contingency plans.

The M&I WSP and implementation guidelines are intended to provide detailed, clear, and objective guidelines for the distribution of CVP water supplies during water shortage conditions, thereby allowing CVP water users to know when, and by how much, water deliveries may be reduced in drought and other low water supply conditions (Reclamation 2015a). This increased level of predictability is needed by water managers and the entities that receive CVP water to better plan for and manage available CVP water supplies, and to better integrate the use of CVP water with other available non-CVP water supplies.

While the specific future policy and shortage allocation process is currently under evaluation, it is likely that both agricultural and M&I water service contractors will receive reduced allocations during shortage conditions. Reclamation will periodically reassess both the availability of CVP water supply and CVP water demand.

S.2.5.7 Los Vaqueros Reservoir Expansion Project, Phase 2

Expansion of Los Vaqueros Reservoir, owned and operated by Contra Costa Water District (CCWD), is being conducted in two phases. A Final EIS/EIR was completed in 2010 and served as the basis for Phase 1 construction, which was completed in 2012. A draft Supplement to the Final EIS/EIR (Supplement) was released to the public in July of 2017 to reflect changes since the 2010 Final EIS/EIR, including refined alternatives being considered for a Phase 2 expansion (Reclamation 2018). In 2018, a Draft Feasibility Report was released evaluating the feasibility of expanding Los Vaqueros Reservoir from the recently expanded size of 160,000 acre-feet to 275,000 acre-feet and adding new conveyance facilities. The expansion could improve water supply reliability and water quality for San Francisco Bay Area water users, including through emergency storage (Reclamation 2017).

S.2.5.8 Pacheco Reservoir Reoperation Project

The Resource Conservation District of Santa Cruz County (RCDSCC), in cooperation with the San Benito County Water District (SBCWD), Pacheco Pass Water District (PPWD), National Marine Fisheries Service (NMFS), and California Department of Parks and Recreation (CDPR), developed operational guidelines for Pacheco Reservoir to improve water supply reliability through conjunctive management of surface water and groundwater supplies and to provide in stream flows to protect all life stages of steelhead downstream of

Pacheco Reservoir (SBCWD 2013). Guidelines for Pacheco Reservoir were developed by constructing a watershed system simulation model which was used to evaluate environmental and water supply outcomes associated with alternate operation strategies. The guidelines were developed and finalized in 2015 (NOAA 2018).

S.2.5.9 San Luis Reservoir State Recreation Area Resource Management Plan/General Plan

CDPR, in partnership with Reclamation, manages the majority of the San Luis Reservoir State Recreation Area (SRA). The CDPR planning process is integrated with Reclamation's Resource Management Planning Process. The CDPR, in partnership with Reclamation, has developed and adopted the *San Luis Reservoir SRA Resource Management Plan (RMP)/General Plan (GP)* (Reclamation and CDPR 2013), in order to direct the future development, operations and maintenance of the SRA. The plan was officially adopted in 2013 and has a life expectancy of 25 years. CDPR and Reclamation continue to collaborate on the area's *San Luis Reservoir SRA RMP/GP* to guide future growth.

The plan area consists of 27,000 acres owned by Reclamation and includes the water surfaces of San Luis Reservoir, O'Neil Forebay, Los Banos Reservoir, and adjacent recreation lands in the vicinity of Los Banos, California. The project area was built as part of the water storage and delivery system of reservoirs, aqueducts, power plants, and pumping stations operated under the SWP and CVP. Lands managed by CDPR for recreation are part of the State Park system and comprise the SRA.

The plan's primary objective is to identify general areas in which future development may occur for recreation management. The plan includes an overview of existing conditions, including a summary of opportunities and constraints, a plan for future use and management of the project area, and the associated environmental analysis pursuant to NEPA and CEQA (Reclamation and CDPR 2013).

S.2.5.10 San Luis Transmission Project

The San Luis Transmission Project will develop approximately 95 miles of new transmission lines connecting the Tracy Substation and the Dos Amigos Substation with segments crossing O'Neill Forebay and connecting to the San Luis Substation. Additional components of the San Luis Transmission Project will include two new 500-kV substations, substation improvements, communication facilities, improvements to existing access roads, and new permanent access roads (Western Area Power Administration and San Luis & Delta-Mendota Water Authority 2015). The Final EIS/EIR for the San Luis Transmission Project was released in March 2016 with construction scheduled for 2018.

S.2.5.11 San Luis Solar Project

The San Luis Solar Project would allow a 30-year Land Use Authorization to access, install, operate, maintain, and remove a 26-megawatt alternating current solar facility. The project would be constructed on three sites adjacent to the San Luis Reservoir SRA, to the northwest of the SR 152/SR 33 interchange. The three sites will cover a total of 159 acres and consist of solar photovoltaic panels, racks to hold the panels, and electrical infrastructure (Reclamation 2018). The Final Environmental Assessment and Plan of Development for the San Luis Solar Project was released in May 2018, with construction scheduled for 2018.

S.2.5.12 Upper Guadalupe River Flood Control Project

The *Upper Guadalupe River Flood Control Project* follows upon the completed Downtown, and Lower Guadalupe River Projects. The project would provide flood protection along a 5.7 mile stretch of the Guadalupe River, from Interstate 280 to Blossom Hill Road in the City of San Jose. In May 2010, construction began on the portion of the project from Interstate 280 to the Union Pacific Railroad crossing just downstream of Willow Street. The project includes flood protection, habitat restoration, and fish passage components. Pending available Federal funds, remaining reaches of the Upper Guadalupe River may be completed by 2021 (SCVWD 2012).

S.2.5.13 Young Ranch Residential Project

In 2017, the Santa Clara County Planning Office prepared a Draft EIR for the Young Ranch Residential Project, a cluster subdivision consisting of 30 lots and a 4,000 square foot community center. The subdivision would be located on a 2,150 acre site southeast of downtown San Jose along Coyote Ridge, east of Highway 101. The project would develop 79 single-family homes and 16 secondary units and designate 1,947 acres as open space (Santa Clara County 2017).

S.2.5.14 Blanchard Road Warehouse/Distribution Center

An EIR is currently being prepared for the Blanchard Road Warehouse/Distribution Center, which would consist of a 415,000 square foot industrial warehouse on a 29.92 acre site on Blanchard Road in the Coyote Valley area south of San Jose. The site will be paved and would include 196 parking stalls for employee and visitors. Although the warehouse operator has not been identified, it is not anticipated that hazardous materials would be stored or distributed. Construction would take approximately nine months and would cover all site improvements as well as construction of the building. Blanchard Road would be widened to provide access to the site (City of San Jose 2016).

S.2.6 Cumulative Projections Considered for All Resources

This section describes the specific projections shown in Table S-2 that have been used for the cumulative effects analysis.

Table S-2. Summary of Projections Used in Cumulative Effects Analysis

Author	Document Title	Projections Used	Document Date
Merced County	Merced County General Plan – Revised Draft, Demographics & Economics. Background Report	Population Employment	2012
County of Santa Clara	Santa Clara County General Plan – Housing Element Update 2015-2022	Housing	2014
LAFCO Santa Clara County	Cities Service Review	Population	2015
County of Stanislaus	Stanislaus County General Plan and Airport Land Use Compatibility Plan Update Draft Program EIR	Population	2016

Source: *Merced County 2013, Santa Clara County 2014, LAFCO of Santa Clara County 2015, and Stanislaus County 2016.*

Notes:

LAFCO = Local Area Formation Committee

S.2.6.1 Merced County General Plan – Background Report

The Background Report for the 2030 *Merced County General Plan* was released in December 2013. This document presents population and employment projections through 2030. The projections have been developed by the California Department of Finance (DOF).

Table S-3 shows both past and projected population estimates from the General Plan’s projections from 2013. The current DOF (2017) population projection for Merced County in 2030 has been revised downward, to 326,574, but the use of a higher population projection provides a more conservative cumulative impact analysis. Additionally the table also displays average annual growth rates for each time period. As indicated in Table 26-3, the county’s population had an average annual growth rate of 3.1 percent from 2000 to 2005 and 2.7 percent from 2005 to 2010 and a projected growth rate of 2.6 percent from 2010 to 2030 (Merced County 2013). Utilizing these population projections, the Background Report identifies an estimated population increase from 2010 to 2030 of approximately 141,000 people that will require housing within the county (Merced County 2013).

Table S-3. Past and Projected Population Estimates Merced County and California (2000-2030)

Year	Merced County	
	Population	Average Annual Growth Rate
2000	210,544	--
2003	225,115	2.3 percent
2005	243,700	4.1 percent
2010	276,200	2.7 percent
2020	340,800	2.3 percent
2030	417,200	2.2 percent

Source: Merced County 2013

Employment growth projections presented in the Background Report identified approximately 27,600 jobs that would be added in Merced County between 2005 and 2030. Table S-4 shows these employment projections for both unincorporated and incorporated areas within the county from 2005 to 2030.

Table S-4. Past and Projected Employment Estimates Merced County (1990-2030)

Year	Observed/ Projected	Total Jobs	Average Annual Growth Rate
1990	Observed	77,300	--
2004	Observed	86,500	0.9 percent
2005	Projected	87,400	1.0 percent
2030	Projected	115,000	2.1 percent

S.2.6.2 Santa Clara County General Plan – Housing Element Update 2015-2022

The Housing Element Update 2015-2022 of the *County of Santa Clara General Plan* was adopted June 10, 2014 and certified on July 25, 2014. This document presents job growth projections through 2025. The projections have been developed by the Association of Bay Area Governments (ABAG).

Table S-5 shows job growth trends from ABAG’s Projections 2009. It projects that during the 2015 to 2025 period, Santa Clara County will add 196,290 jobs, growing an average of two percent annually. The projections for the unincorporated County also forecast an increase in employment of approximately 11 percent from 2015 to 2025. However, these projections and ABAG’s methodology do not adequately take into account annexation of urban islands into the cities over time. For example, most of the islands with non-residential use patterns have been annexed into San Jose over the last several decades. Annexations are expected to continue.

Table S-5. Santa Clara County Job Growth Trends

Job Growth Projections	2010	2015	2020	2025
Countywide Santa Clara County	906,270	981,230	1,071,980	1,177,520
Unincorporated Santa Clara County	50,400	53,590	56,670	59,690

Source: ABAG Projections 2009 in City of San Jose 2012

S.2.6.3 Local Area Formation Commission of Santa Clara County – Cities Service Review

The Local Area Formation Commission (LAFCO) of Santa Clara County completed a Cities Service Review that developed population, household, income, and employment projections for Santa Clara County through 2040. Table S-6 shows the population projections.

Table S-6. LAFCO Projections – Growth and Population Trends (2015-2040)

City	2015	2040	25-Year Growth	Average Annual Growth
Campbell	41,857	48,100	14.9%	0.60%
Cupertino	59,756	71,200	19.2%	0.77%
Gilroy	53,000	61,400	15.8%	0.63%
Los Altos	30,036	32,800	9.2%	0.37%
Los Altos Hills	8,341	8,600	3.1%	0.12%
Los Gatos	30,505	32,600	6.9%	0.27%
Milpitas	72,606	109,100	50.3%	2.01%
Monte Sereno	3,451	3,700	7.2%	0.29%
Morgan Hill	41,779	50,800	21.6%	0.86%
Mountain View	77,914	100,000	28.3%	1.13%
Palo Alto	66,932	84,600	26.4%	1.06%
San Jose	1,016,479	1,334,100	31.2%	1.25%
Santa Clara	120,973	156,500	29.4%	1.17%
Saratoga	30,799	32,700	6.2%	0.25%
Sunnyvale	148,028	194,300	31.3%	1.25%
Cities population and growth projections	1,802,456	2,320,500	28.7%	1.15%
Unincorporated	87,182	123,000	41.1%	1.64%
Countywide population and growth projections	1,889,638	2,443,500	29.3%	1.17%

Source: LAFCO of Santa Clara County 2015

S.2.6.4 Stanislaus County General Plan and Airport Land Use Compatibility Plan Update Draft Program EIR

The Stanislaus County General Plan and Airport Land Use Compatibility Plan Update Draft Program EIR evaluation of potential effects on population and housing presented observed and projected population estimates from 2010 through 2035 for incorporated areas, unincorporated areas and the total for all of Stanislaus County. Table S-7 shows the population projections.

Table S-7. Stanislaus County Population Projections (2010-2035)

City	2010	2015	2020	2025	2030	2035	Change
Ceres	45,417	50,069	55,379	60,689	65,999	70,127	54.4%
Hughson	6,640	7,012	7,437	7,862	8,287	8,805	32.6%
Modesto	201,165	211,813	223,966	236,119	248,272	263,802	31.1%
Newman	10,224	11,648	13,274	14,900	16,525	17,559	71.7%
Oakdale	20,675	22,908	25,457	28,005	30,555	32,466	57.0%
Patterson	20,413	25,065	30,375	35,685	40,995	43,559	113.4%
Riverbank	22,678	24,989	27,627	30,265	32,903	34,961	54.2%
Turlock	68,549	74,983	82,328	89,673	97,017	103,086	50.4%
Waterford	8,456	9,409	10,496	11,584	12,671	13,464	59.2%
Unincorporated	110,236	113,772	117,807	121,843	125,879	133,753	21.3%
Stanislaus County Total	514,453	551,668	594,146	636,625	679,103	721,582	40.3%
San Joaquin County	685,000	743,000	807,000	872,000	938,000	1,04,00	46.6%
Merced County	256,000	277,000	303,000	330,000	356,000	383,000	49.6%

Source: LAFCO of Stanislaus County 2015

S.3 Cumulative Effects Analysis

S.3.1 Water Quality

S.3.1.1 Alternative 2 - Lower San Felipe Intake Alternative

Cumulative impacts related to construction and/or operation of the Lower San Felipe Intake Alternative on the San Luis Reservoir, and cumulative impacts related to changes in south-of-Delta CVP and SWP exports and Delta outflow on the Delta Region are considered in this section.

The Lower San Felipe Intake Alternative could change Delta salinity and bromide concentrations resulting in water quality impacts. Implementation of the BDCP/ Delta Conveyance Project/California EcoRestore, 2018 Addendum to the Coordinated Operation Agreement, and 2018 Bay-Delta Plan Update for the Lower San Joaquin River and Southern Delta could result in changed Delta Region operations and habitat health with the implementation of conservation and restoration measures designed to improve the health of the Delta ecosystem alongside improving water supply and water quality conditions. Future improved conditions in the Delta Region could result in increased south-of-Delta exports.

Modeling indicates that operation of the Lower San Felipe Intake Alternative would result in slight changes to Delta water quality resulting from changes in Delta outflows compared to the No Action Alternative. Potential changes in salinity in comparison to the No Action/No Project Alternative were determined to be immeasurable. Additionally, any increases in south-of-Delta export as a result of the Delta Conveyance Project would only follow improvements in the

Delta ecosystem's health and improved water quality conditions in the Delta Region as a result of both the Delta Conveyance Project and California EcoRestore's restoration actions. **Therefore, cumulative impacts of the Lower San Felipe Intake Alternative in combination with other projects in the Delta Region, would not result in significant cumulative impacts on Delta salinity and bromide concentrations.**

The Lower San Felipe Intake Alternative could change south-of-Delta CVP and SWP exports and Delta outflow. As was noted above, implementation of the BDCP/ Delta Conveyance Project/California EcoRestore, 2018 Addendum to the Coordinated Operation Agreement, and 2018 Bay-Delta Plan Update for the Lower San Joaquin River and Southern Delta could result in changed Delta Region operations and habitat health.

Operation of the Lower San Felipe Intake Alternative would result in slight changes to average south-of-Delta exports and Delta outflow when compared to the No Action/No Project Alternative. However, these changes in south-of-Delta export of CVP and SWP water and Delta outflow as a result of the Lower San Felipe Intake Alternative would be minimal and would not impact water quality. **Therefore, cumulative impacts of the Lower San Felipe Intake Alternative in combination with other projects in the Delta Region, would not result in significant cumulative impacts on water quality.**

Construction work around San Luis Reservoir could increase run-off and could introduce pollutants into the reservoir. Construction of trails, campgrounds, and wells identified in the San Luis SRA General Plan would take place at the same time as the proposed project and would involve earth moving and construction near the shore of the reservoir. Construction of the B.F. Sisk Dam SOD Modification Project would involve earth moving and construction along the dam crest and across the downstream embankment. Additionally, construction activities associated with the California High Speed Rail Project could involve earth moving and construction projects upstream of the reservoir. One configuration of the railway would traverse Pacheco Pass adjacent to SR 152 and San Luis Reservoir. Together, these projects could result in significant cumulative effects associated with potential contaminants causing water quality degradation in San Luis Reservoir. Other construction is projected to occur in Merced County as a result of projected population growth; however, construction is not expected to be in the vicinity of San Luis Reservoir.

Construction of the Lower San Felipe Intake Alternative would involve earth moving activities near the shore of the reservoir that could introduce pollutants into the water and compromise water quality of the reservoir. **Therefore, the alternative's incremental contribution to the significant cumulative effect would be cumulatively considerable prior to mitigation.** However, the Lower San Felipe Intake Alternative would implement Mitigation Measure WQ-1 to avoid or reduce impacts on water quality to a less than significant level. The California High Speed Rail Project and the B.F. Sisk Dam SOD

Modification Project both include water quality mitigation strategies including implementation of Stormwater Pollution Prevention Plans (SWPPP) and best management practices (BMPs) to minimize impacts to stormwater and maintain water quality, implementation of spill prevention and emergency response plans, and incorporation of biofiltration swales (CHSRA 2012). **After implementation of Mitigation Measure WQ-1, the Lower San Felipe Intake Alternative would not result in significant cumulative impacts on water quality.**

S.3.1.2 Alternative 3 - Treatment Alternative

Cumulative impacts related to construction and/or operation of the Treatment Alternative on water bodies in Santa Clara County, and cumulative impacts related to changes in south-of-Delta CVP and SWP exports and Delta outflow on the Delta Region are considered in this section.

The Treatment Alternative could change Delta salinity and bromide concentrations resulting in water quality impacts. As was noted above, implementation of the BDCP/ Delta Conveyance Project/California EcoRestore, 2018 Addendum to the Coordinated Operation Agreement, and 2018 Bay-Delta Plan Update for the Lower San Joaquin River and Southern Delta could result in changed Delta Region operations and habitat health.

Operation of the Treatment Alternative would result in slight changes to Delta water quality resulting from changes in Delta outflows compared to the No Action Alternative. Potential changes in salinity in comparison to the No Action/No Project Alternative were determined to be immeasurable. Additionally, any increases in south-of-Delta export as a result of the Delta Conveyance Project would only follow improvements in the Delta ecosystem's health and improved water quality conditions in the Delta Region as a result of both the Delta Conveyance Project and California EcoRestore's restoration actions. **Therefore, cumulative impacts of the Treatment Alternative in combination with other projects in the Delta Region, would not result in significant cumulative impacts on Delta salinity and bromide concentrations.**

The Treatment Alternative could change south-of-Delta CVP and SWP exports and Delta outflow. As was noted above, implementation of the BDCP/Delta Conveyance Project/California EcoRestore, 2018 Addendum to the Coordinated Operation Agreement, and 2018 Bay-Delta Plan Update for the Lower San Joaquin River and Southern Delta could result in changed Delta Region operations and habitat health.

Operation of the Treatment Alternative would result in slight changes to average south-of-Delta exports and Delta outflow when compared to the No Action/No Project Alternative. However, these changes in south-of-Delta export of CVP and SWP water and Delta outflow would be minimal and would not

impact water quality. Additionally, any increases in south-of-Delta export as a result of the BDCP/Delta Conveyance Project would only follow improvements in the Delta ecosystem's health and improved water quality conditions in the Delta Region as a result of California EcoRestore's restoration actions.

Therefore, cumulative impacts of the Treatment Alternative in combination with other projects in the Delta Region, would not result in significant cumulative impacts on water quality.

Construction of new water treatment infrastructure at the WTP in combination with construction throughout urban/developed areas in Santa Clara County could cause significant impacts to water quality. Cumulative construction projects expected to occur in the county as a result of projected population growth could result in significant negative impacts to Santa Clara County water bodies. One cumulative project that could impact water quality in this vicinity is the Upper Guadalupe River Flood Control Project. The project could occur at the same time as the Treatment Alternative.

Construction of the Treatment Alternative could result in negative impacts to these Santa Clara County water bodies. **Therefore, the alternative's incremental contribution to the significant cumulative effect would be cumulatively considerable prior to mitigation.** However, the Treatment Alternative would implement Mitigation Measure WQ-1 to avoid or reduce impacts on water quality to a less than significant level. In addition, the Upper Guadalupe River flood control project would implement SCVWD's environmental commitments, which are used to avoid or minimize impacts on water quality in Santa Clara County (SCVWD 2012). **After implementation of Mitigation Measure WQ-1, the Treatment Alternative would not result in significant cumulative impacts on water quality.**

S.3.1.3 Alternative 4 - San Luis Reservoir Expansion Alternative

Cumulative impacts related to construction and/or operation of the – San Luis Reservoir Expansion Alternative on the San Luis Reservoir, and cumulative impacts related to changes in south-of-Delta CVP and SWP exports and Delta outflow on the Delta Region are considered in this section.

The San Luis Reservoir Expansion Alternative could change Delta salinity and bromide concentrations resulting in water quality impacts. As was noted above, implementation of the BDCP/Delta Conveyance Project/California EcoRestore, 2018 Addendum to the Coordinated Operation Agreement, and 2018 Bay-Delta Plan Update for the Lower San Joaquin River and Southern Delta could result in changed Delta Region operations and habitat health.

Operation of the San Luis Reservoir Expansion Alternative would result in slight changes to Delta water quality resulting from changes in Delta outflows compared to the No Action Alternative. Potential changes in salinity in comparison to the No Action/No Project Alternative were determined on

average to be immeasurable. Additionally, any increases in south-of-Delta export as a result of the Delta Conveyance Project would only follow improvements in the Delta ecosystem's health and improved water quality conditions in the Delta Region as a result of both the Delta Conveyance Project and California EcoRestore's restoration actions. **Therefore, cumulative impacts of the San Luis Reservoir Expansion Alternative in combination with other projects in the Delta Region, would not result in significant cumulative impacts on Delta salinity and bromide concentrations.**

The San Luis Reservoir Expansion Alternative could change south-of-Delta CVP and SWP exports and Delta outflow. Implementation of the BDCP/Delta Conveyance Project/ California EcoRestore, 2018 Addendum to the Coordinated Operation Agreement, and 2018 Bay-Delta Plan Update for the Lower San Joaquin River and Southern Delta could result in changed Delta Region operations with the implementation of conservation and restoration measures designed to improve the health of the Delta ecosystem alongside improving water supply and water quality conditions. Future improved conditions in the Delta Region could result in increased south-of-Delta exports.

Construction and operation of the San Luis Reservoir Expansion Alternative would result in an increase in the average south-of-Delta export when compared to the No Action/No Project Alternative in most years because SCVWD would be able to withdraw their full CVP water allocation from San Luis Reservoir. This would result in less carryover water stored in San Luis Reservoir and more south-of-Delta exports given the increased availability of storage capacity. These changes in south-of-Delta export of CVP and SWP water and Delta outflow as a result of the San Luis Reservoir Expansion Alternative would be minimal. Additionally, any increases in south-of-Delta export as a result of the Delta Conveyance Project would only follow improvements in the Delta ecosystem's health and improved water quality conditions in the Delta Region as a result of both the Delta Conveyance Project and California EcoRestore's restoration actions. **Therefore, cumulative impacts of the San Luis Reservoir Expansion in combination with other projects in the Delta Region, would not result in significant cumulative impacts on water quality.**

Construction work around San Luis Reservoir and the Santa Teresa WTP could increase run-off and could introduce pollutants into nearby water bodies including the reservoir. Construction of trails, campgrounds, and wells identified in the *San Luis SRA General Plan* would take place at the same time as the proposed project and would involve earth moving and construction near the shore of the reservoir. Additionally, construction activities associated with the California High Speed Rail Project could involve earth moving and construction projects upstream of the reservoir. One configuration of the railway would traverse Pacheco Pass adjacent to SR 152 and San Luis Reservoir. Together, these projects could result in significant cumulative effects associated with potential contaminants causing water quality degradation

in San Luis Reservoir. Other construction is projected to occur in Merced County as a result of projected population growth; however, construction is not expected to be in the vicinity of San Luis Reservoir.

Construction of the San Luis Reservoir Expansion Alternative would involve earth moving activities near the shore of the reservoir that could introduce pollutants into the water and compromise water quality of the reservoir.

Therefore, the alternative's incremental contribution to the significant cumulative effect would be cumulatively considerable prior to mitigation.

However, the San Luis Reservoir Expansion Alternative would implement Mitigation Measure WQ-1 to avoid or reduce impacts on water quality to a less than significant level. The California High Speed Rail Project includes water quality mitigation strategies including implementation of Stormwater Pollution Prevention Plans (SWPPP) and best management practices (BMPs) to minimize impacts to stormwater and maintain water quality, implementation of spill prevention and emergency response plans, and incorporation of biofiltration swales (CHSRA 2012). **After implementation of Mitigation Measure WQ-1, the San Luis Reservoir Expansion Alternative would not result in significant cumulative impacts on water quality.**

S.3.1.4 Alternative 5 - Pacheco Reservoir Expansion Alternative

Cumulative impacts related to construction and/or operation of the Pacheco Reservoir Expansion Alternative on the San Luis Reservoir, and cumulative impacts related to changes in south-of-Delta CVP and SWP exports and Delta outflow on the Delta Region are considered in this section.

The Pacheco Reservoir Expansion Alternative could change Delta salinity and bromide concentrations resulting in water quality impacts. As was noted above, implementation of the BDCP/Delta Conveyance Project/California EcoRestore, 2018 Addendum to the Coordinated Operation Agreement, and 2018 Bay-Delta Plan Update for the Lower San Joaquin River and Southern Delta could result in changed Delta Region operations and habitat health.

Operation of the Pacheco Reservoir Expansion Alternative would result in slight changes to Delta water quality resulting from changes in Delta outflows compared to the No Action Alternative. Potential changes in salinity in comparison to the No Action/No Project Alternative were determined on average to be immeasurable. Additionally, any increases in south-of-Delta export as a result of the Delta Conveyance Project would only follow improvements in the Delta ecosystem's health and improved water quality conditions in the Delta Region as a result of both the Delta Conveyance Project and California EcoRestore's restoration actions. **Therefore, cumulative impacts of the Pacheco Reservoir Expansion Alternative in combination with other projects in the Delta Region, would not result in significant cumulative impacts on Delta salinity and bromide concentrations.**

The Pacheco Reservoir Expansion Alternative could change south-of-Delta CVP and SWP exports and Delta outflow. Implementation of the BDCP/Delta Conveyance Project/ California EcoRestore, 2018 Addendum to the Coordinated Operation Agreement, and 2018 Bay-Delta Plan Update for the Lower San Joaquin River and Southern Delta could result in changed Delta Region operations with the implementation of conservation and restoration measures designed to improve the health of the Delta ecosystem alongside improving water supply and water quality conditions. Future improved conditions in the Delta Region could result in increased south-of Delta exports.

Operation of the Pacheco Reservoir Expansion Alternative would result in slight changes to average south-of-Delta exports and Delta outflow when compared to the No Action/No Project Alternative. However, these changes in south-of-Delta export of CVP and SWP water and Delta outflow would be minimal and would not impact water quality. Additionally, any increases in south-of-Delta export as a result of the Delta Conveyance Project would only follow improvements in the Delta ecosystem's health and improved water quality conditions in the Delta Region as a result of both the Delta Conveyance Project and California EcoRestore's restoration actions. **Therefore, cumulative impacts of the Pacheco Reservoir Expansion Alternative in combination with other projects in the Delta Region, would not result in significant cumulative impacts on water quality.**

Construction work could increase run-off and could introduce pollutants into nearby water bodies including the reservoir and Pacheco Creek. Construction activities associated with the California High Speed Rail Project and the B.F. Sisk Dam SOD Modification Project could involve earth moving and construction projects nearby the reservoir. The current configuration of the railway would traverse Pacheco Pass adjacent to SR 152 and the SOD Modification Project would occur at San Luis Reservoir. Other construction is projected to occur in Santa Clara County as a result of projected population growth; however, construction is not expected to be in the vicinity of Pacheco Reservoir.

Construction of the Pacheco Reservoir Expansion Alternative would involve earth moving activities near Pacheco Creek that could introduce pollutants into the water and compromise water quality of the creek.

Therefore, the alternative's incremental contribution to the significant cumulative effect would be cumulatively considerable prior to mitigation. However, the Pacheco Reservoir Expansion Alternative would implement Mitigation Measure WQ-1 to avoid or reduce impacts on water quality to a less than significant level. The California High Speed Rail Project and the B.F. Sisk Dam SOD Modification Project include water quality mitigation strategies including implementation of Stormwater Pollution Prevention Plans (SWPPP) and best management practices (BMPs) to minimize impacts to stormwater and maintain water quality, implementation of spill prevention and emergency

response plans, and incorporation of biofiltration swales (CHSRA 2012, Reclamation and DWR 2019). **After implementation of Mitigation Measure WQ-1, the Pacheco Reservoir Expansion Alternative would not result in significant cumulative impacts on water quality.**

S.3.2 Surface Water Supply

Implementation of the proposed alternatives for the BDCP/Delta Conveyance Project, 2018 Addendum to the Coordinated Operation Agreement, 2018 Bay-Delta Plan Update for the Lower San Joaquin River and Southern Delta, and the B.F. Sisk Dam SOD Modification Project, CVP M&I Water Shortage Policy, Los Vaqueros Reservoir Expansion Project, and the Pacheco Reservoir Reoperation Project could result in short-term and long-term changes in water supply availability. For example, potential changes in CVP and SWP Delta export requirements as a component of the BDCP could affect water supply availability in the area of analysis. The WaterFix, the Addendum to the Coordinated Operation Agreement, and the M&I Water Shortage Policy would change the delivery patterns of CVP and SWP supplies, and population growth would increase water demands. The 2018 Bay-Delta Plan Update for the Lower San Joaquin River and Southern Delta could change the availability of exported water supply south of the Delta. The Los Vaqueros Reservoir Expansion Project would improve San Francisco Bay Area water supply reliability, along with increased Level 4 Refuge supplies. The Pacheco Reservoir Reoperation Project would improve water supply reliability for water users downstream of Pacheco Reservoir.

While cities and counties work to guide growth to appropriate areas and aim to preserve agricultural lands through land use policies, future growth and development in counties and cities as driven by expected population growth throughout California, and specifically in the area of analysis, would likely increase water demand. County general plan provisions, numerous State and local policies, and conservation efforts spearheaded by local water suppliers seek to reduce per capita water consumption and the environmental review completed alongside regular general plan updates identifies water conservation mitigation for significant impacts, as required. These conservation efforts help to reduce the cumulative contribution to increased water use in the area of analysis generated by population growth.

The population growth projections presented in Section S.2.6 along with the cumulative projects identified above would both contribute to increased pressure on the water supply system both locally and regionally to meet demands in the future. CVP and SWP water supply deliveries have decreased over time with implementation of CVPIA and the 2008 and 2009 United States Fish and Wildlife Service (USFWS) and NMFS Biological Opinions for the Long-Term Operations of the SWP and CVP. The cumulative projects and projected growth statewide and in the counties identified above are expected to

increase demand on these declining water supply deliveries and will contribute to significant cumulative water supply impacts in the future.

The Lower San Felipe Intake Alternative, the Treatment Alternative, the San Luis Reservoir Expansion Alternative, and the Pacheco Reservoir Expansion Alternative would all produce beneficial impacts on water supply reliability within the SCVWD service area. This improvement in water supply reliability would help to offset potential cumulative water supply reliability effects generated by the cumulative projects and anticipated population growth in the SCVWD service area and would help to reduce the significant cumulative water supply effects described above for SCVWD. The Lower San Felipe Intake Alternative and the Treatment Alternative would however, result in small reductions to south-of-Delta agricultural deliveries to CVP contractors and all of the action alternatives would generate small reductions in south-of-Delta SWP deliveries, contributing to the significant cumulative water supply impacts described above. These reductions would be minimal, only evident in some water years, and in the case of SWP deliveries would have functionally no difference from the No Action/No Project Alternative. **Therefore, the small reductions in south-of-Delta deliveries under the Lower San Felipe Intake Alternative, the Treatment Alternative, the San Luis Reservoir Expansion Alternative, and the Pacheco Reservoir Expansion Alternative would not have cumulatively considerable incremental contributions to a significant cumulative impact to water supply.**

Alternative 4, with the shear key option, would result in a short-term significant impact to CVP and SWP water supply deliveries due to construction. As discussed in Section 4.2.6, the temporary reduction in water supply deliveries would not be able to be replaced reliably from other sources, such as groundwater pumping or water transfers, or new surface storage. Given the environmental and technological limits and the time necessary to implement other potential options to offset this impact during the two water years that the Shear Key Option would restrict reservoir operations no feasible mitigation (California Environmental Quality Act § 21061.1) has been identified to reduce these impacts to a less than significant level. **Cumulative water supply impacts would be significant and the temporary reduction under Alternative 4 with the shear key option would be cumulatively considerable.**

S.3.3 Groundwater Resources

S.3.3.1 Alternative 2 - Lower San Felipe Intake Alternative

There would be no impacts to groundwater resources resulting from the construction and operation of the Lower San Felipe Intake Alternative in the Santa Clara subbasin or Llagas subbasin, therefore there would be no cumulative impacts SCVWD Service Area.

The Lower San Felipe Intake Alternative could change water deliveries to south-of-Delta CVP and SWP contractors and change storage in San Luis Reservoir resulting in increased groundwater use. The Lower San Felipe Intake Alternative would result in less carryover water stored in the San Luis Reservoir and potentially decrease deliveries to CVP agricultural contractors after a low point event. There would however be no change in SWP deliveries under this alternative.

The decrease in deliveries to CVP agricultural contractors as a result of the Lower San Felipe Intake Alternative's uninterrupted M&I deliveries to SCVWD during low point events could result in supply shortages to these agricultural contractors. These shortages could result in increases in groundwater pumping by these agricultural contractors in addition to existing groundwater pumping. The reductions to imported CVP agricultural deliveries will be minimal, at an annual average of approximately 2 thousand acre-feet (TAF). The Central Valley Hydrologic Model estimates groundwater pumping in the western portion of the valley to be approximately 60 TAF per year.

The cropping pattern in the South-of-Delta CVP Contractors Service Area (San Joaquin Valley Hydrologic Region) has been transitioning from annual row crops to increasingly including higher value permanent tree crops. The establishment of these permanent tree crops represents a major financial investment and in dry years irrigators with these crops have become increasingly reliant on groundwater to replace reduced surface water deliveries. This increase in groundwater use has resulted in significant pressure on the long term sustainability of the groundwater aquifers in the San Joaquin Valley Hydrologic Region. This includes multiple groundwater aquifers that have been identified by DWR as critically overdrafted (DWR 2016). These basins are required, under the Sustainable Groundwater Management Act, to be managed under a groundwater sustainability plan by January 21, 2020 (DWR 2017).

Therefore, while any potential increase in groundwater pumping even if all the deficit in delivery is made up via groundwater pumping would be less than four percent of the approximately 60 TAF per year pumping estimated for the area, given the critical overdraft of these aquifers **the Lower San Felipe Intake Alternative's incremental contribution to this significant cumulative effect would be a cumulatively considerable impact.**

S.3.3.2 Alternative 3 - Treatment Alternative

Excavation and trenching activities during construction might encounter groundwater, this groundwater would be pumped from the excavated area and contained and treated in accordance with all applicable State and federal regulations before being discharged. Impacts to groundwater levels from construction at the Santa Teresa WTP would be limited given that there is no aquifer below the WTP. Any impact from implementation of the Treatment Alternative would be short-term and less than significant. **The Treatment**

Alternative's incremental contribution to any potentially significant cumulative effect on groundwater levels in the SCVWD service area would not be cumulatively considerable.

The Treatment Alternative could change water deliveries to south-of-Delta CVP and SWP contractors and change storage in San Luis Reservoir resulting in increased groundwater use. Similar to the Lower San Felipe Intake Alternative, the Treatment Alternative would result in less carryover water stored in the San Luis Reservoir and potentially decrease deliveries to CVP agricultural contractors after a low point event. There would however be no change in SWP deliveries under this alternative.

As was described for the Lower San Felipe Intake Alternative, under the Treatment Alternative decreases in deliveries to CVP agricultural contractors as a result of the alternative's uninterrupted M&I deliveries to SCVWD during low point events could result in supply shortages to these agricultural contractors. These shortages could result in increases in groundwater pumping by these agricultural contractors in addition to existing groundwater pumping.

Therefore, while any potential increase in groundwater pumping under the Treatment Alternative even if all the deficit in delivery is made up via groundwater pumping would be less than four percent of the approximately 60 TAF per year pumping estimated for the area, given the critical overdraft of the aquifers in the San Joaquin Valley Hydrologic Region, **the Treatment Alternative's incremental contribution to this significant cumulative impact would be cumulatively considerable.**

S.3.3.3 Alternative 4 - San Luis Reservoir Expansion Alternative

There would be no negative impacts to groundwater resources resulting from the construction and operation of the San Luis Reservoir Expansion Alternative in the Santa Clara subbasin or Llagas subbasin, **therefore there would be no cumulative impacts.**

S.3.3.4 Alternative 5 – Pacheco Reservoir Expansion Alternative

The Pacheco Reservoir Expansion Alternative could change water deliveries to south-of-Delta CVP and SWP contractors and change storage in San Luis Reservoir resulting in increased groundwater use. Similar to the Lower San Felipe Intake Alternative, the Pacheco Reservoir Expansion Alternative would result in less carryover water stored in the San Luis Reservoir and potentially decrease deliveries to CVP agricultural contractors after a low point event. There would however be no change in SWP deliveries under this alternative.

As was described for the Lower San Felipe Intake Alternative, under the Pacheco Reservoir Expansion Alternative decreases in deliveries to CVP agricultural contractors as a result of the alternative's uninterrupted M&I deliveries to SCVWD during low point events could result in supply shortages

to these agricultural contractors. These shortages could result in increases in groundwater pumping by these agricultural contractors in addition to existing groundwater pumping.

Therefore, while any potential increase in groundwater pumping under the Pacheco Reservoir Expansion Alternative even if all the deficit in delivery is made up via groundwater pumping would be less than four percent of the approximately 60 TAF per year pumping estimated for the area, given the critical overdraft of the aquifers in the San Joaquin Valley Hydrologic Region, **the Pacheco Reservoir Expansion Alternative's incremental contribution to this significant cumulative impact would be cumulatively considerable.**

S.3.4 Flood Control

S.3.4.1 Alternative 2 - Lower San Felipe Intake Alternative

Implementation of the Lower San Felipe Intake Alternative in combination with facilities and trail construction at San Luis Reservoir could result in the placement of structures in the 100-year flood hazard area that could impede or redirect flood flows. Areas around the shoreline of San Luis Reservoir are located in Federal Emergency Management Agency (FEMA) flood zone D, defined as areas of undetermined but possible flood hazard. The aeration facility and other facilities that would be constructed under the Lower San Felipe Intake Alternative would not be placed in the 100-year floodplain and would not impede or redirect flood flows. New structures would be constructed near existing water supply infrastructure and on already disturbed land.

The new trails and facilities at San Luis Reservoir proposed in the *San Luis Reservoir SRA RMP/GP* would involve construction at the reservoir that could be near some of the elements of the Lower San Felipe Intake Alternative. The new facilities proposed in the management plan would not be large, and none of the new facilities would be in the 100-year floodplain. The San Luis Transmission Project would construct new transmission lines near San Luis Reservoir to connect the San Luis Substation to a new transmission line that would be developed between the Tracy Substation and the Dos Amigos Substation in the potential inundation area of San Luis Reservoir. The San Luis Solar Project would develop a new 108-acre solar facility adjacent to the SR 152 crossing O'Neill Forebay also located in the potential inundation area of San Luis Reservoir.

The San Luis Transmission Project and the San Luis Solar Project would place new infrastructure in the potential inundation area of San Luis Reservoir. In the event of dam failure these new facilities could impede or redirect flood flows. The B.F. Sisk Dam SOD Modification Project would modify existing infrastructure but would not place new infrastructure in the 100-year floodplain or in the downstream inundation area of San Luis Reservoir. The Lower San Felipe Intake Alternative would also not place new infrastructure in the 100-

year floodplain or in the downstream inundation area of San Luis Reservoir. **The Lower San Felipe Intake Alternative would not contribute to any significant cumulative impacts on flood flows.**

Implementation of the Lower San Felipe Intake Alternative in combination with facilities and trail construction at San Luis Reservoir and dam safety modification construction could result in the increased exposure of people or structures to a significant risk of loss, injury or death involving flooding, including flooding because of increases in the potential for the failure of a levee or dam. While the potential for flooding exists around San Luis Reservoir, long-term operations of water supply facilities under the Lower San Felipe Intake Alternative would not differ significantly from existing water supply operations at the reservoir and would not result in increased flood hazard risks to people or structures. Construction of trails and facilities at San Luis Reservoir proposed in the *San Luis Reservoir SRA RMP/GP* would include site-specific geotechnical investigations for siting and design of permanent structures. This would minimize any potential impacts from earthquakes and dam failure at the reservoir. Construction of the B.F. Sisk Dam SOD Modification Project would be completed with safeguards against increased risk of flooding including the timing of embankment excavation during periods of normal reservoir drawdown. The construction of the San Luis Transmission Project and the San Luis Solar Project would place new infrastructure downstream of San Luis Reservoir. In the event of dam failure these new facilities could be exposed to risk of loss. However, the Lower San Felipe Intake Alternative would not result in increased flood hazard risks to people or structures. **Therefore, the Lower San Felipe Intake Alternative would not contribute to any significant cumulative impacts on flood risk.**

Implementation of the Lower San Felipe Intake Alternative in combination with facilities and trail construction at San Luis Reservoir could alter the drainage pattern and/or create runoff water that would exceed the capacity of existing or planned stormwater drainage systems. Construction of the Lower San Felipe Intake Alternative would result in temporary less than significant impacts to the drainage pattern and the creation of runoff water.

As described in the environmental analysis for the *San Luis Reservoir SRA RMP/GP* (Reclamation and CDPR 2013), earth moving and construction during facilities and trail creation projects would alter the local drainage pattern around San Luis Reservoir. When specific construction and maintenance activities are undertaken, site-specific analysis would be conducted and detailed assessment of each project's activities would take place. The environmental analysis presented in the *San Luis Reservoir SRA RMP/GP* indicates that implementation of mitigation measures designed to reduce and control stormwater runoff in the case that more detailed environmental analysis determines significant stormwater-related impacts. Similarly, construction of the the B.F. Sisk Dam SOD Modification Project and construction and operation of the San Luis Transmission Project and the San Luis Solar Project would disturb earth at and

nearby Sisk Dam and would introduce new impervious surface. The development and implementation of a SWPPP would ensure that stormwater during construction is captured and runoff volume is reduced and the incorporation of methods to minimize flood damage into the design of all new structures would reduce potential effects to drainage patterns associated with all of these projects.

The long-term presence of the aeration facility would not add a significant amount of impervious surface to the shoreline and would not increase runoff. Projects developed as part of the *San Luis Reservoir SRA RMP/GP*, the B.F. Sisk Dam SOD Modification Project, the San Luis Transmission Project and the San Luis Solar Project would implement SWPPPs with BMPs to control and reduce runoff during construction and prior to the reestablishment of ground cover in disturbed areas. **Overall, the Lower San Felipe Intake Alternative in combination with other cumulative projects would not result in a significant cumulative impact related to drainage and runoff.**

S.3.4.2 Alternative 3 - Treatment Alternative

All construction and operations of the Treatment Alternative would take place on the property of the Santa Teresa WTP. No projects are identified for cumulative impacts that would take place on or near the WTP property. **Therefore, Treatment Alternative's incremental contribution to any potentially significant cumulative effect would not be cumulatively considerable given the implementation of BMPs during construction, as appropriate under the SWPPP, and the lack of other cumulative projects in at or near the WTP.**

S.3.4.3 Alternative 4 - San Luis Reservoir Expansion Alternative

Implementation of the San Luis Reservoir Expansion Alternative in combination with facilities and trail construction at San Luis Reservoir could result in the placement of structures in the 100-year flood hazard area that could impede or redirect flood flows. Areas around the shoreline of San Luis Reservoir are located in FEMA flood zone D, defined as areas of undetermined but possible flood hazard. Construction activities would occur at the dam which is within the inundation area of San Luis Reservoir.

The new trails and facilities at San Luis Reservoir proposed in the *San Luis Reservoir SRA RMP/GP* would involve construction at the reservoir that could be near some of the elements of the San Luis Reservoir expansion. The new facilities proposed in the management plan would not be large, and none of the new facilities would be in the 100-year floodplain. The San Luis Transmission Project would construct new transmission lines near San Luis Reservoir to connect the San Luis Substation to a new transmission line that would be developed between the Tracy Substation and the Dos Amigos Substation in the potential inundation area of San Luis Reservoir. The San Luis Solar Project

would develop a new 108-acre solar facility adjacent to the SR 152 crossing O'Neill Forebay also located in the potential inundation area of San Luis Reservoir.

The San Luis Transmission Project and the San Luis Solar Project would place new infrastructure in the potential inundation area of San Luis Reservoir. In the event of dam failure these new facilities could impede or redirect flood flows. The San Luis Reservoir expansion would not however place new infrastructure in the 100-year floodplain or in the downstream inundation area of San Luis Reservoir. **The San Luis Reservoir Expansion Alternative would not contribute to any significant cumulative impacts on flood flows.**

Implementation of the expansion of the San Luis Reservoir Expansion Alternative in combination with facilities and trail construction at San Luis Reservoir could result in the increased exposure of people or structures to a significant risk of loss, injury or death involving flooding, including flooding because of increases in the potential for the failure of a levee or dam. The potential for flooding exists around San Luis Reservoir. Long-term operations of water supply facilities under the San Luis Reservoir Expansion Alternative would increase the maximum allowable water storage volume in the reservoir compared to existing conditions. However, implementation of the dam modifications as a part of the connected Corrective Action Study (CAS) would reduce the potential for seismic induced dam failure from overtopping generated by embankment sloughing and/or seiche generated wave action and the associated flood risk.

Construction of trails and facilities at San Luis Reservoir proposed in the *San Luis Reservoir SRA RMP/GP* would include site-specific geotechnical investigations for siting and design of permanent structures. This would minimize any potential impacts from earthquakes and dam failure at the reservoir. The construction of the San Luis Transmission Project and the San Luis Solar Project would place new infrastructure downstream of San Luis Reservoir. In the event of dam failure these new facilities could be exposed to significant risk of loss. The San Luis Reservoir Expansion Alternative would not result in significant increases in flood hazard risks to people or structures. **Therefore, the San Luis Reservoir Expansion Alternative would not contribute to any significant cumulative impacts on flood risk and would provide a beneficial change in the cumulative risk of flooding in the study area.**

*Implementation of the expansion of the San Luis Reservoir Expansion Alternative in combination with facilities and trail construction at San Luis Reservoir could alter the drainage pattern and/or create runoff water that would exceed the capacity of existing or planned stormwater drainage systems. Construction of the San Luis Reservoir expansion would result in less than significant impacts to the drainage pattern and the creation of runoff water. As described in the environmental analysis for the *San Luis Reservoir SRA**

RMP/GP (Reclamation and CDPR 2013), earth moving and construction during facilities and trail creation projects would alter the local drainage pattern around San Luis Reservoir. When specific construction and maintenance activities are undertaken, site-specific analysis would be conducted and detailed assessment of each project's activities would take place. The environmental analysis presented in the *San Luis Reservoir SRA RMP/GP* indicates that implementation of mitigation measures designed to reduce and control stormwater runoff in the case that more detailed environmental analysis determines significant stormwater-related impacts. Similarly, construction and operation of the San Luis Transmission Project and the San Luis Solar Project would disturb earth near Sisk Dam and would introduce new impervious surface. The development and implementation of a SWPPP would ensure that stormwater during construction is captured and runoff volume is reduced and the incorporation of methods to minimize flood damage into the design of all new structures would reduce potential effects to drainage patterns associated with all of these projects.

The proposed permanent changes to the dam, SR 152 embankment, Dinosaur Point Boat Launch and borrow areas would not add a significant amount of impervious surface to the shoreline and would not increase runoff. Changes to the land from permanent filling and grading would alter local drainage patterns, however, methods to minimize flood damage or pollution from stormwater would be implemented as a part of the SWPPP that will be completed with BMPs to control and reduce runoff during construction and prior to the reestablishment of ground cover in disturbed areas. Projects developed as part of the *San Luis Reservoir SRA RMP/GP* and the San Luis Transmission Project and the San Luis Solar Project would implement SWPPPs with BMPs to control and reduce runoff. **Overall, the San Luis Reservoir Expansion Alternative in combination with other cumulative projects would not result in a cumulative significant impact related to drainage and runoff.**

S.3.4.4 Alternative 5 – Pacheco Reservoir Expansion Alternative

Implementation of the Pacheco Reservoir Expansion Alternative in combination with other cumulative projects at or downstream of Pacheco Reservoir could result in the placement of structures in the 100-year flood hazard area that could impede or redirect flood flows. The area around Pacheco Reservoir and along North Fork Pacheco Creek and Pacheco Creek are within Zones A and D (FEMA 2018). Areas that are susceptible to flooding include the low-lying areas along Pacheco Creek and along the banks of Pacheco Reservoir. There are no cumulative projects proposed within the 100-year flood hazard areas around Pacheco Reservoir or immediately downstream of Pacheco Reservoir. The Pacheco Reservoir Expansion Alternative would have a less than significant impact to flood flows, increased flood risk and flood control system capacity during construction; and beneficial impacts to flood risk during long-term operation. **The Pacheco Reservoir Expansion Alternative would not contribute to any significant cumulative impacts on flood flows.**

Implementation of the Pacheco Reservoir Expansion Alternative in combination with other cumulative projects at or downstream of Pacheco Reservoir could result in the increased exposure of people or structures to a significant risk of loss, injury or death involving flooding, including flooding because of increases in the potential for the failure of a levee or dam. The potential for flooding exists around and downstream of Pacheco Reservoir and downstream along Pacheco Creek. There are no cumulative projects proposed within the 100-year flood hazard areas around Pacheco Reservoir or immediately downstream of Pacheco Reservoir. Long-term operations of water supply facilities under the Pacheco Reservoir Expansion Alternative would increase the maximum allowable water storage volume in the reservoir compared to existing conditions. A new dam would also be constructed. The new dam is designed to prevent dam failure and provide some flood control benefits during major storm events by providing additional storage capacity to reduce flows within Pacheco Creek downstream of the dam reducing the risk of flooding, including flooding as a result of the failure of a levee or dam. Impacts to flood risk during operation would be beneficial and impacts during construction of the new dam would be less than significant. **Therefore, the Pacheco Reservoir Expansion Alternative would not contribute to any significant cumulative impacts on flood risk and would provide a beneficial change in the cumulative risk of flooding in the study area.**

Implementation of the expansion of the Pacheco Reservoir Expansion Alternative in combination with other cumulative projects at or downstream of Pacheco Reservoir could alter the drainage pattern and/or create runoff water that would exceed the capacity of existing or planned stormwater drainage systems. Construction of the Pacheco Reservoir Expansion Alternative would result in less than significant impacts to the drainage patterns and the creation of runoff water. No other cumulative projects are proposed around or downstream of Pacheco Reservoir. **Therefore, the Pacheco Reservoir Expansion Alternative would not result in a cumulative significant impact to drainage patterns or create runoff water that would exceed the capacity of stormwater drainage systems.**

S.3.5 Geology, Seismicity, and Soils

S.3.5.1 Alternative 2 - Lower San Felipe Intake Alternative

Construction activities during implementation of the Lower San Felipe Intake Alternative in combination with projects considered for cumulative impacts could expose people or structures to adverse effects related to the rupture of a known earthquake fault, seismically-induced ground shaking, and unstable soils. Construction of the Lower San Felipe Intake Alternative could expose workers to the risk of loss, injury, or death as a result of rupture of a known earthquake fault at or near the reservoir.

Other cumulative projects that have been identified in the area of construction around San Luis Reservoir include those described in the *San Luis Reservoir SRA RMP/GP*, the B.F. Sisk Dam SOD Modification Project, the California High Speed Rail Project, the San Luis Transmission Project and the San Luis Solar Project. Development and construction in Merced County related to projected population growth in the county would not likely occur in the vicinity of San Luis Reservoir and would not add to potential geology and soil effects related to the Lower San Felipe Intake Alternative.

Future development proposed at San Luis Reservoir includes construction of trails, campgrounds, and other recreation resources. Earth moving activities involved in these potential future projects at the reservoir could expose workers to adverse effects related to earthquake activity and unstable soils. However, the environmental analysis for the *San Luis Reservoir SRA RMP/GP* identifies geology, seismicity, and soils as a resource area that would not experience significant effects and is not considered further. The actions identified in the plan would not permit development of structures in Alquist-Priolo fault zones and would not increase the risk related to seismic events. Further, geologic studies and site-specific geotechnical investigations for siting and design of permanent structures, campgrounds, roads, and trails would minimize damage from erosion, unstable soils, landslides, and earthquakes.

The B.F. Sisk Dam SOD Modification Project similar to the Lower San Felipe Intake Alternative would be constructed at San Luis Reservoir, and the California High Speed Rail would traverse Pacheco Pass adjacent to SR 152 and San Luis Reservoir. Although construction activities under these cumulative projects could expose workers to risks associated with seismic ground shaking and unstable soils, final design of the project would require site-specific geotechnical assessments to ensure soil stability as well as short-term and long-term safety of people and structures. The San Luis Transmission Project and the San Luis Solar Project are also considered in the cumulative analysis. The San Luis Transmission Project would develop approximately 95 miles of new transmission lines connecting the Tracy Substation and the Dos Amigos Substation with segments crossing O'Neill Forebay and connecting to the San Luis Substation. The San Luis Solar Project would develop a new 108 acre solar facility adjacent to the SR 152 crossing O'Neill Forebay. Construction activities proposed for the Lower San Felipe Intake Alternative would not directly influence earthquake activity, in addition in the event of an earthquake, construction activities would follow the safety requirements of Occupational Safety and Health Administration (OSHA) to reduce the potential for harm to construction workers or equipment. Similarly construction of projects proposed in the *San Luis Reservoir SRA RMP/GP*, construction of the B.F. Sisk Dam SOD Modification Project, and construction activity propose under the California High Speed Rail Project, the San Luis Transmission Project and the San Luis Solar Project would be subject to the same safety requirements. **Therefore, construction of the Lower San Felipe Intake Alternative in**

combination with other cumulative projects would not result in a cumulative significant impact related to geology, seismicity, and soils.

Operation and maintenance of the Lower San Felipe Intake Alternative in combination with other construction and maintenance activities at San Luis Reservoir could expose people or structures to adverse effects related to the rupture of a known earthquake fault, seismically-induced ground shaking, and unstable soils. Operation and maintenance activities to support the infrastructure developed by the Lower San Felipe Intake Alternative could expose workers to risks if strong seismic ground shaking and associated ground failure, liquefaction, or landslides occurred while workers were on-site. The Lower San Felipe Intake Alternative is not however constructing structures for human habitation and would not increase the frequency of maintenance workers being onsite when compared to existing support of the Pacheco Intake. The new intake facilities would be constructed in compliance with California building codes that require protection against seismic ground shaking.

Cumulative activities that could contribute to cumulative effects during operations of the Lower San Felipe Intake include other construction projects occurring around the reservoir included in the *San Luis Reservoir SRA RMP/GP*, the California High Speed Rail, the San Luis Transmission Project and the San Luis Solar Project. These cumulative projects, similar to the Lower San Felipe Intake Alternative are not however proposing permanent structures for human habitation. The California High Speed Rail Project would be designed to include safeguards to stop train traffic in the event of seismic activities to prevent any accidents caused by impacts to the tracks. The visitor facilities proposed under the *San Luis Reservoir SRA RMP/GP* would be subject to California building codes that require protection against seismic ground shaking. **Operation and maintenance of the Lower San Felipe Intake Alternative in combination with other projects would not result in a significant cumulative impact on geology, seismicity, and soils.**

S.3.5.2 Alternative 3 - Treatment Alternative

Construction activities in combination with projects considered for cumulative impacts could expose people or structures to adverse effects related to the rupture of a known earthquake fault, seismically-induced ground shaking, and unstable soils. Construction of the Treatment Alternative could expose workers to the risk of loss, injury, or death as a result of rupture of a known earthquake fault in Santa Clara County. Other construction projected to occur in the county as a result of projected population growth could also result in similar impacts. However, construction projects related to projected growth would require individual geotechnical assessments to ensure soil stability as well as short-term and long-term safety of people and structures. The facilities constructed under the Treatment Alternative would not include homes or other structures of human residence. Additionally, construction would not increase the risk of seismic activity or risks associated with strong ground shaking and unstable

soils. **Construction of the Treatment Alternative in combination with other projects would not result in a significant cumulative impact on geology, seismicity, and soils.**

Maintenance activities in combination with projects considered for cumulative impacts could expose people or structures to adverse effects related to the rupture of a known earthquake fault, seismically-induced ground shaking, and unstable soils. No other cumulative activities or projects have been identified that would contribute to effects associated with the potential exposure of workers to risks associated with seismic activity at the Santa Teresa WTP.

Operations of the Treatment Alternative in combination with other projects would not result in a significant cumulative impact on geology, seismicity, and soils.

S.3.5.3 Alternative 4 - San Luis Reservoir Expansion Alternative

Construction activities during the expansion of the San Luis Reservoir Expansion Alternative in combination with projects considered for cumulative impacts could expose people or structures to adverse effects related to the rupture of a known earthquake fault, seismically-induced ground shaking, and unstable soils. Construction of the San Luis Reservoir expansion could expose workers to the risk of loss, injury, or death as a result of rupture of a known earthquake fault at or near the reservoir. Other cumulative projects that have been identified in the area of construction around San Luis Reservoir include those described in the *San Luis Reservoir SRA RMP/GP*, the California High Speed Rail Project, the San Luis Transmission Project and the San Luis Solar Project. Development and construction in Merced County related to projected population growth in the county would not likely occur in the vicinity of San Luis Reservoir and would not add to potential geology and soil effects related to the San Luis Reservoir Expansion Alternative.

Future development proposed at San Luis Reservoir includes construction of trails, campgrounds, and other recreation resources. Earth moving activities involved in these potential future projects at the reservoir could expose workers to adverse effects related to earthquake activity and unstable soils. However, the environmental analysis for the *San Luis Reservoir SRA RMP/GP* identifies geology, seismicity, and soils as a resource area that would not experience significant effects and is not considered further. The actions identified in the plan would not permit development of structures in Alquist-Priolo fault zones and would not increase the risk related to seismic events. Further, geologic studies and site-specific geotechnical investigations for siting and design of permanent structures, campgrounds, roads, and trails would minimize damage from erosion, unstable soils, landslides, and earthquakes.

The California High Speed Rail would traverse Pacheco Pass adjacent to SR 152 and San Luis Reservoir. Although construction activities could expose workers to risks associated with seismic ground shaking and unstable soils, final

design of the project would require site-specific geotechnical assessments to ensure soil stability as well as short-term and long-term safety of people and structures. The San Luis Transmission Project and the San Luis Solar Project are also considered in the cumulative analysis. The San Luis Transmission Project would develop approximately 95 miles of new transmission lines connecting the Tracy Substation and the Dos Amigos Substation with segments crossing O'Neill Forebay and connecting to the San Luis Substation. The San Luis Solar Project would develop a new 108-acre solar facility adjacent to the SR 152 crossing O'Neill Forebay.

Construction activities proposed for the San Luis Reservoir expansion would not directly influence earthquake activity, in addition in the event of an earthquake, construction activities would follow the safety requirements of OSHA to reduce the potential for harm to construction workers or equipment. Similarly construction of projects proposed in the *San Luis Reservoir SRA RMP/GP*, and construction activity propose under the California High Speed Rail Project, the San Luis Transmission Project and the San Luis Solar Project would be subject to the same safety requirements. **Therefore, construction of the San Luis Reservoir Expansion Alternative in combination with other cumulative projects would not result in a significant cumulative impact on geology, seismicity, and soils.**

Operation and maintenance of the expanded San Luis Reservoir in combination with other construction and maintenance activities at San Luis Reservoir could expose people or structures to adverse effects related to the rupture of a known earthquake fault, seismically-induced ground shaking, and unstable soils.

Operation and maintenance activities to support the infrastructure developed by the San Luis Reservoir Expansion Alternative could expose workers to risks if strong seismic ground shaking and associated ground failure, liquefaction, or landslides occurred while workers were on-site. The San Luis Reservoir expansion is not however constructing structures for human habitation and would not increase the frequency of maintenance workers being onsite when compared to existing support of B.F. Sisk Dam.

Cumulative activities that could contribute to cumulative effects during operations of the San Luis Reservoir Expansion Alternative include other construction projects occurring around the reservoir included in the *San Luis Reservoir SRA RMP/GP*, the California High Speed Rail, the San Luis Transmission Project and the San Luis Solar Project. These cumulative projects, similar to the Lower San Felipe Intake Alternative are not however proposing permanent structures for human habitation. The California High Speed Rail Project would be designed to include safeguards to stop train traffic in the event of seismic activities to prevent any accidents caused by impacts to the tracks. The visitor facilities proposed under the *San Luis Reservoir SRA RMP/GP* would be subject to California building codes that require protection against seismic ground shaking. **Operation and maintenance of the San Luis Reservoir Expansion Alternative in combination with other projects would**

not result in a significant cumulative impact on geology, seismicity, and soils.

S.3.5.4 Alternative 5 – Pacheco Reservoir Expansion Alternative

Construction activities during the expansion of the Pacheco Reservoir Expansion Alternative in combination with projects considered for cumulative impacts could expose people or structures to adverse effects related to the rupture of a known earthquake fault, seismically-induced ground shaking, and unstable soils. Construction of the expanded Pacheco Reservoir could expose workers to the risk of loss, injury, or death as a result of rupture of a known earthquake fault in Santa Clara County. Other construction projected to occur in the county as a result of projected population growth could also result in similar impacts. However, construction projects related to projected growth would require individual geotechnical assessments to ensure soil stability as well as short-term and long-term safety of people and structures. Construction would not increase the risk of seismic activity or risks associated with strong ground shaking and unstable soils. **Construction of the Pacheco Reservoir Expansion Alternative in combination with other projects would not result in a significant cumulative impact on geology, seismicity, and soils.**

Operation and maintenance of the Pacheco Reservoir Expansion in combination with other construction and maintenance activities could expose people or structures to adverse effects related to the rupture of a known earthquake fault, seismically-induced ground shaking, and unstable soils. Operation and maintenance activities to support the infrastructure developed by the Pacheco Reservoir Expansion Alternative could expose workers to risks if strong seismic ground shaking and associated ground failure, liquefaction, or landslides occurred while workers were on-site. The Pacheco Reservoir Expansion Alternative is not however constructing structures for human habitation and would not increase the frequency of maintenance workers being onsite when compared to existing support of North Fork Dam.

No other cumulative activities or projects have been identified that would contribute to effects associated with the potential exposure of workers to risks associated with seismic activity at Pacheco Reservoir. **Operations of the Pacheco Alternative in combination with other projects would not result in a significant cumulative impact on geology, seismicity, and soils.**

S.3.6 Air Quality

S.3.6.1 Alternative 2 - Lower San Felipe Intake Alternative

Construction activities associated with the Lower San Felipe Intake Alternative could cause temporary and short-term construction-related emissions of criteria pollutants or precursors that would exceed the San Joaquin Valley Air Pollution Control District's (SJVAPCD's) significance thresholds. The population in

Merced County is expected to increase in the future. Increases in population and housing could increase traffic, utility demands, and construction projects, which would all result in increased air pollution. Additionally, air pollutant emissions associated with past and present development and activities have contributed to local and regional air pollution. Potential projects that could contribute to cumulative effects when considered with this alternative include the B.F. Sisk Dam SOD Modification Project, the California High Speed Rail Project, the *San Luis Reservoir SRA RMP/GP*, the San Luis Transmission Project, and the San Luis Solar Project because short-term construction activities associated with these projects would occur in Merced County near San Luis Reservoir.

Air pollution, by definition, is a cumulative impact because no single project determines the California Ambient Air Quality Standards (CAAQS) or National Ambient Air Quality Standards (NAAQS) attainment status of a region. As a result, this alternative, when considered with past, present, and future development, would result in a significant cumulative impact.

The significance thresholds developed by the SJVAPCD serve to evaluate if a proposed project could either 1) cause or contribute to a new violation of a CAAQS or NAAQS in the study area or 2) increase the frequency or severity of any existing violation of any standard in the area. Therefore, if an alternative would produce air quality impacts that are individually significant, then the alternative would also be cumulatively considerable. This approach is consistent with the CEQA Guidance documents developed by both the BAAQMD (2017) and the SJVAPCD (2015).

Construction of the tunnel option would not individually exceed the SJVAPCD's significance thresholds and mitigation would not be required. **Therefore, the tunnel option's incremental contribution to the significant cumulative effect would not be cumulatively considerable.**

Construction of the pipeline option would result in individually significant air quality impacts and NO_x emissions would be cumulatively considerable prior to mitigation. Implementation of Mitigation Measures AQ-1 and AQ-2 would be sufficient to reduce impacts to less than significant. **Therefore, with inclusion of Mitigation Measures AQ-1 and AQ-2, the pipeline option's incremental contribution to the significant cumulative effect would not be cumulatively considerable after mitigation.**

Operational activities associated with the Lower San Felipe Intake Alternative could cause long-term emissions of criteria pollutants or precursors that would exceed the SJVAPCD's significance thresholds. As described previously, both the expected population growth in the region combined with past and present development projects contribute to local and regional air pollution. Potential projects that could contribute to cumulative effects when considered with this alternative include the California High Speed Rail Project, the *San Luis*

Reservoir SRA RMP/GP, the San Luis Transmission Project, and the San Luis Solar Project because long-term operational activities associated with these projects would occur in Merced County.

Air pollution is largely a cumulative impact because the attainment status of the region is a result of past and present development. While a single project would not determine the region's attainment status, it would continue to add to any existing air quality issues and would have a significant cumulative effect. Because the SJVAPCD's significance thresholds are intended to both attain and maintain the CAAQS and NAAQS, they are sufficient to determine if a project's individual air quality impacts would also be cumulatively considerable. Operation of this project would not individually exceed the SJVAPCD's significance thresholds and mitigation would not be required. **Therefore, this alternative's incremental contribution to the significant cumulative effect would not be cumulatively considerable.**

Construction activities associated with the Lower San Felipe Intake Alternative could cause temporary and short-term construction-related emissions of toxic air contaminants (TACs) that would exceed the SJVAPCD's significance thresholds. As described previously, both the expected population growth in the region combined with past and present development projects contribute to local and regional air pollution. Impacts from TACs are largely localized impacts. Because of this, significant cumulative TAC effects associated with this alternative would be driven by the projection method of assessing cumulative impacts.

The SJVAPCD's significance thresholds for TACs are highly conservative and protective of health impacts on sensitive receptors. As a result, the SJVAPCD's Guidance for Assessing and Mitigating Air Quality Impacts (GAMAQI) (see page 110) states that if project-specific TAC emissions would have a less than significant impact, then the project would not be expected to result in a cumulatively considerable net increase in health impacts. The proposed construction of the tunnel or pipeline would have a less than significant impact on sensitive receptors and mitigation would not be required. **Therefore, this alternative's incremental contribution to the cumulative effect would not be cumulatively considerable.**

S.3.6.2 Alternative 3 - Treatment Alternative

Construction activities associated with the Treatment Alternative could cause temporary and short-term construction-related emissions of criteria pollutants or precursors that would exceed the BAAQMD's significance thresholds. The population in Santa Clara County is expected to increase in the future. Increases in population and housing could increase traffic, utility demands, and construction projects, which would all result in increased air pollution. Additionally, air pollutant emissions associated with past and present development and activities have contributed to local and regional air pollution.

Potential projects that could contribute to cumulative effects when considered with this alternative include the Young Ranch Residential Project and Blanchard Road Warehouse/Distribution Center because short-term construction activities associated with these projects would occur in Santa Clara County near the Santa Teresa WTP.

Air pollution, by definition, is a cumulative impact because no single project determines the CAAQS or NAAQS attainment status of a region. As a result, this alternative, when considered with past, present, and future development, would result in a significant cumulative impact. The significance thresholds developed by the BAAQMD serve to evaluate if a proposed project could either 1) cause or contribute to a new violation of a CAAQS or NAAQS in the study area or 2) increase the frequency or severity of any existing violation of any standard in the area. Therefore, if an alternative would produce air quality impacts that are individually significant, then the alternative would also be cumulatively considerable.

Construction of this alternative would not individually exceed the BAAQMD's significance thresholds and mitigation would not be required. **Therefore, this alternative's incremental contribution to the significant cumulative effect would not be cumulatively considerable.**

Operation of the Santa Teresa WTP associated with the Treatment Alternative could cause long-term emissions of criteria pollutants or precursors that would exceed the BAAQMD's significance thresholds. As described previously, both the expected population growth in the region combined with past and present development projects contribute to local and regional air pollution. Potential projects that could contribute to cumulative effects when considered with this alternative include the Young Ranch Residential Project and Blanchard Road Warehouse/Distribution Center because long-term operational activities associated with these projects would occur in Santa Clara County.

Air pollution is largely a cumulative impact because the attainment status of the region is a result of past and present development. While a single project would not determine the region's attainment status, it would continue to add to any existing air quality issues and would have a significant cumulative effect. Because the BAAQMD's significance thresholds are intended to both attain and maintain the CAAQS and NAAQS, they are sufficient to determine if a project's individual air quality impacts would also be cumulatively considerable.

Operation of this alternative would not individually exceed the BAAQMD's significance thresholds and mitigation would not be required. **Therefore, this alternative's incremental contribution to the significant cumulative effect would not be cumulatively considerable.**

Construction activities associated with the Treatment Alternative could cause temporary and short-term construction-related emissions of TACs that would exceed the BAAQMD's significance thresholds. Cumulative impacts from TACs were evaluated using the BAAQMD Risk and Hazard Screening Analysis Process Flow Chart (2012). No permitted sources, highways, or major roadways were located within 1,000 feet of the property line for the Santa Teresa WTP. **Because no sources would be within the zone of influence of the water treatment plants, the alternative's incremental contribution to TAC emissions would not be cumulatively significant.**

S.3.6.3 Alternative 4 - San Luis Reservoir Expansion Alternative

Construction activities associated with the San Luis Reservoir Expansion Alternative could cause temporary and short-term construction-related emissions of criteria pollutants or precursors that would exceed the SJVAPCD's significance thresholds. The population in Merced County is expected to increase in the future. Increases in population and housing could increase traffic, utility demands, and construction projects, which would all result in increased air pollution. Additionally, air pollutant emissions associated with past and present development and activities have contributed to local and regional air pollution. Potential projects that could contribute to cumulative effects when considered with this alternative include the California High Speed Rail Project, the *San Luis Reservoir SRA RMP/GP*, the San Luis Transmission Project, and the San Luis Solar Project because short-term construction activities associated with these projects would occur in Merced County near San Luis Reservoir.

Air pollution, by definition, is a cumulative impact because no single project determines the CAAQS or NAAQS attainment status of a region. As a result, this alternative, when considered with past, present, and future development, would result in a significant cumulative impact.

The significance thresholds developed by the SJVAPCD serve to evaluate if a proposed project could either 1) cause or contribute to a new violation of a CAAQS or NAAQS in the study area or 2) increase the frequency or severity of any existing violation of any standard in the area. Therefore, if an alternative would produce air quality impacts that are individually significant, then the alternative would also be cumulatively considerable. This approach is consistent with the CEQA Guidance documents developed by both the BAAQMD (2017) and the SJVAPCD (2015).

Construction of the enlarged reservoir would result in individually significant air quality impacts because PM₁₀ and PM_{2.5} emissions would be cumulatively considerable prior to mitigation. Implementation of Mitigation Measure AQ-3 would be sufficient to reduce impacts from PM_{2.5} to less than significant, but PM₁₀ emissions would remain significant. **Therefore, the**

enlarged reservoir's incremental contribution to the significant cumulative effect would be cumulatively considerable after mitigation.

Operational activities associated with the San Luis Reservoir Expansion Alternative could cause long-term emissions of criteria pollutants or precursors that would exceed the SJVAPCD's significance thresholds. As described previously, both the expected population growth in the region combined with past and present development projects contribute to local and regional air pollution. Potential projects that could contribute to cumulative effects when considered with this alternative include the California High Speed Rail Project, *San Luis Reservoir SRA RMP/GP*, the San Luis Transmission Project, and the San Luis Solar Project because long-term operational activities associated with these projects would occur in Merced County.

Air pollution is largely a cumulative impact because the attainment status of the region is a result of past and present development. While a single project would not determine the region's attainment status, it would continue to add to any existing air quality issues and would have a significant cumulative effect. Because the SJVAPCD's significance thresholds are intended to both attain and maintain the CAAQS and NAAQS, they are sufficient to determine if a project's individual air quality impacts would also be cumulatively considerable. Operation of this project would not individually exceed the SJVAPCD's significance thresholds and mitigation would not be required. **Therefore, this alternative's incremental contribution to the significant cumulative effect would not be cumulatively considerable.**

Construction activities associated with the San Luis Reservoir Expansion Alternative could cause temporary and short-term construction-related emissions of TACs that would exceed the SJVAPCD's significance thresholds. As described previously, both the expected population growth in the region combined with past and present development projects contribute to local and regional air pollution. Impacts from TACs are largely localized impacts. Because of this, significant cumulative TAC effects associated with this alternative would be driven by the projection method of assessing cumulative impacts.

The SJVAPCD's significance thresholds for TACs are highly conservative and protective of health impacts on sensitive receptors. As a result, the SJVAPCD's GAMAQI (see page 110) states that if project-specific TAC emissions would have a less than significant impact, then the project would not be expected to result in a cumulatively considerable net increase in health impacts. The proposed construction of the tunnel or pipeline would have a less than significant impact on sensitive receptors and mitigation would not be required. **Therefore, this alternative's incremental contribution to the cumulative effect would not be cumulatively considerable.**

S.3.6.4 Alternative 5 - Pacheco Reservoir Expansion Alternative

Construction activities associated with the Pacheco Reservoir Expansion Alternative could cause temporary and short-term construction-related emissions of criteria pollutants or precursors that would exceed the BAAQMD's significance thresholds. The population in Santa Clara County is expected to increase in the future. Increases in population and housing could increase traffic, utility demands, and construction projects, which would all result in increased air pollution. Additionally, air pollutant emissions associated with past and present development and activities have contributed to local and regional air pollution. Potential projects that could contribute to cumulative effects when considered with this alternative would be the B.F. Sisk Dam SOD Modification Project and the California High Speed Rail Project because term construction activities associated with this project would occur in Merced County and Santa Clara County near Pacheco Reservoir.

Air pollution, by definition, is a cumulative impact because no single project determines the CAAQS or NAAQS attainment status of a region. As a result, this alternative, when considered with past, present, and future development, would result in a significant cumulative impact. As previously discussed, the significance thresholds developed by the BAAQMD serve to evaluate if a proposed project could either 1) cause or contribute to a new violation of a CAAQS or NAAQS in the study area or 2) increase the frequency or severity of any existing violation of any standard in the area. **Construction of the expanded Pacheco reservoir would result in individually significant air quality impacts because PM₁₀ and PM_{2.5} emissions would be cumulatively considerable prior to mitigation.** Implementation of Mitigation Measure AQ-3 would be sufficient to reduce impacts from PM_{2.5} to less than significant, but PM₁₀ emissions would remain significant. **Therefore, the new reservoir's incremental contribution to the significant cumulative effect would be cumulatively considerable after mitigation.**

Operational activities associated with the Pacheco Reservoir Expansion Alternative could cause long-term emissions of criteria pollutants or precursors that would exceed the BAAQMD's significance thresholds. As described previously, both the expected population growth in the region combined with past and present development projects contribute to local and regional air pollution. A potential project that could contribute to cumulative effects when considered with this alternative would be the California High Speed Rail Project because long-term operational activities associated with this project would occur in Santa Clara County near Pacheco Reservoir.

Air pollution is largely a cumulative impact because the attainment status of the region is a result of past and present development. While a single project would not determine the region's attainment status, it would continue to add to any existing air quality issues and would have a significant cumulative effect. Because the BAAQMD's significance thresholds are intended to both attain and maintain the CAAQS and NAAQS, they are sufficient to determine if a

project's individual air quality impacts would also be cumulatively considerable. Operation of this project would not individually exceed the BAAQMD's significance thresholds and mitigation would not be required. **Therefore, this alternative's incremental contribution to the significant cumulative effect would not be cumulatively considerable.**

Construction activities associated with the Pacheco Reservoir Expansion Alternative could cause temporary and short-term construction-related emissions of TACs that would exceed the BAAQMD's significance thresholds. Cumulative impacts from TACs were evaluated using the BAAQMD Risk and Hazard Screening Analysis Process Flow Chart (2012). No permitted sources, highways, or major roadways were located within 1,000 feet of the property line for the expanded Pacheco Reservoir. **Because no sources would be within the zone of influence of the new reservoir, the alternative's incremental contribution to TAC emissions would not be cumulatively significant.**

S.3.7 Greenhouse Gas Emissions

S.3.7.1 Alternative 2 - Lower San Felipe Intake Alternative

Construction activities associated with the Lower San Felipe Intake Alternative could generate Greenhouse Gas (GHG) emissions, either directly or indirectly, that could have a significant impact on the environment. The population in Merced County is expected to increase in the future. Increases in population and housing could increase traffic, utility demands, and construction projects, which would all result in increased GHG emissions. Additionally, GHG emissions associated with past and present development and activities have contributed to global climate change. Potential projects that could contribute to cumulative effects when considered with this alternative include the B.F. Sisk Dam SOD Modification Project, the California High Speed Rail Project, the *San Luis Reservoir SRA RMP/GP*, the San Luis Transmission Project, and the San Luis Solar Project because short-term construction activities and long-term operational activities associated with these projects could potentially occur in Merced County.

In its 2012 GAMAQI, the SJVAPCD states that no single project could generate enough GHG emissions to noticeably change the global climate temperature; therefore, climate change is a result of the combination of past, present, and future projects. Thus, this alternative would create a significant cumulative effect on climate change by adding additional GHG emissions to the atmosphere.

The California Air Pollution Control Officers Association (CAPCOA) document *CEQA & Climate Change* (2008) provides guidance to lead agencies for evaluating and addressing GHG emissions under CEQA. The CAPCOA document recognizes that a non-zero significance threshold could be construed as setting a de minimis threshold for cumulative impacts. In other words, a non-

zero threshold would provide a point at which a project's contribution would not contribute considerably to climate change. Therefore, if an alternative would produce GHG emission impacts that are individually significant, then the alternative would also be cumulatively considerable. Construction and operation of this alternative would not individually exceed the quantitative GHG emissions threshold. **Therefore, this alternative's incremental contribution to the significant cumulative effect would not be cumulatively considerable.**

Construction activities associated with the Lower San Felipe Intake Alternative could conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. As described previously, both the expected population growth in the region combined with past and present development projects contribute to global climate change. Potential projects that could contribute to cumulative effects when considered with this alternative include the B.F. Sisk Dam SOD Modification Project, the California High Speed Rail Project, the *San Luis Reservoir SRA RMP/GP*, the San Luis Transmission Project, and the San Luis Solar Project because long-term operational activities associated with these projects could occur in Merced County.

Because no single project can noticeably change the global climate temperature, this alternative, when considered in relationship to all past, present, and future development, would result in a significant cumulative impact. As described previously, the significance criterion used to assess an alternative's individual significance is sufficient to determine if a project would conflict with an applicable plan, policy, or regulation adopted for reducing GHG emissions for which project-specific thresholds have been set by BAAQMD. Therefore, if an alternative would produce GHG emission impacts that are individually significant, then the alternative would also be cumulatively considerable. Construction and operation of this alternative would not individually exceed the quantitative GHG emissions threshold. **Therefore, this alternative's incremental contribution to the significant cumulative effect would not be cumulatively considerable.**

S.3.7.2 Alternative 3 - Treatment Alternative

Construction activities associated with the Treatment Alternative could generate GHG emissions, either directly or indirectly, that could have a significant impact on the environment. The population in Santa Clara County is expected to increase in the future. Increases in population and housing could increase traffic, utility demands, and construction projects, which would all result in increased GHG emissions. Additionally, GHG emissions associated with past and present development and activities have contributed to global climate change. Potential projects that could contribute to cumulative effects when considered with this alternative include the Young Ranch Residential Project and Blanchard Road Warehouse/Distribution Center because

construction and operational activities associated with these projects would occur in Santa Clara County.

As previously stated, no single project could generate enough GHG emissions to noticeably change the global climate temperature; therefore, climate change is a result of the combination of past, present, and future projects. Thus, this alternative would create a significant cumulative effect on climate change by adding additional GHG emissions to the atmosphere. Additionally, the non-zero significance threshold used in this analysis provides a point at which a project's contribution would not contribute considerably to climate change. Therefore, if an alternative would produce GHG emission impacts that are individually significant, then the alternative would also be cumulatively considerable. Construction and operation of this alternative would not individually exceed the quantitative GHG emissions thresholds. **Therefore, this alternative's incremental contribution to the significant cumulative effect would not be cumulatively considerable.**

Construction activities associated with the Treatment Alternative could conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. As described previously, both the expected population growth in the region combined with past and present development projects contribute to global climate change. Potential projects that could contribute to cumulative effects when considered with this alternative include the Upper Guadalupe River Flood Control Project, Young Ranch Residential Project, and the Blanchard Road Warehouse/Distribution Center because long-term operational activities associated with these projects could occur in Santa Clara County.

Because no single project can noticeably change the global climate temperature, this alternative, when considered in relationship to all past, present, and future development, would result in a significant cumulative impact. As described previously, the significance criterion used to assess an alternative's individual significance is sufficient to determine if a project would conflict with an applicable plan, policy, or regulation adopted for reducing GHG emissions for which project-specific thresholds have been set by BAAQMD. Therefore, if an alternative would produce GHG emission impacts that are individually significant, then the alternative would also be cumulatively considerable. Construction and operation of this alternative would not individually exceed the quantitative GHG emissions thresholds. **Therefore, this alternative's incremental contribution to the significant cumulative effect would not be cumulatively considerable.**

S.3.7.3 Alternative 4 – San Luis Reservoir Expansion Alternative

Construction activities associated with the San Luis Reservoir Expansion Alternative could generate GHG emissions, either directly or indirectly, that could have a significant impact on the environment. The population in Merced

County is expected to increase in the future. Increases in population and housing could increase traffic, utility demands, and construction projects, which would all result in increased GHG emissions. Additionally, GHG emissions associated with past and present development and activities have contributed to global climate change. Potential projects that could contribute to cumulative effects when considered with this alternative include the California High Speed Rail Project, the *San Luis Reservoir SRA RMP/GP*, the San Luis Transmission Project, and the San Luis Solar Project because short-term construction activities and long-term operational activities associated with these projects could potentially occur in Merced County.

In its 2012 GAMAQI, the SJVAPCD states that no single project could generate enough GHG emissions to noticeably change the global climate temperature; therefore, climate change is a result of the combination of past, present, and future projects. Thus, this alternative would create a significant cumulative effect on climate change by adding additional GHG emissions to the atmosphere.

The CAPCOA document *CEQA & Climate Change* (2008) provides guidance to lead agencies for evaluating and addressing GHG emissions under CEQA. The CAPCOA document recognizes that a non-zero significance threshold could be construed as setting a de minimis threshold for cumulative impacts. In other words, a non-zero threshold would provide a point at which a project's contribution would not contribute considerably to climate change. Therefore, if an alternative would produce GHG emission impacts that are individually significant, then the alternative would also be cumulatively considerable.

Construction and operation of this alternative would exceed the quantitative GHG emissions threshold and the alternative's incremental contribution to the significant cumulative effect would be cumulatively considerable. Implementation of Mitigation Measure GHG-1 would reduce emissions to less than significant levels. **Therefore, this alternative's incremental contribution to the significant cumulative effect would not be cumulatively considerable with mitigation.**

Construction activities associated with the San Luis Reservoir Expansion Alternative could conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. As described previously, both the expected population growth in the region combined with past and present development projects contribute to global climate change. Potential projects that could contribute to cumulative effects when considered with this alternative include the California High Speed Rail Project, the *San Luis Reservoir SRA RMP/GP*, the San Luis Transmission Project, and the San Luis Solar Project because long-term operational activities associated with these projects could occur in Merced County.

Because no single project can noticeably change the global climate temperature, this alternative, when considered in relationship to all past, present, and future

development, would result in a significant cumulative impact. As described previously, the significance criterion used to assess an alternative's individual significance is sufficient to determine if a project would conflict with an applicable plan, policy, or regulation adopted for reducing GHG emissions for which project-specific thresholds have been set by BAAQMD. Therefore, if an alternative would produce GHG emission impacts that are individually significant, then the alternative would also be cumulatively considerable. Construction and operation of this alternative would not individually exceed the quantitative GHG emissions threshold with implementation of Mitigation Measure GHG-1. **Therefore, this alternative's incremental contribution to the significant cumulative effect would be cumulatively considerable pre-mitigation, but would not be cumulatively considerable with mitigation.**

S.3.7.4 Alternative 5 – Pacheco Reservoir Expansion Alternative

Construction activities associated with the Pacheco Reservoir Expansion Alternative could generate GHG emissions, either directly or indirectly, that could have a significant impact on the environment. The population in Santa Clara County is expected to increase in the future. Increases in population and housing could increase traffic, utility demands, and construction projects, which would all result in increased GHG emissions. Additionally, GHG emissions associated with past and present development and activities have contributed to global climate change. A potential project that could contribute to cumulative effects when considered with this alternative would be the California High Speed Rail Project because construction and operational activities associated with this project would occur in Santa Clara County.

As previously stated, no single project could generate enough GHG emissions to noticeably change the global climate temperature; therefore, climate change is a result of the combination of past, present, and future projects. Thus, this alternative would create a significant cumulative effect on climate change by adding additional GHG emissions to the atmosphere. Additionally, the non-zero significance threshold used in this analysis provides a point at which a project's contribution would not contribute considerably to climate change. Therefore, if an alternative would produce GHG emission impacts that are individually significant, then the alternative would also be cumulatively considerable. Construction and operation of this alternative would not individually exceed the quantitative GHG emissions thresholds. **Therefore, this alternative's incremental contribution to the significant cumulative effect would not be cumulatively considerable.**

Construction activities associated with the Pacheco Reservoir Expansion Alternative could conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. As described previously, both the expected population growth in the region combined with past and present development projects contribute to global climate change. A potential project that could contribute to cumulative effects when considered with this

alternative would be the California High Speed Rail Project because long-term operational activities associated with this project would occur in Santa Clara County near Pacheco Reservoir.

Because no single project can noticeably change the global climate temperature, this alternative, when considered in relationship to all past, present, and future development, would result in a significant cumulative impact. As described previously, the significance criterion used to assess an alternative's individual significance is sufficient to determine if a project would conflict with an applicable plan, policy, or regulation adopted for reducing GHG emissions for which project-specific thresholds have been set by BAAQMD. Therefore, if an alternative would produce GHG emission impacts that are individually significant, then the alternative would also be cumulatively considerable. Construction and operation of this alternative would not individually exceed the quantitative GHG emissions thresholds. **Therefore, this alternative's incremental contribution to the significant cumulative effect would not be cumulatively considerable.**

S.3.8 Visual Resources

S.3.8.1 Alternative 2 - Lower San Felipe Intake Alternative

Implementation of the Lower San Felipe Intake Alternative in combination with other cumulative actions could have short-term adverse effects on Class A and Class B visual resources. The Lower San Felipe Intake Alternative would create construction and stockpile areas at B. F. Sisk Dam, Basalt Use Area, and Dinosaur Point Use Area that could affect views from scenic vistas and overall visual character in the study area.

The B.F. Sisk Dam SOD Modification Project, the *San Luis Reservoir SRA RMP/GP* and the California High Speed Rail Project have been identified as cumulative plans that could contribute to visual resource effects during the construction of the Lower San Felipe Intake. The proposed improvements at San Luis Reservoir SRA, the California High Speed Rail Project, the San Luis Transmission Project, and the San Luis Solar Project could result in cumulative effects associated with visual resources.

The B.F. Sisk Dam SOD Modification Project would modify the dam with raises along sections of the dam crest and embankment. During construction, the introduction of construction equipment and the placement of new material along the embankment are also forecast to be visually apparent for a period following construction.

The *San Luis Reservoir SRA RMP/GP* includes a Park Plan, which outlines various alternatives for future park expansion and new facility development including new trails. It is typical for park expansion projects to be phased; thus,

associated construction actions could take place prior to or congruently with SLLPIP construction actions.

A multi-modal trail system is proposed to connect both use areas to the Pacheco State Park. The Dinosaur Point Use Area trail would also connect to the San Luis Wildlife Area (Reclamation and CDPR 2013). An additional trail is proposed to connect the Basalt and Los Banos Creek Trail use areas. Construction of these trails would be expected to require small scale construction equipment and hand labor and would not be anticipated to generate substantial visual impacts.

The California High Speed Rail Project would develop a new railway traversing the Pacheco Pass adjacent to the San Luis Reservoir and SR 152. The railway would support train speeds in excess of 125 miles per hour and would likely have sections visible to both San Luis Reservoir and SR 152. The project construction schedule for this section of railway is currently unknown but, if funding is secured in the near future, development of the high speed railway could take place prior to or congruently with SLLPIP construction actions.

Development of the California High Speed Rail Project would establish new railway and railway tunnels across Pacheco Pass parallel to SR 152 near San Luis Reservoir. Construction of this railway would likely require large scale equipment that would be visible from San Luis Reservoir, public roadways (including SR 152), the Romero Outlook Visitors Center, and open space areas, such as the Cottonwood Creek Wildlife Area and portions of Pacheco State Park, would generate a temporary degradation of the areas visual character and the quality of scenic vistas.

The San Luis Transmission Project and the San Luis Solar Project would both construct new facilities downstream of B. F. Sisk Dam. The San Luis Transmission Project would develop new transmission lines connecting the Tracy Substation to the Dos Amigos Substation with a side connection the San Luis Substation at B. F. Sisk Dam. This project would develop new transmission towers in the near the construction staging area for the Lower San Felipe Intake Alternative. The San Luis Solar Project would develop a new 108-acre solar power generation facility in the area between the O'Neill Forebay and SR 152. Construction of these projects would likely require large scale equipment that would be visible from public roadways (including SR 152), the Romero Outlook Visitors Center, and open space areas, such as the Cottonwood Creek Wildlife Area and portions of Pacheco State Park, would generate a temporary degradation of the areas visual character and the quality of scenic vistas.

If construction of these projects was completed concurrently with the Lower San Felipe Intake Alternative, the Dinosaur Point and Basalt use areas would be closed as would recreational boat use on the reservoir limiting impacts to prolonged visual resource impacts to foreground views from the reservoir.

Construction and material staging would affect views from public roadways (including SR 152), the Romero Outlook Visitors Center, and open space areas, however impacts would be short-term (approximately 33 to 47 months). In addition, the panoramic nature of background views from distant static viewing locations and the speed of motorists passing the site from adjacent roadways reduce the overall impact generated by construction activities from Alternative 2. **Therefore, the Lower San Felipe Intake Alternative's incremental contribution to any significant cumulative impact on visual quality in the area of analysis would not be cumulatively considerable.**

Implementation of the Lower San Felipe Intake Alternative in combination with other cumulative actions could have short-term adverse effects scenic resources within a designated State scenic highway, existing visual character of the area, and may create light glare in the reservoir region. Under the tunnel option, construction activities could take place after day-light hours, in which case lights in the construction staging areas and at Gate Shaft Island could have a negative impact on nighttime views in the project area. The tunnel option would generate excavated material that would need to be disposed at a spoil site at Dinosaur Point Use Area. This deposit of soils material at Dinosaur Point would change the existing visual character of the spoil site by covering existing vegetation until new vegetation is established which is inconsistent with the aesthetics resource goals outlined in the San Luis Reservoir SRA RMP/GP. In addition, to complete construction operations, the two existing intersections along SR 152 (at Dinosaur Point Road and at Basalt Road) would be improved to accommodate the high volume of trucks and other heavy equipment anticipated during construction.

The aeration system would consist of a new facility near Romero Outlook Visitors Center and would permanently change the visual experience of viewers from the Visitor Center, watercraft on the reservoir, and shoreline areas (from a distance) around the reservoir, which is inconsistent with the aesthetics resource goals as outlined in the San Luis Reservoir SRA RMP/GP.

If construction of the B.F. Sisk Dam SOD Modification Project, the San Luis Transmission Project and the San Luis Solar Project were completed concurrently with the Lower San Felipe Intake Alternative, there could be a cumulative short-term impact on visual resources given the introduction of construction equipment, construction traffic and construction lighting. However, implementation of Mitigation Measures VIS-1, VIS-2, VIS-3, and VIS-4 would reduce effects to a less than significant level. **Therefore, although the Lower San Felipe Intake Alternative may combine with other projects to create a cumulatively considerable contribution to significant cumulative visual impacts pre-mitigation, impacts would not be cumulatively considerable post-mitigation.**

S.3.8.2 Alternative 3 - Treatment Alternative

The Treatment Alternative proposes treatment technology and facility upgrades, requiring construction, at the Santa Teresa WTP. New treatment facilities and processes would replace existing processes and all improvements would occur on site. Because the visual character of the sites is that of a WTP and improvements are within the character of the site, there are no long term impacts to visual resources expected. Therefore, no cumulative activities or projects have been identified that in combination with project construction would affect visual resources. **The Treatment Alternative would have no significant cumulative effects on visual resources.**

S.3.8.3 Alternative 4 - San Luis Reservoir Expansion Alternative

Implementation of the San Luis Reservoir Expansion Alternative in combination with other cumulative actions could have short-term adverse effects on Class A and Class B visual resources, scenic resources within a designated State scenic highway, existing visual character of the area, and may create light glare in the reservoir region. The San Luis Reservoir expansion would create construction and stockpile areas at B. F. Sisk Dam, Basalt Use Area, and Dinosaur Point Use Area that could affect views from scenic vistas and overall visual character in the study area.

The *San Luis Reservoir SRA RMP/GP* and the California High Speed Rail Project have been identified as cumulative plans that could contribute to visual resource effects during the construction of the San Luis Reservoir Expansion Alternative. The proposed improvements at San Luis Reservoir SRA, the California High Speed Rail Project, the San Luis Transmission Project, and the San Luis Solar Project could result in cumulative effects associated with visual resources.

The *San Luis Reservoir SRA RMP/GP* includes a Park Plan, which outlines various alternatives for future park expansion and new facility development including new trails. It is typical for park expansion projects to be phased; thus, associated construction actions could take place prior to or congruently with SLLPIP construction actions.

A multi-modal trail system is proposed to connect both use areas to the Pacheco State Park. The Dinosaur Point Use Area trail would also connect to the San Luis Wildlife Area (Reclamation and CDPR 2013). An additional trail is proposed to connect the Basalt and Los Banos Creek Trail use areas. Construction of these trails would be expected to require small scale construction equipment and hand labor and would not be anticipated to generate substantial visual impacts.

The California High Speed Rail Project would develop a new railway traversing the Pacheco Pass adjacent to the San Luis Reservoir and SR 152. The railway would support train speeds in excess of 125 miles per hour and would likely

have sections visible to both San Luis Reservoir and SR 152. The project construction schedule for this section of railway is currently unknown but, if funding is secured in the near future, development of the high speed railway could take place prior to or congruently with SLLPIP construction actions.

Development of the California High Speed Rail Project would establish new railway and railway tunnels across Pacheco Pass parallel to SR 152 near San Luis Reservoir. Construction of this railway would likely require large scale equipment that would be visible from San Luis Reservoir, public roadways (including SR 152), the Romero Outlook Visitors Center, and open space areas, such as the Cottonwood Creek Wildlife Area and portions of Pacheco State Park, would generate a temporary degradation of the areas visual character and the quality of scenic vistas.

The San Luis Transmission Project and the San Luis Solar Project would both construct new facilities downstream of B.F. Sisk Dam. The San Luis Transmission Project would develop new transmission lines connecting the Tracy Substation to the Dos Amigos Substation with a side connection the San Luis Substation at B.F. Sisk Dam. This project would develop new transmission towers in the near the construction staging area for the San Luis Reservoir Expansion Alternative. The San Luis Solar Project would develop a new 108-acre solar power generation facility in the area between the O'Neill Forebay and SR 152. Construction of these projects would likely require large scale equipment that would be visible from public roadways (including SR 152), the Romero Outlook Visitors Center, and open space areas, such as the Cottonwood Creek Wildlife Area and portions of Pacheco State Park, would generate a temporary degradation of the areas visual character and the quality of scenic vistas.

If construction of these projects was completed concurrently with the San Luis Reservoir expansion, the Basalt Use Area for the full construction schedule and Dinosaur Point would be closed for one year limiting impacts to prolonged visual resource impacts to foreground views from the reservoir. Background views of the reservoir from more distant locations like public roadways (including SR 152), the Romero Outlook Visitors Center, and open space areas, such as the Cottonwood Creek Wildlife Area and portions of Pacheco State Park could be adversely impacted in the short-term given the introduction of construction equipment, construction traffic and construction lighting. Implementation of Mitigation Measures VIS-1 and VIS-4 would reduce effects of the San Luis Reservoir Expansion Alternative. **Therefore, although the San Luis Reservoir Expansion Alternative may combine with other projects to create a cumulatively considerable contribution to significant cumulative visual impacts pre-mitigation, impacts would not be cumulatively considerable post-mitigation.**

Under the San Luis Reservoir Expansion Alternative, operational changes at the San Luis Reservoir could affect visual resources. In the long-term, following completion of the San Luis Reservoir Expansion Alternative, in combination with the other cumulative projects in the area of analysis, scenic values in the foreground for recreation users at San Luis Reservoir and in the background from vistas along public roadways (including SR 152), at the Romero Outlook Visitors Center, and open space areas, such as the Cottonwood Creek Wildlife Area and portions of Pacheco State Park would return to their current quality level. **Therefore, the San Luis Reservoir Expansion Alternative in combination with the other cumulative projects would not result in a significant cumulative impact.**

S.3.8.4 Alternative 5 – Pacheco Reservoir Expansion Alternative

Implementation of the Pacheco Reservoir Expansion Alternative in combination with other cumulative actions could have short-term adverse effects on Class A and Class B visual resources, scenic resources within a designated State scenic highway, existing visual character of the area, and may create light glare in the reservoir region. The Pacheco Reservoir Expansion Alternative would create construction and stockpile areas along Pacheco that could temporarily affect the overall visual character in the study area during the 5-year construction period.

The California High Speed Rail Project has been identified as a cumulative project that could contribute to visual resource effects during the construction of the Pacheco Reservoir Expansion Alternative. The California High Speed Rail Project would develop a new railway traversing the Pacheco Pass near Pacheco Reservoir and SR 152. The railway would support train speeds in excess of 125 miles per hour and would likely have sections visible to SR 152. The project construction schedule for this section of railway is currently unknown but, if funding is secured in the near future, development of the high speed railway could take place prior to or congruently with SLLPIP construction actions.

Development of the California High Speed Rail Project would establish new railway and railway tunnels across Pacheco Pass parallel to SR 152. Construction of this railway would likely require large scale equipment that would be visible from public roadways (including SR 152) and could cause temporary degradation of the areas visual character and the quality of scenic vistas.

If construction of this project was completed concurrently with the Pacheco Reservoir Expansion Alternative, views from public roadways (including SR 152) could be adversely affected in the short-term given the introduction of construction equipment, construction traffic and construction lighting. The Pacheco Reservoir Expansion Alternative is not immediately adjacent to SR 152, and the effects would be reduced through Mitigation Measure VIS-1, as described in Section 4.9.8. **Therefore, although the Pacheco Reservoir Expansion Alternative may combine with other projects to create a**

cumulatively considerable contribution to significant cumulative visual impacts pre-mitigation, impacts would not be cumulatively considerable post-mitigation.

Under the Pacheco Reservoir Expansion Alternative, operational changes could affect visual resources. The expanded Pacheco Reservoir would only be visible from the neighboring properties; no views exist from scenic overlooks, trails, or roads. Therefore, it would not result in cumulative impacts in conjunction with other cumulative projects. **The Pacheco Reservoir Expansion Alternative in combination with the other cumulative projects would not result in a significant cumulative impact.**

S.3.9 Noise and Vibration

S.3.9.1 Alternative 2 - Lower San Felipe Intake Alternative

Construction activities associated with the Lower San Felipe Intake Alternative could expose sensitive receptors to noise levels in excess of standards established in the local general plan or noise ordinance. Construction is projected to occur in Merced County as a result of projected population growth; however, construction is not expected to be in the vicinity of San Luis Reservoir. Construction of the B.F. Sisk Dam SOD Modification Project, the California High Speed Rail Project, the San Luis Transmission Project, and the San Luis Solar Project could potentially occur at the same time as construction activities near San Luis Reservoir for the Lower San Felipe Intake Alternative and would involve a substantial amount of construction equipment and vehicle traffic that could contribute to noise impacts. The B.F. Sisk Dam SOD Modification Project, the proposed alignment of the California High Speed Rail Project the San Luis Transmission Project, and the San Luis Solar Project would all be along SR 152. The Lower San Felipe Intake Alternative would not exceed standards established in the local general plan or noise ordinance and would have a less than significant incremental contribution. **Therefore, the Lower San Felipe Intake Alternative's incremental contribution to the significant cumulative effect would not be cumulatively considerable.**

Construction activities associated with the Lower San Felipe Intake Alternative could expose sensitive receptors to excessive groundborne vibration or groundborne noise. Construction is projected to occur in Merced County as a result of projected population growth; however, construction is not expected to be in the vicinity of San Luis Reservoir. Construction of the B.F. Sisk Dam SOD Modification Project, the California High Speed Rail Project, the San Luis Transmission Project, and the San Luis Solar Project could potentially occur at the same time as construction activities at or near San Luis Reservoir for the Lower San Felipe Intake Alternative. Construction and operation of these projects could result in significant cumulative vibration effects. The Lower San Felipe Intake Alternative's incremental contribution to this significant cumulative vibration and ground borne noise effect would be minimal given the

Lower San Felipe Intake Alternative's less than significant, minor individual effect and the cumulative project's distance from the Dinosaur Point construction area – approximately 1.5 miles for the California High Speed Rail Project (CHSRA 2016), 3.5 miles from the B.F. Sisk Dam SOD Modification Project (Reclamation and DWR 2019) and 6 miles for the San Luis Transmission Project and the San Luis Solar Project. **Therefore, the Lower San Felipe Intake Alternative's incremental contribution to the significant cumulative effect would not be cumulatively considerable.**

Operational sources located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would not expose people residing or working in the project area to excessive noise levels. Operation of the California High Speed Rail Project, the San Luis Transmission Project, the San Luis Solar Project and the lower San Felipe intake would occur within the San Luis Reservoir Seaplane Base Airport Land Use Plan. The seaplane base allows water landings of planes on the reservoir. Because of the high sound levels associated with construction equipment, construction workers would be wearing hearing protection in compliance with California OSHA regulations, and no workers would be exposed to excessive noise levels associated with either project. Additionally, neither of the proposed projects would cause new residents or offsite workers to be located within the airport land use plan. **Therefore, the Lower San Felipe Intake Alternative would not contribute to any cumulative effect.**

Construction activities associated with and operation of the Lower San Felipe Intake Alternative could cause a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project. Noise from construction equipment and construction traffic would occur throughout the construction phase of this alternative. Noise levels at the sensitive receptors closest to Dinosaur Point and the Gianelli Pumping Plant would exceed the significance criteria, which would contribute to a substantial temporary increase in ambient noise levels in the project vicinity.

Construction of the B.F. Sisk Dam SOD Modification Project, the California High Speed Rail Project, the San Luis Transmission Project, and the San Luis Solar Project could potentially occur at the same time as construction activities near San Luis Reservoir for the Lower San Felipe Intake Alternative and would involve a substantial amount of construction equipment and vehicle traffic that would cause an increase in ambient noise levels in the project vicinity. The cumulative impact of Lower San Felipe Intake Alternative's incremental contribution to this ambient noise level increase would be significant.

The long term operation of the California High Speed Rail Project would produce substantial periodic ambient noise level effects with regular passing trains. The Lower San Felipe Intake Alternative would require the long-term operation of an aeration facility near the Romero Visitor's Center which would not generate a substantial temporary or periodic ambient noise level effects.

Operation of the San Luis Transmission Project and the San Luis Solar Project would not produce permanent ambient noise level effects. Therefore, cumulative periodic ambient noise level increases would not be a significant cumulative impact.

Implementation of Mitigation Measure NOISE-1 would reduce construction impacts from the Lower San Felipe Intake Alternative, but it would not be sufficient to reduce the alternative's construction impacts to a less than significant level. **Therefore, the Lower San Felipe Intake Alternative's incremental contribution to the significant cumulative increase in short-term ambient noise levels during construction would remain cumulatively considerable, while the Lower San Felipe Intake Alternative's incremental contribution to any cumulative increase in ambient noise levels during long-term operation would not be cumulatively considerable.**

S.3.9.2 Alternative 3 - Treatment Alternative

Construction activities associated with the Treatment Alternative could expose sensitive receptors to noise levels in excess of standards established in the local general plan or noise ordinance. Projects that could occur in the same place and time as this alternative and expose sensitive receptors to noise levels in excess of both the City of San Jose and Santa Clara County's noise ordinances include the Upper Guadalupe River Flood Control Project and could cause a significant cumulative impact. Other cumulative construction projects expected to occur in the county as a result of projected population growth could result in significant negative impacts to Santa Clara County noise levels.

Construction activities at the Santa Teresa WTP would not exceed the noise limits for the City of San Jose and the Treatment Alternative's incremental contribution to any substantial noise effects would be minimal. **Therefore, the Treatment Alternative's incremental contribution to any significant cumulative effect would not be cumulatively considerable.**

Construction activities associated with and operation of the Treatment Alternative could expose sensitive receptors to excessive groundborne vibration or groundborne noise. Projects that could occur in the same place and time as this alternative and expose sensitive receptors to groundborne vibration or noise include the Upper Guadalupe River Flood Control Project and could cause a significant cumulative impact. Other cumulative construction projects expected to occur in the county as a result of projected population growth could result in significant cumulative impact.

The Treatment Alternative's incremental contribution to any significant cumulative groundborne vibration or groundborne noise effect would be minimal. The Treatment Alternative's generation of groundborne vibration was less than significant. Long term operation of the Treatment Alternative would not generate vibrations or groundborne noise, or otherwise expose persons to

such impact. **Therefore, the Treatment Alternative's incremental contribution to any significant cumulative effect would not be cumulatively considerable.**

Construction activities associated with and operation of the Treatment Alternative could cause a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project. Projects could occur in the same place and time as this alternative and increase temporary or periodic ambient noise levels. Noise from construction equipment would occur throughout the construction phase of this alternative. The 1-hour L_{eq} during construction would be greater than 10 dBA when compared to the No Action/No Alternative conditions, and therefore the cumulative impact would be significant. The Treatment Alternative's incremental contribution to this significant cumulative noise effect would be cumulatively considerable.

No perceptible change in offsite plant noise levels during operation of the Treatment Alternative would occur because the modifications would occur within the existing process area.

Implementation of Mitigation Measure NOISE-1 would reduce construction impacts from the Treatment Alternative, but it would not be sufficient to reduce the alternative's construction impacts to a less than significant level. **Therefore, the Treatment Alternative's incremental contribution to the significant cumulative increase in short-term ambient noise levels during construction would remain cumulatively considerable, while the Treatment Alternative's incremental contribution to any cumulative increase in ambient noise levels during long-term operation would not be cumulatively considerable.**

Operational sources located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would not expose people residing or working in the project area to excessive noise levels. Operation of the Treatment Alternative would not occur within an airport land use plan. **The Treatment Alternative would not contribute to any cumulative effect.**

S.3.9.3 Alternative 4 - San Luis Reservoir Expansion Alternative

Construction activities associated with the San Luis Reservoir Expansion Alternative could expose sensitive receptors to noise levels in excess of standards established in the local general plan or noise ordinance. All construction activities associated with reservoir expansion component of the San Luis Reservoir Expansion Alternative would occur within Merced County. While the Merced County Code (Section 10.60.030) sets specific sound level limitations for the county, the noise ordinance specifically exempts construction activities between 7:00 a.m. and 6:00 p.m. Operation of construction equipment between 6:00 p.m. and 7:00 a.m. is prohibited unless it does not result in noise

levels exceeding the background level by 10 dBA between 6:00 p.m. and 10:00 p.m. and by 5 dBA between 10:00 p.m. and 7:00 a.m. Construction activities, including the operation of off-road construction equipment to spread excavated soil at Dinosaur Point, would occur over two 10-hour shifts. This would exceed the Merced County limits.

Construction projects expected to occur in the county as a result of projected population growth could result in significant cumulative noise levels. Construction of the California High Speed Rail Project, the San Luis Transmission Project, and the San Luis Solar Project could potentially occur at the same time as construction activities near San Luis Reservoir for the San Luis Reservoir expansion and would involve a substantial amount of construction equipment and vehicle traffic that could contribute to noise impacts. The proposed alignment of the California High Speed Rail Project the San Luis Transmission Project, and the San Luis Solar Project would all be along SR 152. The San Luis Reservoir expansion's cumulative noise effect would be significant given the proposed rail alignment's crossing of SR 152 via aerial structure and beneath Dinosaur Point Road via tunnel (CHSRA 2016) and the San Luis Transmission Project and San Luis Solar Project location along SR 152 adjacent to O'Neill Forebay, all important construction traffic routes for the San Luis Reservoir expansion. Implementation of Mitigation Measure NOISE-1 would reduce impacts from the San Luis Reservoir Expansion Alternative, but it would not be sufficient to reduce the alternative's construction impacts to a less than significant level. **Therefore, with the Implementation of Mitigation Measure NOISE-1, the San Luis Reservoir Expansion Alternative's incremental contribution to the significant cumulative effect would remain cumulatively considerable.**

Construction activities associated with the San Luis Reservoir Expansion Alternative could expose sensitive receptors to excessive groundborne vibration or groundborne noise. Construction projects expected to occur in the county as a result of projected population growth could result in significant negative impacts. Construction of the California High Speed Rail Project, the San Luis Transmission Project, and the San Luis Solar Project could potentially occur at the same time as construction activities near San Luis Reservoir for the San Luis Reservoir expansion. Construction and operation of these cumulative projects could result in significant cumulative vibration effects. The San Luis Reservoir Expansion Alternative's effect on vibration and ground borne would be less than significant but given the close proximity of alternative's construction area to the cumulative project's construction areas the San Luis Reservoir expansion could contribute to a significant cumulative vibration and ground borne noise impact. This significant cumulative effect would be limited to the borrow area east of Sisk Dam where excavation and transport of borrow materials for placement on the dam could occur adjacent to construction actions for the San Luis Transmission Project and the San Luis Solar Project and the SR 152 construction areas near Cottonwood Bay adjacent to the California High Speed Rail Project alignment. Other construction areas including Sisk Dam, the

Basalt Borrow Area and Dinosaur Point would not contribute to this cumulative effect given their distance from the cumulative projects. **The San Luis Reservoir Expansion Alternative's incremental contribution to the significant cumulative effect would be cumulatively considerable.**

Construction activities associated with and operation of the San Luis Reservoir Expansion Alternative could cause a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project. Noise from construction equipment and construction traffic would occur throughout the construction phase of this alternative. Noise levels at the sensitive receptors would exceed the significance criteria, which would contribute to a substantial temporary increase in ambient noise levels in the project vicinity.

Construction projects expected to occur in the county as a result of projected population growth could result in significant negative impacts. Construction of the California High Speed Rail Project, the San Luis Transmission Project, and the San Luis Solar Project could occur at the same time as construction activities near San Luis Reservoir for the San Luis Reservoir expansion and would involve a substantial amount of construction equipment and vehicle traffic that would cause an increase in ambient noise levels in the project vicinity. The San Luis Reservoir expansion's incremental contribution to cumulative ambient noise levels would be significant. The long term operation of the California High Speed Rail Project would produce substantial periodic ambient noise level effects with regular passing trains. Operation of the San Luis Transmission Project and the San Luis Solar Project would not produce permanent ambient noise level effects. Operation of the San Luis Reservoir Expansion Alternative would not change operations at San Luis Reservoir in a way that would introduce a new noise source. Therefore, cumulative periodic ambient noise level increases would not be a significant cumulative impact.

Implementation of Mitigation Measure NOISE-1 would reduce construction impacts from the San Luis Reservoir expansion, but it would not be sufficient to reduce the alternative's construction impacts to a less than significant level. **Therefore, the San Luis Reservoir Expansion Alternative's incremental contribution to the significant cumulative increase in temporary ambient noise levels during construction would be cumulatively considerable pre-mitigation and remain cumulatively considerable post mitigation. Operation of the San Luis Reservoir Expansion Alternative would not contribute to any cumulative temporary or periodic ambient noise effect.**

Operational sources located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would not expose people residing or working in the project area to excessive noise levels. Operation of the California High Speed Rail Project, the San Luis Transmission Project, the San Luis Solar Project and the enlarged reservoir would occur within the San Luis Reservoir Seaplane Base Airport

Land Use Plan. The seaplane base allows water landings of planes on the reservoir. Because of the high sound levels associated with construction equipment, construction workers would be wearing hearing protection in compliance with California OSHA regulations, and no workers would be exposed to excessive noise levels associated with either project. Additionally, neither of the proposed projects would cause new residents or offsite workers to be located within the airport land use plan. **Therefore, the San Luis Reservoir Expansion Alternative would not contribute to any cumulative effect.**

S.3.9.4 Alternative 5 – Pacheco Reservoir Expansion Alternative

Construction activities associated with the Pacheco Reservoir Expansion Alternative could expose sensitive receptors to noise levels in excess of standards established in the local general plan or noise ordinance. Projects that could occur in the same place and time as this alternative and expose sensitive receptors to noise levels in excess of Santa Clara County's noise ordinances include the California High Speed Rail Project and could cause a significant cumulative impact. Other cumulative construction projects expected to occur in the county as a result of projected population growth could result in significant negative impacts to Santa Clara County noise levels.

Construction activities at Pacheco Reservoir would exceed the noise limits for the County of Santa Clara. Implementation of Mitigation Measure NOISE-1 would reduce impacts from the Pacheco Reservoir Expansion Alternative, but it would not be sufficient to reduce the alternative's construction impacts to a less than significant level. **Therefore, with the Implementation of Mitigation Measure NOISE-1, the Pacheco Reservoir Expansion Alternative's incremental contribution to the significant cumulative effect would remain cumulatively considerable.**

Construction activities associated with and operation of the Pacheco Reservoir Expansion Alternative could expose sensitive receptors to excessive groundborne vibration or groundborne noise. Construction projects expected to occur in the county as a result of projected population growth could result in significant negative impacts. Construction of the California High Speed Rail Project could potentially occur at the same time as construction activities near Pacheco Reservoir. Construction and operation of these cumulative projects could result in significant cumulative vibration effects. The Pacheco Reservoir Expansion Alternative's effect on vibration and ground borne would be less than significant, but given the close proximity of alternative's construction area to the cumulative project's construction areas the Pacheco Reservoir construction could contribute to a significant cumulative vibration and ground borne noise impact. This significant cumulative effect would be limited to activities associated with constructing the conveyance tunnel that would connect the new reservoir to the Pacheco Conduit, which could occur adjacent to construction activities associated with the proposed San Jose to Merced alignment of the California High Speed Rail Project. **Pacheco Reservoir**

Expansion Alternative's incremental contribution to the significant cumulative effect would be cumulatively considerable.

Construction activities associated with and operation of the Pacheco Reservoir Expansion Alternative could cause a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project. Noise from construction equipment and construction traffic would occur throughout the construction phase of this alternative. Noise levels at the sensitive receptors would exceed the significance criteria, which would contribute to a substantial temporary increase in ambient noise levels in the project vicinity.

Construction projects expected to occur in the county as a result of projected population growth could result in significant negative impacts. Construction of the California High Speed Rail Project could occur at the same time as construction activities near Pacheco Reservoir and would involve a substantial amount of construction equipment and vehicle traffic that would cause an increase in ambient noise levels in the project vicinity. The Pacheco Reservoir Expansion Alternative's incremental contribution to cumulative ambient noise levels would be significant. Implementation of Mitigation Measure NOISE-1 would reduce construction impacts, but it would not be sufficient to reduce the alternative's construction impacts to a less than significant level. **Therefore, the Pacheco Reservoir Expansion Alternative's incremental contribution to the significant cumulative increase in temporary ambient noise levels during construction would be cumulatively considerable pre-mitigation and remain cumulatively considerable post mitigation.**

The long term operation of the California High Speed Rail Project would produce substantial periodic ambient noise level effects with regular passing trains. Long-term operation of the pump station under Alternative 5 would have a significant impact to noise and vibration that would be **cumulatively considerable pre-mitigation**, although the impact would be reduced through Mitigation Measure NOISE-3 and **therefore would not be cumulatively considerable post-mitigation.**

*Operational sources located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would not expose people residing or working in the project area to excessive noise levels. Operation of the Pacheco Reservoir Expansion Alternative would not occur within an airport land use plan. **The operation of the Pacheco Reservoir Expansion Alternative would not contribute to any cumulative effect.***

S.3.10 Traffic and Transportation

S.3.10.1 Alternative 2 - Lower San Felipe Intake Alternative

Construction activities for the Lower San Felipe Intake Alternative (tunnel and pipeline options) in combination with construction activities considered for cumulative impacts could result in degradation of roadway Level of Service (LOS) in the area of analysis. Construction of projects considered for cumulative impacts in Merced County including the B.F. Sisk Dam SOD Modification Project, the California High Speed Rail project, the *San Luis Reservoir SRA RMP/GP* and development projects related to projected growth in the county could create additional construction traffic in the area of analysis during the same time period.

The *San Luis Reservoir SRA RMP/GP* describes that traffic on SR 152 currently exceeds capacity during peak hours and additional development in the region related to the projects proposed at the SRA and development projects related to projected growth in the county would further add to this significant cumulative condition.

The *San Luis Reservoir SRA RMP/GP* notes that as specific projects at the SRA are developed, site-specific environmental analyses would be conducted and mitigation measures would be implemented to reduce impacts to visitor access or circulation on local roads.

Construction truck and worker trips associated with the Lower San Felipe Intake Alternative would not result in a short-term degradation of roadway LOS values. **Given that construction-related traffic increases would be temporary and would not degrade the LOS values of roads in the area of analysis, the alternative's incremental contribution to significant cumulative impacts on traffic flow in the area of analysis would not be cumulatively considerable.**

Construction activities for the Lower San Felipe Intake Alternative (tunnel and pipeline options) in combination with construction activities considered for cumulative impacts could result in temporary traffic safety effects. The presence of additional heavy construction equipment and slower moving traffic on regional and local roads around San Luis Reservoir related to the B.F. Sisk Dam SOD Modification Project, the California High Speed Rail project, the *San Luis Reservoir SRA Draft RMP/GP* and development projects related to projected growth in the county would increase risks related to traffic safety. Some of the alternatives considered in the *San Luis Reservoir SRA RMP/GP* include signage improvements to address existing turning conflicts. Additionally, agencies with jurisdiction over nearby signage and roadways are expected to continue to incorporate roadway improvements over time (Reclamation and CDPR 2013), these would have a beneficial effect on the cumulative condition in the study area but would not reduce the magnitude of

the other cumulative construction actions effect on traffic safety to a less that significant cumulative level.

Construction of the Lower San Felipe Intake Alternative in combination with cumulative construction actions and their associated construction traffic could generate a significant cumulative impact on traffic safety, and this Alternative's incremental contribution to this impact would be cumulatively considerable. Implementation of Mitigation Measure TR-1 would install caution signs at intersections immediately adjacent to construction zones as well as the first transition intersections from residential roadways to arterials and collectors along construction routes warning motorists of slow moving construction traffic, lane closures, implement dust control measures to maintain visibility near the dangerous intersections, and implement construction traffic management actions documented in a Transportation, Community, & System Preservation (TCSP) Program to reduce conflicts during periods of high traffic volume on impacted roadways. Added vehicle trips due to construction of the Lower San Felipe Intake Alternative would be temporary and would not contribute to traffic safety risks once construction is complete. **Thus, with implementation of Mitigation Measure TR-1, the Lower San Felipe Intake Alternative's incremental contribution to significant cumulative impacts on traffic safety would not be cumulatively considerable.**

Construction activities for the Lower San Felipe Intake Alternative (tunnel and pipeline options) in combination with construction activities considered for cumulative impacts could result in reductions of public transit capacity, availability, or performance. There would be no public transit impacts from operation of this alternative; therefore there would be no cumulative effects.

Maintenance of the Lower San Felipe Intake Alternative in combination with projects considered for cumulative impact could result in negative cumulative effects to roadway LOS, traffic safety, and the availability of public transit. The development of new projects related to projected growth in the county could create additional long-term traffic in the area of analysis. The *San Luis Reservoir SRA RMP/GP* describes that traffic on SR 152 currently exceeds capacity during peak hours and **additional development in the region related to the projects proposed at the SRA and development projects related to projected growth in the county would further add to these significant conditions.**

Long-term operation of the Lower San Felipe Intake Alternative would require a maximum of two delivery truck trips per day to provide supplies to the aeration facility. Any other required maintenance would occur on an as-needed basis and would not be expected to result in any large increases in traffic. Maintenance under the Lower San Felipe Intake Alternative would not individually result in long-term increases in traffic. **Therefore, the Lower San Felipe Intake Alternative's incremental contribution to significant**

cumulative impacts on traffic in the area of analysis would not be cumulatively considerable.

S.3.10.2 Alternative 3 - Treatment Alternative

Construction activities for the Treatment Alternative in combination with construction activities considered for cumulative impacts could result in degradation of roadway LOS in the area of analysis. Other development and projected growth in population and associated housing and commercial buildings would generate additional traffic in the area of analysis. The addition of construction-related vehicles associated with development of the Treatment Alternative would not degrade roadway LOS for regional and local roads in the area of analysis. Potential roadway effects would be temporary and less than the Valley Transportation Authority's (VTA's) threshold of one percent of freeway segment's capacity to evaluate freeway segments. **The incremental contribution of construction vehicle trips resulting from the Treatment Alternative on significant cumulative traffic effects would not be cumulatively considerable.**

Construction activities for the Treatment Alternative in combination with construction activities considered for cumulative impacts could result in temporary traffic safety effects. **The presence of slow moving vehicles during construction of the Treatment Alternative could result in significant adverse impacts related to traffic safety, and this Alternative's incremental contribution to this impact would be cumulatively considerable.**

Implementation of Mitigation Measure TR-1 would reduce impacts to less than significant. Other construction projects related to residential and commercial growth in the City of San Jose and other urban areas could contribute to adverse traffic safety effects but they would however also be analyzed for impacts at a site-specific level, and significant impacts would be mitigated as a part of local permitting. **Therefore, with implementation of Mitigation Measure TR-1, the Treatment Alternative's contribution to traffic safety impacts in Santa Clara County would be a less than significant cumulative impact.**

Construction activities for the Treatment Alternative in combination with construction activities considered for cumulative impacts could result in reductions of public transit capacity, availability, or performance. Other development and projected growth in population and associated housing and commercial buildings could create congestion that could significantly reduce the performance of public transit in the study area.

Construction equipment and vehicles would be kept off local roads and on SCVWD-owned lands when they are not in transit; therefore, construction activities would not interfere with the public transit facilities and services. Additionally, construction of the Treatment Alternative would not be expected to generate any new demands on public transit services in the study area that would cause reductions in service levels. There are no public transit, bicycle, or

pedestrian facility programs in the area that the Treatment Alternative would conflict with. **Therefore, the alternative's incremental contribution to potentially significant cumulative public transit capacity, availability, or performance impacts would not be cumulatively considerable.**

Maintenance activities under the Treatment Alternative in combination with operations of other projects considered for long-term cumulative impacts could result in negative cumulative effects to roadway LOS, traffic safety, and the availability of public transit. County-wide growth over the next 20 to 25 years would likely cause congestion problems on regional and local roadways. However, VTA, in coordination with local jurisdictions, is simultaneously planning roadway improvements throughout the county. In addition, local growth in the City of San Jose is directed towards pre-determined growth areas in an attempt to create compact development close to public transit (City of San Jose 2011).

Long-term maintenance of new facilities installed at the WTP under the Treatment Alternative would require a maximum traffic increase of one worker per day, and one solid waste disposal truck per day and would have minimal effect on the amount of traffic on roadways in the area of analysis. **The Treatment Alternative's incremental contribution to long-term cumulative traffic and transportation effects would not be cumulatively considerable.**

S.3.10.3 Alternative 4 - San Luis Reservoir Expansion Alternative

Construction activities for the San Luis Reservoir Expansion Alternative in combination with construction activities considered for cumulative impacts could result in degradation of roadway LOS in the area of analysis.

Construction of projects considered for cumulative impacts in Merced County including the California High Speed Rail project, the *San Luis Reservoir SRA RMP/GP* and development projects related to projected growth in the county could create additional construction traffic in the area of analysis during the same time period.

The *San Luis Reservoir SRA RMP/GP* describes that traffic on SR 152 currently exceeds capacity during peak hours and additional development in the region related to the projects proposed at the SRA and development projects related to projected growth in the county would further add to this significant cumulative condition.

The *San Luis Reservoir SRA RMP/GP* notes that as specific projects at the SRA are developed, site-specific environmental analyses would be conducted and mitigation measures would be implemented to reduce impacts to visitor access or circulation on local roads.

Construction truck and worker trips associated with the San Luis Reservoir Expansion Alternative would not result in a short-term degradation of roadway

LOS values. **Given that construction-related traffic increases would not degrade the LOS values of roads in the area of analysis, the alternative's incremental contribution to significant cumulative impacts on traffic flow in the area of analysis would not be cumulatively considerable.**

Construction activities for the San Luis Reservoir Expansion Alternative in combination with construction activities considered for cumulative impacts could result in temporary traffic safety effects. The presence of additional heavy construction equipment and slower moving traffic on regional and local roads around San Luis Reservoir related to the California High Speed Rail project, the *San Luis Reservoir SRA RMP/GP* and development projects related to projected growth in the county would increase risks related to traffic safety. Some of the alternatives considered in the *San Luis Reservoir SRA RMP/GP* include signage improvements to address existing turning conflicts. Additionally, agencies with jurisdiction over nearby signage and roadways are expected to continue to incorporate roadway improvements over time, these cumulative construction actions contribute to a significant cumulative traffic safety effect.

Construction of the San Luis Reservoir Expansion Alternative in combination with cumulative construction actions and their associated construction traffic would generate a significant cumulative impact on traffic safety, and this Alternative's incremental contribution to this impact would be cumulatively considerable. Implementation of Mitigation Measure TR-1 would install caution signs at intersections immediately adjacent to construction zones as well as the first transition intersections from residential roadways to arterials and collectors along construction routes warning motorists of slow moving construction traffic, lane closures, implement dust control measures to maintain visibility near the dangerous intersections, and implement construction traffic management actions documented in a TCSP to reduce conflicts during periods of high traffic volume on impacted roadways. Added vehicle trips due to construction of the San Luis Reservoir Expansion Alternative would not contribute to traffic safety risks once construction is complete. **Thus, with implementation of Mitigation Measure TR-1, the San Luis Reservoir Expansion Alternative's incremental contribution to significant cumulative impacts on traffic safety would not be cumulatively considerable.**

Construction activities for the San Luis Reservoir Expansion Alternative in combination with construction activities considered for cumulative impacts could not result in reductions of public transit capacity, availability, or performance. **There would be no public transit impacts from operation of this alternative; therefore there would be no cumulative effects.**

Maintenance of the San Luis Reservoir Expansion Alternative in combination with projects considered for cumulative impact could result in cumulative effects to roadway LOS, traffic safety, and the availability of public transit.

Since there will no increase in long-term trips associated with the San Luis Reservoir Expansion Alternative, **no cumulative impacts would be involved during the operations phase of the San Luis Reservoir Expansion Alternative.**

S.3.10.4 Alternative 5 – Pacheco Reservoir Expansion Alternative

Construction activities for the Pacheco Reservoir Expansion Alternative in combination with construction activities considered for cumulative impacts could result in degradation of roadway LOS in the area of analysis.

Construction of projects considered for cumulative impacts in Merced County including the B.F. Sisk Dam SOD Modification Project, the California High Speed Rail project, the *San Luis Reservoir SRA RMP/GP* and development projects related to projected growth in the county could create additional construction traffic in the area of analysis during the same time period.

The *San Luis Reservoir SRA RMP/GP* describes that traffic on SR 152 is nearing capacity during peak hours east of Gilroy and on the eastbound ascent to Pacheco Pass, and additional development in the region related to the projects proposed at the SRA and development projects related to projected growth in the county would further add to this significant cumulative condition.

The *San Luis Reservoir SRA RMP/GP* notes that as specific projects at the SRA are developed, site-specific environmental analyses would be conducted and mitigation measures would be implemented to reduce impacts to visitor access or circulation on local roads.

Construction truck and worker trips associated with the Pacheco Reservoir Expansion Alternative would not result in a short-term degradation of roadway LOS values. **Given that construction-related traffic increases would not degrade the LOS values of roads in the area of analysis, the alternative's incremental contribution to significant cumulative impacts on traffic flow in the area of analysis would not be cumulatively considerable.**

Construction activities for the Pacheco Reservoir Expansion Alternative in combination with construction activities considered for cumulative impacts could result in temporary traffic safety effects. The presence of additional heavy construction equipment and slower moving traffic on regional and local roads around San Luis Reservoir related to the B.F. Sisk Dam SOD Modification Project, the California High Speed Rail project, the *San Luis Reservoir SRA RMP/GP* and development projects related to projected growth in the county would increase risks related to traffic safety. Some of the alternatives considered in the *San Luis Reservoir SRA RMP/GP* include signage improvements to address existing turning conflicts. Additionally, agencies with jurisdiction over nearby signage and roadways are expected to continue to incorporate roadway improvements over time, these cumulative construction actions contribute to a significant cumulative traffic safety effect.

Construction of the Pacheco Reservoir Expansion Alternative in combination with cumulative construction actions and their associated construction traffic would generate a significant cumulative impact on traffic safety, and this Alternative's incremental contribution to this impact would be cumulatively considerable. Implementation of Mitigation Measure TR-1 would install caution signs at intersections immediately adjacent to construction zones as well as the first transition intersections from residential roadways to arterials and collectors along construction routes warning motorists of slow moving construction traffic, lane closures, implement dust control measures to maintain visibility near the dangerous intersections, and implement construction traffic management actions documented in a TCSP to reduce conflicts during periods of high traffic volume on impacted roadways. Added vehicle trips due to construction of the Pacheco Reservoir Expansion Alternative would not contribute to traffic safety risks once construction is complete. **Thus, with implementation of Mitigation Measure TR-1, the Pacheco Reservoir Expansion Alternative's incremental contribution to significant cumulative impacts on traffic safety would not be cumulatively considerable.**

Construction activities for the Pacheco Reservoir Expansion Alternative in combination with construction activities considered for cumulative impacts could not result in reductions of public transit capacity, availability, or performance. **There would be no public transit impacts from construction or operation of this alternative; therefore there would be no cumulative effects.**

Maintenance of the Pacheco Reservoir Expansion Alternative in combination with projects considered for cumulative impact could result in cumulative effects to roadway LOS, traffic safety, and the availability of public transit. Since there will no increase in long-term trips associated with the Pacheco Reservoir Expansion Alternative, **no cumulative impacts would be involved during the operations phase of the Pacheco Reservoir Expansion Alternative.**

S.3.11 Hazards and Hazardous Materials

S.3.11.1 Alternative 2 - Lower San Felipe Intake Alternative

Construction and operation of the Lower San Felipe Intake Alternative could increase the risk of exposure from hazardous materials, contaminated soil and/or groundwater to the public and construction workers. Construction of the alternative could also conflict with sea plane maneuvers on San Luis Reservoir and operations at the San Luis Reservoir Sea Plane Base, increase the risk of wildfire within the vicinity of the project area, and temporarily interfere with an emergency response plan or emergency evacuation plan. Implementation of the Lower San Felipe Intake Alternative could result in the accidental release of and exposure of construction workers and the general public to hazardous materials

and potentially increase hazard levels in study area by conflicting with operations at the San Luis Reservoir Sea Plane Base, increasing the risk of wildfire or conflicting with emergency response. These effects were determined to all be either less than significant or would be lowered to a less than significant level with the implementation of mitigation measures.

The *San Luis Reservoir SRA RMP/GP* has been identified as a cumulative plan and the B.F. Sisk Dam SOD Modification Project, the San Luis Solar Project and the San Luis Transmission Project have been as cumulative projects that could contribute to hazards and hazardous materials effects during the construction of the Lower San Felipe Intake.

Construction of trails as a part of the *San Luis Reservoir SRA RMP/GP*, development of the San Luis Solar Project and the San Luis Transmission Project would be expected to require construction equipment which could require the use of motor oil, gasoline, diesel fuel, solvents and degreasers similar to those required for construction of the Lower San Felipe Intake Alternative. However, a SWPPP is required by the RWQCB for approval of a General Construction Permit under the NPDES Program. This permit, similar to the SWPPP required for the Lower San Felipe Intake Alternative, would require safety measures and BMPs to be implemented when transporting, storing or using hazardous materials.

Similar to the Lower San Felipe Intake Alternative, SR 152 would be the main site access for trucks, light equipment and construction worker access to the Park Plan trail construction areas, the B.F. Sisk Dam SOD Modification Project, the San Luis Solar Project and the San Luis Transmission Project. If the Park Plan trails, the B.F. Sisk Dam SOD Modification Project, the San Luis Solar Project or the San Luis Transmission Project are constructed at the same time as the Lower San Felipe Intake Alternative this construction traffic could conflict with emergency response and evacuation plans for the State Responsibility Area a potentially significant cumulative effect. Construction of the trails, the B.F. Sisk Dam SOD Modification Project, the San Luis Solar Project or the San Luis Transmission Project at a time different than the Lower San Felipe Intake Alternative would eliminate the potential for construction traffic conflict with emergency response and evacuation plans for the State Responsibility Area.

The *2030 Merced County General Plan – Background Report* identified the San Luis Reservoir area as a region at moderate or high risk for wildfire. Sparks could be generated while using mechanical equipment during construction of the Park Plan trails, the San Luis Solar Project or the San Luis Transmission Project, which could cause a wildfire, a potentially significant cumulative effect.

The construction and operation of the Lower San Felipe Intake Alternative in combination with these cumulative actions could result in significant cumulative impacts on hazards and hazardous materials, and this

Alternative's contribution to these impacts would be cumulatively considerable. The implementation of mitigation measures to reduce the severity of the alternative's potential for significant impacts from encountering contaminated soil, conflicting with airbase operations, increasing wildfire risk and conflicting with emergency response would be reduced to a less than significant. **Therefore, with implementation of Mitigation Measures HAZ-1, HAZ-2, HAZ-3, HAZ-4, and TR-1, the Lower San Felipe Intake Alternative's incremental contribution to significant cumulative effects on hazards and hazardous materials would not be cumulatively considerable.**

S.3.11.2 Alternative 3 - Treatment Alternative

Construction of the Treatment Alternative and operation of proposed facilities could increase the risk of hazardous situations or exposure to hazardous materials which could have adverse cumulative effects to the public and construction workers.

Construction of the Treatment Alternative would involve the transport, storage, and use of hazardous materials. The BMPs required by the SWPPP that will be prepared prior to construction of the Treatment Alternative would decrease erosion rates and delivery of sediments along with any other resident pollutants to surface waters through the use of mechanisms including stockpile covering, fill material compaction, construction vehicle washing and revegetation would limit the potential for any inadvertent release of hazardous materials during construction. Operation of new SCVWD facilities also requires the use, transport, storage and disposal of hazardous materials. The updated Business Plan for the Santa Teresa WTP that would be prepared in accordance with the California Environmental Protection Agency (CalEPA) Unified Program for the transport and handling of hazardous materials would outline the required procedures to respond to a spill or accidental release to contain a spill and the necessary steps to protect workers and the public from exposure would contain the impact of any inadvertent spills to the WTP site and limit the potential to contribute to any cumulative effect.

Other cumulative projects that could also have impacts related to hazards and hazardous materials in the study area would include ongoing residential and commercial development generated by forecasted population growth. Some potential projects that could occur at the same time as implementation of the Treatment Alternative include the Young Ranch Residential Project, Equinix Data Center, and Blanchard Road Warehouse/Distribution Center. These projects, along with other development in the area, could generate hazardous situations or expose the public to hazardous materials. **Together, these cumulative projects could result in significant cumulative effects associated with hazardous situations and hazardous material exposure during construction, but the Treatment Alternative's incremental contribution to this effect would not be cumulatively considerable.**

S.3.11.3 Alternative 4 - San Luis Reservoir Expansion Alternative

Construction and operation of the San Luis Reservoir Expansion Alternative could increase the risk of exposure from hazardous materials, contaminated soil and/or groundwater to the public and construction workers. Construction of the alternative could also conflict with sea plane maneuvers on San Luis Reservoir and operations at the San Luis Reservoir Sea Plane Base, increase the risk of wildfire within the vicinity of the project area, and temporarily interfere with an emergency response plan or emergency evacuation plan. Implementation of the San Luis Reservoir Expansion Alternative could result in the accidental release of and exposure of construction workers and the general public to hazardous materials and potentially increase hazard levels in study area by conflicting with operations at the San Luis Reservoir Sea Plane Base, increasing the risk of wildfire or conflicting with emergency response. These effects were determined to all be either less than significant or would be lowered to a less than significant level with the implementation of mitigation measures.

Similar to the analysis presented above for the Lower San Felipe Intake Alternative, the *San Luis Reservoir SRA RMP/GP* has been identified as a cumulative plan and the San Luis Solar Project and the San Luis Transmission Project have been as cumulative projects that could contribute to hazards and hazardous materials effects during the construction of the San Luis Reservoir Expansion Alternative.

Construction of trails as a part of the *San Luis Reservoir SRA RMP/GP*, development of the San Luis Solar Project and the San Luis Transmission Project would be expected to require construction equipment which could require the use of motor oil, gasoline, diesel fuel, solvents and degreasers similar to those required for construction of the San Luis Reservoir expansion. However, a SWPPP is required by the Regional Water Quality Control Board (RWQCB) for approval of a General Construction Permit under the National Pollutant Discharge Elimination System (NPDES) Program. This permit, similar to the SWPPP required for the San Luis Reservoir expansion, would require safety measures and BMPs to be implemented when transporting, storing or using hazardous materials.

Similar to the San Luis Reservoir Expansion Alternative, SR 152 would be the main site access for trucks, light equipment and construction worker access to the Park Plan trail construction areas, San Luis Solar Project and the San Luis Transmission Project. If the Park Plan trails, the San Luis Solar Project or the San Luis Transmission Project are constructed at the same time as the San Luis Reservoir expansion this construction traffic could conflict with emergency response and evacuation plans for the State Responsibility Area a potentially significant cumulative effect. Construction of the trails, the San Luis Solar Project or the San Luis Transmission Project at a time different than the San Luis Reservoir expansion would eliminate the potential for construction traffic conflict with emergency response and evacuation plans for the State Responsibility Area.

The 2030 Merced County General Plan – Background Report identified the San Luis Reservoir area as a region at moderate or high risk for wildfire. Sparks could be generated while using mechanical equipment during construction of the Park Plan trails, the San Luis Solar Project or the San Luis Transmission Project, which could cause a wildfire, a potentially significant cumulative effect.

The construction and operation of the San Luis Reservoir Expansion Alternative in combination with these cumulative actions could result in significant cumulative impacts on hazards and hazardous materials and this Alternative’s contribution to these impacts would be cumulatively considerable. The implementation of mitigation measures to reduce the severity of the alternative’s potential for significant impacts from encountering contaminated soil, conflicting with airbase operations, increasing wildfire risk and conflicting with emergency response would be reduced to a less than significant. **Therefore, with implementation of Mitigation Measures HAZ-1, HAZ-2, HAZ-3, HAZ-4, HAZ-5, and TR-1, the San Luis Reservoir Expansion Alternative’s incremental contribution to significant cumulative effects in the Merced County - San Luis Reservoir Region on hazards and hazardous materials would not be cumulatively considerable.**

S.3.11.4 Alternative 5 – Pacheco Reservoir Expansion Alternative

Construction and operation of the Pacheco Reservoir Expansion Alternative could increase the risk of exposure from hazardous materials to the public and construction workers. Construction of the alternative could also increase the risk of wildfire within the vicinity of the project area, and temporarily interfere with an emergency response plan or emergency evacuation plan.

Implementation of the Pacheco Reservoir Expansion Alternative could result in the accidental release of and exposure of construction workers and the general public to hazardous materials and potentially increase the risk of wildfire or conflict with emergency response. These effects were determined to be either less than significant or would be lowered to a less than significant level with the implementation of mitigation measures.

The other cumulative projects are not in the immediate vicinity of the expanded Pacheco Reservoir such that hazards or hazardous materials may interact.

Therefore, the Pacheco Reservoir Expansion Alternative would not result in a cumulative significant impact related to hazards and hazardous materials.

Similar to the San Luis Reservoir Expansion Alternative, SR 152 would be the main site access for trucks, light equipment and construction worker access to the Park Plan trail construction areas, the B.F. Sisk Dam SOD Modification Project, the San Luis Solar Project and the San Luis Transmission Project. If the Park Plan trails, the San Luis Solar Project or the San Luis Transmission Project are constructed at the same time as the San Luis Reservoir expansion

this construction traffic could conflict with emergency response and evacuation plans for the State Responsibility Area a potentially significant cumulative effect. Construction of the trails, the B.F. Sisk Dam SOD Modification Project, the San Luis Solar Project or the San Luis Transmission Project at a time different than the San Luis Reservoir expansion would eliminate the potential for construction traffic conflict with emergency response and evacuation plans for the State Responsibility Area.

The *2030 Merced County General Plan – Background Report* identified the San Luis Reservoir area as a region at moderate or high risk for wildfire. Sparks could be generated while using mechanical equipment during construction of the Park Plan trails, the B.F. Sisk Dam SOD Modification Project, the San Luis Solar Project or the San Luis Transmission Project, which could cause a wildfire, a potentially significant cumulative effect.

The construction and operation of the Pacheco Reservoir Expansion Alternative in combination with these cumulative actions could result in significant cumulative impacts on hazards and hazardous materials and this Alternative’s contribution to these impacts would be cumulatively considerable. The implementation of mitigation measures to reduce the severity of the alternative’s potential for significant impacts from encountering contaminated soil, conflicting with airbase operations, increasing wildfire risk and conflicting with emergency response would be reduced to a less than significant. **Therefore, with implementation of Mitigation Measures HAZ-1, HAZ-2, HAZ-3, HAZ-4, HAZ-5, and TR-1, the Pacheco Reservoir Expansion Alternative’s incremental contribution to significant cumulative effects in the Merced County - San Luis Reservoir Region on hazards and hazardous materials would not be cumulatively considerable.**

S.3.12 Aquatic Resources

S.3.12.1 Alternative 2 - Lower San Felipe Intake Alternative

Construction activities could destroy or adversely affect aquatic habitats for special-status fish species. Construction of the Lower San Felipe Intake Alternative could result in temporary impacts on aquatic habitats for fish species from clearing, grading, staging of equipment, and other ground-disturbing activities. With the implementation of Mitigation Measure BIO-1 to avoid or reduce impacts on watercourses, wetlands, riparian areas, and other sensitive habitats during construction potential impacts to affect aquatic habitats for special-status fish species were determined to be less than significant.

The B.F. Sisk Dam SOD Modification Project would include construction activities at San Luis Reservoir similar to the Lower San Felipe Intake Alternative, and would include similar mitigation proposed in Mitigation Measure BIO-1 (Reclamation and DWR 2019). Other cumulative projects that could also have impacts on aquatic habitat conditions include State Water

Project Supply Allocation Settlement Agreement, Los Vaqueros Reservoir Expansion Project, and the San Joaquin River Restoration Program. These effects on aquatic habitat conditions would be localized to the action areas for each of those cumulative projects and would not be anticipated to affect habitat conditions in San Luis Reservoir. **Therefore, the Lower San Felipe Intake Alternative's incremental contribution to significant cumulative effects on aquatic habitats for special-status fish species would not be cumulatively considerable.**

Operation of a Lower San Felipe Intake could result in impacts to aquatic habitats for special-status fish species. Operation of the Lower San Felipe Intake Alternative would allow the San Felipe Division to draw water from San Luis Reservoir at the same elevation as the Gianelli Intake. Operations of the reservoir would be generally the same as under the No Project. CalSim II modeling results indicate that changes in Delta operations of the CVP and SWP would be very small (see Appendix B for a summary of this analysis).

Other cumulative projects that could also have impacts on aquatic habitat conditions include State Water Project Supply Allocation Settlement Agreement, Los Vaqueros Reservoir Expansion Project, and the San Joaquin River Restoration Program. These projects, if implemented, would influence operations in the Delta at the same time as the Lower San Felipe Intake Alternative. **Together, these projects and the Lower San Felipe Intake Alternative could result in significant cumulative effects on aquatic habitats for special-status fish species in the Delta.**

Modeling results indicate that, on average, operation of the Lower San Felipe Intake would result in very slight changes (<1%) to Delta hydrology, hydrodynamics, and water quality resulting from changes in Delta operations of the CVP and SWP. During most years, Delta conditions would be unchanged. **Therefore, the Lower San Felipe Intake Alternative's incremental contribution to significant cumulative effects on special-status fish species and their habitat would not be cumulatively considerable.**

S.3.12.2 Alternative 3 - Treatment Alternative

Impacts to aquatic habitats and the fish community were considered for the Treatment Alternative; however, all impacts from construction were determined to be "No Impact" are not included in the cumulative effects analysis for this alternative. The cumulative effect of operating the Treatment Alternative would be the same as the Lower San Felipe Intake Alternative.

S.3.12.3 Alternative 4 - San Luis Reservoir Expansion Alternative

Operation of a San Luis Reservoir Expansion Alternative could result in impacts to aquatic habitats and special-status fish species in the Delta. San Luis Reservoir Expansion Alternative operation could result in changes to CVP

and SWP operations in the Delta, which, in turn, could result in changes to hydrological indicators for habitat, including Sacramento River flow, the position of LSZ (X2), Delta outflows, Old and Middle river flows, and Delta exports. A description of each of these hydrologic indicators is provided below.

Sacramento River Flows

As discussed above, flow within the Sacramento River has been identified as an important factor affecting the survival of emigrating juvenile Chinook salmon, important to the downstream transport of planktonic fish eggs and larvae, such as delta smelt and longfin smelt, and important for seasonal floodplain inundation that has been identified as important habitat for successful seasonal foraging habitat for juvenile Chinook salmon and steelhead. Sacramento River flows are also important in the transport of organic material and nutrients from the upper regions of the watershed downstream into the Delta. While flows in the lower Sacramento River and Delta are highly altered compared to natural regimes, they are managed consistent with regulatory requirements (USFWS 2008, NMFS 2009) to provide essential habitat elements for a variety of species and ecological processes, including those described above.

Low Salinity Zone (X2)

The linkage between river inflow and the low salinity zone (LSZ) is referred to as X2, the distance along the main channel (usually in km) from the Golden Gate Bridge to the point where the salinity on the bottom is 2 ppt (Nobriga et al. 2008). Delta outflow largely determines the location of X2 and the LSZ, an area that historically had high prey densities and other favorable habitat conditions for rearing delta smelt (Kimmerer 2004). The LSZ is believed to provide the best combination of habitat conditions when X2 is located downstream from the confluence of the Sacramento and San Joaquin rivers (Kimmerer 2004). When Delta outflow is low, X2 is located in the relatively narrow channels of these rivers, whereas at higher outflows it moves downstream into more open waters (Kimmerer 2004).

Delta Outflow

Seasonal flows represented by Delta outflow influence the transport of eggs and young organisms (e.g., zooplankton, fish eggs, larvae) through the Delta and into San Francisco Bay. Flows during the months of April, May, and June play an especially important role in determining the reproductive success and survival of many estuarine species, including salmon, striped bass, American shad, delta smelt, longfin smelt, splittail, and others (Stevens et al. 1985, Meng and Moyle 1995).

Old and Middle River Flows

Reverse flows in Old and Middle rivers, resulting from low San Joaquin River inflows and increased exports to the CVP and SWP, have been identified as a

potential cause of increased delta smelt mortality at the CVP and SWP fish facilities within recent years (Simi and Ruhl 2005, Ruhl et al. 2006). Results of analyses of the relationship between the magnitude of reverse flows in Old and Middle rivers and salvage of adult delta smelt in the late winter shows a substantial increase in salvage as reverse flows exceed approximately -5,000 cfs. Concerns regarding reverse flows in Old and Middle rivers have also focused on planktonic egg and larval stages of striped bass, splittail, and on Chinook salmon and steelhead smolts, in addition to delta smelt, and while these species do not spawn to a large extent in the south Delta, eggs and larvae may be transported into the area by reverse flows in Old and Middle rivers. As discussed previously, these early life stages are generally entrained, because they are too small to be effectively screened from export waters.

Delta Exports

As described above, fish are vulnerable to entrainment in flows leading to the CVP and SWP water export facilities in the south Delta. Although fish facilities associated with the export facilities are designed to salvage fish from the water and return them to the estuary, the salvage process is not very efficient; many salmon and other fish are lost to predation in the waterways leading to the fish facilities; and delta smelt are inefficiently concentrated by the fish facilities and it is unlikely that many survive the salvage process (USFWS 2008, NMFS 2009). While the effectiveness of the salvage operations at the south Delta facilities is relatively low, it has improved in recent years, and measures are being implemented to further improve effectiveness in the future (USFWS 2008, NMFS 2009). General improvements implemented to the south Delta export facilities are expected to reduce entrainment losses and improve salvage of special status fish species through the implementation of the 2009 NMFS and 2008 USFWS BO requirements particularly the reverse Old and Middle Rivers (OMR) flow criteria, court-ordered restrictions on water operations, improvements at the fish facilities, and other actions taken by the water project operators (USFWS 2008, NMFS 2009).

Cumulative projects that could also have impacts on hydrologic and associated aquatic habitat conditions in the Delta include State Water Project Supply Allocation Settlement Agreement, Los Vaqueros Reservoir Expansion Project, and the San Joaquin River Restoration Program. These projects, if implemented, would influence hydrologic and associated habitat conditions in the Delta at the same time as the San Luis Reservoir Expansion Alternative.

Hydrology, hydrodynamics, and/or water quality in the Delta are highly altered compared to natural regimes and they are managed consistent with regulatory requirements (USFWS 2008, NMFS 2009) to minimize adverse effects while also considering water supply demands. Any new diversions or other water operation changes that have the potential to affect aquatic habitats in the Delta would also be required to operate consistent with regulatory requirements.

Modeling results indicate that, on average, operation of the San Luis Reservoir Expansion Alternative would result in small changes to Delta hydrology, hydrodynamics, and water quality and associated habitat conditions (see Appendix B for detailed modeling results). During most months of most years, Delta conditions would be unchanged. While any potential effect could be considered significant, the Smelt Working Group and the Delta Operations for Salmonids and Sturgeon (DOSS) group work with USFWS, NMFS, DWR, California Department of Fish and Wildlife (CDFW), and Reclamation to avoid reaching the actual take limit at the CVP and SWP facilities and reductions in exports or full stoppage of exports to avoid hitting the take limits established by USFWS and NMFS in the BOs and CDFW in the longfin smelt incidental take permit (ITP) would occur. **Therefore, the San Luis Reservoir Expansion Alternative's incremental contribution to significant cumulative effects on special-status fish species and their habitat would not be cumulatively considerable.**

S.3.12.4 Alternative 5 - Pacheco Reservoir Expansion Alternative

Operation of the Pacheco Reservoir Expansion Alternative could result in impacts to aquatic habitats and special-status fish species in the Delta. The Pacheco Reservoir Expansion Alternative operation could result in changes to CVP and SWP operations in the Delta and flows on Pacheco Creek.

In the Delta, cumulative projects that could also have impacts on hydrologic and associated aquatic habitat conditions include SWP Supply Allocation Settlement Agreement, Los Vaqueros Reservoir Expansion Project, and the San Joaquin River Restoration Program. These projects, if implemented, would influence hydrologic and associated habitat conditions in the Delta at the same time as the Pacheco Reservoir Expansion Alternative.

Hydrology, hydrodynamics, and/or water quality in the Delta are highly altered compared to natural regimes and they are managed consistent with regulatory requirements (USFWS 2008, NMFS 2009) to minimize adverse effects while also considering water supply demands. Any new diversions or other water operation changes that have the potential to affect aquatic habitats in the Delta would also be required to operate consistent with regulatory requirements.

Modeling results indicate that, on average, operation of the Pacheco Reservoir Expansion Alternative would result in small changes to Delta hydrology, hydrodynamics, and water quality and associated habitat conditions. During most months of most years, Delta conditions would be unchanged. While any potential effect could be considered significant, the Smelt Working Group and the DOSS group work with USFWS, NMFS, DWR, CDFW, and Reclamation to avoid reaching the actual take limit at the CVP and SWP facilities and reductions in exports or full stoppage of exports to avoid hitting the take limits established by USFWS and NMFS in the BOs and CDFW in the longfin smelt ITP would occur. **Therefore, the Pacheco Reservoir Expansion**

Alternative's incremental contribution to significant cumulative effects on special-status fish species and their habitat would not be cumulatively considerable.

Operation of the Pacheco Reservoir Expansion Alternative could result in impacts to aquatic habitats and special-status fish species in the Pajaro River Watershed. The Pacheco Reservoir Reoperation Project would provide steelhead habitat restoration in Pacheco Creek, downstream of the reservoir. This would be a beneficial impact. The Pacheco Reservoir Expansion Alternative operation could result in the introduction of Delta water into Pacheco Creek has the potential to introduce harmful invasive fish species, including striped bass, that may compete or prey upon listed South-Central California Coast Steelhead. Also, the release of CVP water could cause the introduction of non-native invertebrates (clams, mussels) or aquatic plant species that may alter the food-web of Pacheco Creek or Pajaro River. Construction and operation of the expanded Pacheco Reservoir could cause short and long-term direct or indirect impacts to South-Central California Coast Steelhead and their habitat further contributing to their threatened status given adverse significant cumulative conditions on Pacheco Creek caused by low water flow and habitat loss. In addition, the introduction of out-of-basin CVP water from the Delta may hinder the imprinting of juvenile steelhead on water from Pacheco Creek or Pajaro River, thereby affecting the homing behavior of adults returning to spawn. **This impact would be cumulatively considerable.**

While the introduction of Delta water into Pacheco Creek may negatively impact South-Central California Coast steelhead downstream by potentially affecting the imprinting of juveniles or through the introduction of non-native invasive species, the improved habitat quality resulting from the increased releases on Pacheco Creek proposed under Alternative 5 are anticipated to outweigh any potential negative impacts from imprinting. Following construction, with the implementation of Mitigation Measures BIO-1 and BIO-2, Alternative 5 would improve conditions on Pacheco Creek with increased creek flows beneficial to aquatic resources downstream of the expanded reservoir. **Therefore, with the implementation of the incremental contribution to significant cumulative effects on aquatic resources, although cumulatively considerable pre-mitigation, would not be cumulatively considerable post-mitigation.**

S.3.13 Terrestrial Resources

S.3.13.1 Alternative 2 - Lower San Felipe Intake Alternative

Construction activities could destroy or adversely affect sensitive habitats including wetland and riparian vegetation communities. Construction activities for the Lower San Felipe Intake Alternative could result in impacts on wetland riparian vegetation communities at the San Luis Reservoir. Alternatives described in the *San Luis Reservoir SRA RMP/GP*, the B.F. Sisk Dam SOD

Modification Project, the California High Speed Rail Project, the San Luis Transmission Project, and the San Luis Solar Project could also have impacts on wetland and riparian vegetation communities at the San Luis Reservoir, and could occur at the same time as the Lower San Felipe Intake Alternative. **Together, these projects and the Lower San Felipe Intake Alternative could result in significant cumulative effects associated with loss or adverse modification of wetland and riparian habitats.**

Mitigation Measure TERR-1 through Mitigation Measure TERR-16 outline requirements for the protection of special status plant species and special-status natural communities, and outline requirements for sensitive habitat and wetland surveys, avoidance requirements, and compensatory mitigation requirements to address impacts to sensitive wetland and riparian habitats. Mitigation Measure TERR-15 outlines requirements for the avoidance of wetlands whenever practicable, the use of fencing used to delineate waters of the U.S. and waters of the State within and adjacent to construction areas that cannot be directly filled, and to identify these areas as sensitive habitat prior to the start of construction to prevent unintended trampling of wetland vegetation by construction personnel and equipment. Mitigation Measure TERR-16 further requires that areas disturbed by construction would be replanted with native plants to minimize erosion. This mitigation would reduce impacts to previously unidentified sensitive habitats to a less-than-significant level. **With implementation of Mitigation Measures TERR-1 through TERR-16, the Lower San Felipe Intake Alternative's incremental contribution to significant cumulative effects on wetland and riparian habitats would not be cumulatively considerable.**

Construction activities could kill, harm, or disturb terrestrial wildlife, including special-status species, or their habitats. Construction activities for the Lower San Felipe Intake Alternative could result in impacts on special-status wildlife or their habitat at the San Luis Reservoir. Alternatives described in the *San Luis Reservoir SRA RMP/GP*, the B.F. Sisk Dam SOD Modification Project, the California High Speed Rail Project, the San Luis Transmission Project, and the San Luis Solar Project could also have impacts on special-status wildlife or habitat at the San Luis Reservoir, and could occur at the same time as the Lower San Felipe Intake Alternative. **Together, these projects and the Lower San Felipe Intake Alternative could result in significant cumulative effects on special-status wildlife with potential to occur at the San Luis Reservoir.**

Mitigation Measures TERR-1 through TERR-15 outline requirements for special habitat and species surveys, avoidance requirements, and species specific compensatory mitigation requirements to address unavoidable impacts to habitats. This mitigation would reduce impacts to previously unidentified special status wildlife to a less-than-significant level. **With implementation of Mitigation Measures TERR-1 through TERR-14, the Lower San Felipe Intake Alternative's incremental contribution to significant cumulative effects on special-status wildlife would not be cumulatively considerable.**

Construction activities could disturb nesting migratory birds, including raptors. Construction activities for the Lower San Felipe Intake Alternative could result in impacts on migratory birds if construction occurs during nesting season and/or results in destruction of nesting habitat for migratory birds. Alternatives described in the *San Luis Reservoir SRA RMP/GP*, the B.F. Sisk Dam SOD Modification Project, the California High Speed Rail Project, the San Luis Transmission Project, and the San Luis Solar Project could also have impacts on migratory birds or habitat at the San Luis Reservoir, and could occur at the same time as the Lower San Felipe Intake Alternative. **Together, these projects and the Lower San Felipe Intake Alternative could result in significant cumulative effects on migratory birds and raptors at the San Luis Reservoir.**

However, the Lower San Felipe Intake Alternative would implement Mitigation Measures TERR-6 through TERR-10 to avoid or reduce effects to migratory birds. **Therefore, with implementation of Mitigation Measures TERR-6 through TERR-10, the Lower San Felipe Intake Alternative's incremental contribution to significant cumulative effects on migratory birds would not be cumulatively considerable.**

Construction activities could destroy or adversely affect special-status plant species. Construction activities for the Lower San Felipe Intake Alternative could result in impacts on special-status plants at the San Luis Reservoir. Alternatives described in the *San Luis Reservoir SRA RMP/GP*, the B.F. Sisk Dam SOD Modification Project, the California High Speed Rail Project, the San Luis Transmission Project, and the San Luis Solar Project could also have impacts on special-status plants at the San Luis Reservoir, and could occur at the same time as the Lower San Felipe Intake Alternative. **Together, these projects and the Lower San Felipe Intake Alternative could result in significant cumulative effects on special-status plants at the San Luis Reservoir.**

Mitigation Measure TERR-1 outlines requirements for sensitive habitat and species surveys, species specific avoidance requirements, and species specific compensatory mitigation requirements to address unavoidable impacts to habitats. This mitigation would reduce impacts to previously unidentified special status plant species to a less-than-significant level. **Therefore with the implementation of Mitigation Measure TERR-1, as appropriate, the Lower San Felipe Intake Alternative's incremental contribution to significant cumulative effects on special-status plants would not be cumulatively considerable.**

Construction activities could result in conflicts with local policies or ordinances protecting biological resources. The Merced County General Plan includes objectives and policies to preserve and protect biologic resources in the County. These include provisions to preserve existing and increase the overall acreage of protected lands in the County, and the designation of buffers around and

protection of wetlands. **Together these projects and the Lower San Felipe Intake Alternative could generate significant impacts on terrestrial wildlife and vegetation.** Mitigation Measures TERR-1 through 16 are required as a part of implementation of a Lower San Felipe Intake Alternative to reduce these potential impacts to terrestrial wildlife and vegetation including wetlands during construction near the San Luis Reservoir shoreline to a less than significant level. **Therefore, with implementation of Mitigation Measures TERR-1 through 16 the Lower San Felipe Intake Alternative's incremental contribution to significant cumulative effects on local policies or ordinances protecting biological resources would not be cumulatively considerable.**

S.3.13.2 Alternative 3 - Treatment Alternative

Construction activities could disturb nesting migratory birds, including raptors. Construction of the Treatment Alternative would not impact other terrestrial biological resources, but could have impacts on migratory birds, including raptors, if active nests are disturbed during construction. The implementation of Mitigation Measures BIO-1 and TERR-6 would minimize the potential for adverse effects. No other cumulative activities or projects have been identified that would take place at the same time as construction of the Treatment Alternative that would impact migratory birds in the vicinity of the Santa Teresa WTP. **Therefore, there would be no significant cumulative effects.**

S.3.13.3 Alternative 4 - San Luis Reservoir Expansion Alternative

Construction activities could destroy or adversely affect sensitive habitats including wetland and riparian vegetation communities. Construction activities for the San Luis Reservoir Expansion Alternative could result in impacts on wetland riparian vegetation communities at the San Luis Reservoir. Alternatives described in the *San Luis Reservoir SRA RMP/GP*, the California High Speed Rail Project, the San Luis Transmission Project, and the San Luis Solar Project could also have impacts on wetland and riparian vegetation communities at the San Luis Reservoir, and could occur at the same time as the San Luis Reservoir expansion. **Together, these projects and the San Luis Reservoir Expansion Alternative could result in significant cumulative effects associated with loss or adverse modification of wetland and riparian habitats.**

However, the San Luis Reservoir expansion would implement Mitigation Measure TERR-16 which requires the avoidance of wetlands whenever practicable, the use of fencing used to delineate waters of the U.S. and waters of the State within and adjacent to construction areas that cannot be directly filled, and to identify these areas as sensitive habitat prior to the start of construction to prevent unintended trampling of wetland vegetation by construction personnel and equipment. Mitigation Measure TERR-16 further requires that areas disturbed by construction would be replanted with native plants to minimize erosion. This mitigation would reduce impacts to previously

unidentified sensitive habitats to a less-than-significant level. **With implementation of Mitigation Measure TERR-16, the San Luis Reservoir expansion's incremental contribution to significant cumulative effects on wetland and riparian habitats would not be cumulatively considerable.**

Construction activities could kill, harm, or disturb terrestrial wildlife, including special-status species, or their habitats. Construction activities for the San Luis Reservoir Expansion Alternative could result in impacts on special-status wildlife or their habitat at the San Luis Reservoir. Alternatives described in the *San Luis Reservoir SRA RMP/GP*, the California High Speed Rail Project, the San Luis Transmission Project, and the San Luis Solar Project could also have impacts on special-status wildlife or habitat at the San Luis Reservoir, and could occur at the same time as the San Luis Reservoir Expansion Alternative. **Together, these projects and the San Luis Reservoir Expansion Alternative could result in significant cumulative effects on special-status wildlife with potential to occur at the San Luis Reservoir.**

However, the San Luis Reservoir expansion would implement Mitigation Measures TERR-1 through TERR-5 and TERR-11 through TERR-14 to complete special habitat and species surveys, implement avoidance requirements, and require species specific compensatory mitigation requirements to address unavoidable impacts to habitats. This mitigation would reduce impacts to previously unidentified special status wildlife to a less-than-significant level. **With implementation of Mitigation Measures TERR-1 through TERR-5 and TERR-11 through TERR-14, the San Luis Reservoir expansion's incremental contribution to significant cumulative effects on special-status wildlife would not be cumulatively considerable.**

Construction activities could disturb nesting migratory birds, including raptors. Construction activities for the San Luis Reservoir Expansion Alternative could result in impacts on migratory birds if construction occurs during nesting season and/or results in destruction of nesting habitat for migratory birds. Alternatives described in the *San Luis Reservoir SRA RMP/GP*, the California High Speed Rail Project, the San Luis Transmission Project, and the San Luis Solar Project could also have impacts on migratory birds or habitat at the San Luis Reservoir, and could occur at the same time as the San Luis Reservoir expansion. **Together, these projects and the San Luis Reservoir Expansion Alternative could result in significant cumulative effects on migratory birds at the San Luis Reservoir.**

However, the San Luis Reservoir Expansion Alternative would implement Mitigation Measures TERR-6 through TERR-10 to avoid or reduce effects to migratory birds. **Therefore, with implementation of Mitigation Measures TERR-6 through TERR-10, the San Luis Reservoir Expansion Alternative's incremental contribution to significant cumulative effects on migratory birds would not be cumulatively considerable.**

Construction activities could destroy or adversely affect special-status plant species. Construction activities for the San Luis Reservoir Expansion Alternative could result in impacts on special-status plants at the San Luis Reservoir. Alternatives described in the *San Luis Reservoir SRA RMP/GP*, the California High Speed Rail Project, the San Luis Transmission Project, and the San Luis Solar Project could also have impacts on special-status plants at the San Luis Reservoir, and could occur at the same time as the San Luis Reservoir Expansion Alternative. **Together, these projects and the San Luis Reservoir Expansion Alternative could result in significant cumulative effects on special-status plants at the San Luis Reservoir.**

However, the San Luis Reservoir Expansion Alternative would implement Mitigation Measure TERR-1, which outlines requirements for special habitat and species surveys, avoidance requirements, and compensatory mitigation requirements to address unavoidable impacts to habitats. This mitigation would reduce impacts to previously unidentified special status plant species to a less-than-significant level. **Therefore, with implementation of Mitigation Measure TERR-1, the San Luis Reservoir Expansion Alternative's incremental contribution to significant cumulative effects on special-status plants would not be cumulatively considerable.**

Construction activities could result in conflicts with local policies or ordinances protecting biological resources. The Merced County General Plan includes objectives and policies to preserve and protect biologic resources in the County. These include provisions to preserve existing and increase the overall acreage of protected lands in the County, and the designation of buffers around and protection of wetlands. Alternatives described in the *San Luis Reservoir SRA RMP/GP*, the California High Speed Rail Project, the San Luis Transmission Project, and the San Luis Solar Project could also have impacts on provisions of the Merced General Plan, and could occur at the same time as the San Luis Reservoir Expansion Alternative. **Together these projects and the San Luis Reservoir Expansion Alternative could generate significant impacts on terrestrial wildlife and vegetation.** Mitigation Measures TERR-1 through 18 are required to reduce these potential impacts to terrestrial wildlife and vegetation including wetlands during construction near the San Luis Reservoir shoreline to a less than significant level. **Therefore, with implementation of Mitigation Measures TERR-1 through 18 the San Luis Reservoir Expansion Alternative's incremental contribution to significant cumulative effects on local policies or ordinances protecting biological resources would not be cumulatively considerable.**

S.3.13.4 Alternative 5 - Pacheco Reservoir Expansion Alternative

Construction activities could destroy or adversely affect sensitive habitats including wetland and riparian vegetation communities. Construction activities for the Pacheco Reservoir Expansion Alternative could result in impacts on wetland and riparian vegetation communities at the Pacheco Reservoir.

Alternatives described in the California High Speed Rail Project could also have impacts on wetland and riparian vegetation communities at the expanded Pacheco Reservoir, and could occur at the same time as the Pacheco Reservoir Expansion construction. **Together, these projects and the Pacheco Reservoir Expansion Alternative could result in significant cumulative effects associated with loss or adverse modification of wetland and riparian habitats.**

However, the Pacheco Reservoir Expansion Alternative would implement Mitigation Measure TERR-16 which requires the avoidance of wetlands whenever practicable, the use of fencing used to delineate waters of the U.S. and waters of the State within and adjacent to construction areas that cannot be directly filled, and to identify these areas as sensitive habitat prior to the start of construction to prevent unintended trampling of wetland vegetation by construction personnel and equipment. Mitigation Measure TERR-16 further requires that areas disturbed by construction be replanted with native plants to minimize erosion and compensatory mitigation for any areas lost as a result of construction. This mitigation would reduce impacts to previously unidentified sensitive habitats to a less-than-significant level. **With implementation of Mitigation Measure TERR-16, the expanded Pacheco Reservoir construction's incremental contribution to significant cumulative effects on wetland and riparian habitats would not be cumulatively considerable.**

Construction activities could kill, harm, or disturb terrestrial wildlife, including special-status species, or their habitats. Construction activities for the Pacheco Reservoir Expansion Alternative could result in impacts on special-status wildlife or their habitat at the Pacheco Reservoir. Alternatives described in the California High Speed Rail Project could also have impacts on special-status wildlife or habitat at the Pacheco Reservoir, and could occur at the same time as the Pacheco Reservoir Expansion Alternative. **Together, these projects and the Pacheco Reservoir Expansion Alternative could result in significant cumulative effects on special-status wildlife with potential to occur at the Pacheco Reservoir.**

However, the expanded Pacheco Reservoir would implement Mitigation Measures TERR-1 through TERR-5 and TERR-11 through TERR-14 to complete special habitat and species surveys, implement avoidance requirements, and require species specific compensatory mitigation requirements to address unavoidable impacts to habitats. This mitigation would reduce impacts to previously unidentified special status wildlife to a less-than-significant level. **With implementation of Mitigation Measures TERR-1 through TERR-5 and TERR-11 through TERR-14, the Pacheco Reservoir Expansion Alternative's incremental contribution to significant cumulative effects on special-status wildlife would not be cumulatively considerable.**

Construction activities could disturb nesting migratory birds, including raptors. Construction activities for the Pacheco Reservoir Expansion Alternative could result in impacts on migratory birds if construction occurs during nesting season and/or results in destruction of nesting habitat for migratory birds. Alternatives described in the California High Speed Rail Project could also have impacts on migratory birds or habitat at the Pacheco Reservoir, and could occur at the same time as the expanded Pacheco Reservoir construction. **Together, these projects and the Pacheco Reservoir Expansion Alternative could result in significant cumulative effects on migratory birds at Pacheco Reservoir.**

However, the Pacheco Reservoir Expansion Alternative would implement Mitigation Measures TERR-6 through TERR-10 to avoid or reduce effects to migratory birds. **Therefore, with implementation of Mitigation Measures TERR-6 through TERR-10, the Pacheco Reservoir Expansion Alternative's incremental contribution to significant cumulative effects on migratory birds would not be cumulatively considerable.**

Construction activities could destroy or adversely affect special-status plant species. Construction activities for the Pacheco Reservoir Expansion Alternative could result in impacts on special-status plants at the Pacheco Reservoir. Alternatives described in the California High Speed Rail Project could also have impacts on special-status plants at the Pacheco Reservoir, and could occur at the same time as the Pacheco Reservoir Expansion Alternative. **Together, these projects and the Pacheco Reservoir Expansion Alternative could result in significant cumulative effects on special-status plants at the Pacheco Reservoir.**

However, the Pacheco Reservoir Expansion Alternative would implement Mitigation Measure TERR-1, which outlines requirements for special habitat and species surveys, avoidance requirements, and compensatory mitigation requirements to address unavoidable impacts to habitats. This mitigation would reduce impacts to previously unidentified special status plant species to a less-than-significant level. **Therefore, with implementation of Mitigation Measure TERR-1, the Pacheco Reservoir Expansion Alternative's incremental contribution to significant cumulative effects on special-status plants would not be cumulatively considerable.**

Construction activities could result in conflicts with local policies or ordinances protecting biological resources. The Santa Clara County General Plan includes objectives and policies to preserve and protect biologic resources in the County. These include provisions to preserve existing and increase the overall acreage of protected lands in the County, and the designation of buffers around and protection of wetlands. Alternatives described in the California High Speed Rail Project could also have impacts on provisions of the Santa Clara County General Plan, and could occur at the same time as the Pacheco Reservoir Expansion Alternative. **Together these projects and the Pacheco Reservoir Expansion Alternative could generate significant impacts on terrestrial**

wildlife and vegetation. Mitigation Measures TERR-1 through 18 are required to reduce these potential impacts to terrestrial wildlife and vegetation including wetlands during construction near the Pacheco Reservoir to a less than significant level. **Therefore, with implementation of Mitigation Measures TERR-1 through 18 the Pacheco Reservoir Expansion Alternative's incremental contribution to significant cumulative effects on local policies or ordinances protecting biological resources would not be cumulatively considerable.**

S.3.14 Regional Economics

S.3.14.1 Alternative 2 - Lower San Felipe Intake Alternative

The Lower San Felipe Intake Alternative, in combination with the Bay-Delta Conservation Plan and CVP M&I Water Shortage Policy, could have cumulative effects on SCVWD water supply. The Bay-Delta Conservation Plan and the Los Vaqueros Reservoir Expansion Project would increase water exports to south-of-Delta contractors. This would increase water supply reliability for SCVWD and reduce economic effects associated with potential water shortages. The CVP M&I Water Shortage Policy would increase CVP water supplies to SCVWD during drought to avoid adverse public health and safety impacts. This would also avoid economic losses avoided with water shortages. The Water Shortage Policy could reduce some deliveries to agricultural users in SCVWD during drought years. The Lower San Felipe Intake Alternative would increase SCVWD water supply reliability during low-point years and allow SCVWD to avoid economic effects of water shortages. Cumulatively, the projects would have a beneficial economic effect for SCVWD.

The Lower San Felipe Intake Alternative, in combination with the B.F. Sisk Dam SOD Modification Project and the California High Speed Rail Project, could have regional economic effects. The B.F. Sisk Dam SOD Modification Project would occur at San Luis Reservoir and a portion of the California High Speed Rail Project track alignment traverses Pacheco Pass adjacent to SR 152 and San Luis Reservoir. Construction expenditures for the project would result in economic output, labor income, and employment in Santa Clara and Merced counties as construction workers spend money in the counties and some construction materials may be purchased. This would be a positive economic effect. Similarly, construction expenditures for the Lower San Felipe Intake Alternative would also result in increased economic output, labor income, and jobs in Merced and Santa Clara counties. These would be positive cumulative economic effect.

Construction traffic for the B.F. Sisk Dam SOD Modification Project and the California High Speed Rail Project could deter some visitors to the reservoir, which would decrease visitor spending in Merced County. This would be an adverse cumulative economic effect. Construction activities under the San Luis

Transmission Project would also cause temporary closures of the San Luis Reservoir State Recreational Area. The Lower San Felipe Intake Alternative would also decrease visitor spending by closing the Basalt and Dinosaur Point use areas for construction activities. This reduction in visitor spending would contribute to adverse regional economic effects under the cumulative condition.

Projected population and employment growth in Santa Clara County, combined with the Lower San Felipe Intake Alternative, could result in both short-term and long-term regional economic effects. The population in Santa Clara County is projected to increase from 1.82 million in 2010 to 2.43 million in 2035. Jobs are projected to increase from 906,270 in 2010 to 1.4 million in 2035. Increases in population and jobs would increase economic activity in the county as more housing would be developed and commercial development would likely increase. Industries with the largest projected job growth, in number of jobs, include health, educational, and recreational services; financial and professional services, and manufacturing, wholesale, and transportation. Population and job growth would be a beneficial economic effect in the county.

There would be a short-term cumulative effect associated with economic growth and the construction of the Lower San Felipe Intake Alternative. A portion of the regional economic effects associated with construction expenditures for the Lower San Felipe Intake Alternative would occur in Santa Clara County, which would increase sales, labor income and employment. These effects, combined with the economic development associated with population and job growth, would be a cumulative benefit to the Santa Clara County economy. The economic effects of the Lower San Felipe Intake Alternative would be temporary and occur only during the construction period. Construction of Lower San Felipe Intake Alternative would have a positive, but temporary, cumulative economic effect. O&M expenditures would be long-term, but have relatively minor beneficial regional economic effects.

There would be a long-term cumulative effect associated with job and population growth and the water supply provided by the Lower San Felipe Intake Alternative. The Lower San Felipe Intake Alternative would provide a more reliable water supply to support population and job growth in Santa Clara County. This would be a positive, long-term cumulative effect.

Projected population and employment growth in Merced County, combined with the Lower San Felipe Intake Alternative, could result in regional economic effects. The population in Merced County is projected to increase from 273,935 in 2010 to 348,690 in 2020, a 2.4 percent increase in population. Jobs are project to increase by approximately 42,000 from 2010 to 2030. Increases in population and jobs would increase economic activity in the county as more housing would be developed and commercial development would likely increase. These would be beneficial economic effects in the county. A portion of the regional economic effects associated with construction expenditures for the Lower San Felipe Intake Alternative would occur in Merced County. There

would also be jobs generated in Merced County. These effects would also benefit the Merced County economy. The economic effects of the Lower San Felipe Intake Alternative would be temporary, during the construction period. Construction of Lower San Felipe Intake Alternative would have a positive, but temporary, cumulative economic effect. O&M expenditures would be long-term, but have relatively minor beneficial regional cumulative economic effects.

The San Felipe Intake Alternative, combined with the B.F. Sisk Dam SOD Modification Project, the San Luis Reservoir SRA RMP/GP, San Luis Transmission Project, and San Luis Solar Project, could affect recreational expenditures at the San Luis Reservoir SRA and, in turn, affect the Merced County regional economy. One purpose of the San Luis Reservoir SRA RMP/GP is to improve recreational facilities and opportunities to accommodate increased visitor use. The plan outlines alternatives that improve access and develop. One specific development proposed includes new trails connecting to both the Basalt and Dinosaur Point use areas. Improved facilities would attract more visitors to the San Luis Reservoir SRA. Increased number of visitors at the San Luis Reservoir SRA would result in additional spending in Merced County, which would have positive regional economic effects. Construction of the Lower San Felipe Intake Alternative would close the Basalt and Dinosaur Point recreation areas for up to 47 months, which would be in conflict with the objectives of the San Luis Reservoir SRA RMP/GP. It would decrease visitors to Merced County and adversely affect the regional economy. This would be an adverse cumulative economic effect of the Lower San Felipe Intake Alternative.

The Lower San Felipe Intake Alternative, the B.F. Sisk Dam SOD Modification Project, the San Luis Transmission Project, and the San Luis Solar Project, would all result in closures of recreational facilities during construction. This would reduce the amount of visitors to San Luis Reservoir and reduce spending in Merced County. This would be an adverse cumulative effect to the regional economy of Merced County. The Lower San Felipe Intake Alternative would have the largest impacts to recreational opportunities in the future and would contribute substantially to cumulative economic impacts related to reduced recreational spending in Merced County.

S.3.14.2 Alternative 3 - Treatment Alternative

The Treatment Alternative, in combination with the Bay-Delta Conservation Plan and CVP M&I Water Shortage Policy, could have cumulative effects on SCVWD water supply. The Treatment Alternative would have similar cumulative economic effects to SCVWD water supply as described for the Lower San Felipe Intake Alternative. The Treatment Alternative would increase SCVWD water supply reliability during low-point years and allow SCVWD to avoid economic effects of water shortages. Cumulatively, the projects would have a beneficial economic effect for SCVWD.

The Treatment Alternative, in combination with the California High Speed Rail Project, could have regional economic effects. Construction of the portion of the High Speed Rail Project that goes through Santa Clara County would temporarily increase jobs, labor income, and employment in the county. The project also has a proposed train stop in San Jose, which would bring additional visitors to the county and boost economic activity. This would be a beneficial cumulative economic effect. Construction of the Treatment Alternative would similarly increase economic output, jobs, and labor income in Santa Clara County during the construction period. The Treatment Alternative, combined with the California High Speed Rail Project, would have beneficial cumulative effects on the regional economy.

Projected population and employment growth in Santa Clara County, combined with the Treatment Alternative, could result in regional economic effects. Cumulative effects of population and job growth in Santa Clara County are described under the Lower San Felipe Intake Alternative. The Treatment Alternative would have similar cumulative economic effects related to projected population and job growth as the Lower San Felipe Intake Alternative. Construction expenditures associated with the Treatment Alternative would increase economic output, jobs, and labor income in Santa Clara County during the construction period. These would be beneficial cumulative effects to the county's economy. O&M expenditures would have long-term, beneficial cumulative effects, but they would be relatively minor. The Treatment Alternative would provide a water supply to support population and job growth in Santa Clara County. This would be a positive, long-term cumulative effect.

S.3.14.3 Alternative 4 - San Luis Reservoir Expansion Alternative

The San Luis Reservoir Expansion Alternative, in combination with the Bay-Delta Conservation Plan and CVP M&I Water Shortage Policy, could have cumulative effects on CVP M&I, including SCVWD, water supply. The San Luis Reservoir Expansion Alternative would have similar cumulative economic effects to water supplies to CVP contractors in the Bay Area Region, including SCVWD water supply, as described for the Lower San Felipe Intake Alternative. The San Luis Reservoir Expansion Alternative would increase CVP, including SCVWD water supply reliability during low-point years, and allow CVP M&I contractors to avoid some economic effects of water shortages. Cumulatively, the projects would have a beneficial economic effect for CVP M&I contractors in the Bay Area Region, including SCVWD.

The San Luis Reservoir Expansion Alternative, in combination with the Bay-Delta Conservation Plan, could have cumulative effects on SWP water supply. The San Luis Reservoir Expansion Alternative and the Bay-Delta Conservation Plan would increase water supplies to SWP contractors in the Bay Area and Southern California, which would provide economic benefits by reducing frequency and severity of water shortages. Cumulatively, the projects would have a beneficial economic effect for SWP M&I contractors.

The San Luis Reservoir Expansion Alternative, in combination with the Bay-Delta Conservation Plan and CVP M&I Water Shortage Policy, could have cumulative effects on agricultural water supplies in the San Joaquin Valley. These cumulative projects could increase water supplies for agricultural water contractors in the San Joaquin Valley. With increased and more reliable water supplies, growers could increase crop acreage planted or switch to higher value crops. Crop value of production would increase output, employment, and income in the regional economy. These projects would result in cumulative benefits to the regional economy in areas where agricultural water supplies are increased. The San Luis Reservoir Expansion Alternative would contribute to increased water supplies and also provide a cumulative economic benefit to the San Joaquin Valley region.

Projected population and employment growth in Merced County, combined with the San Luis Reservoir Expansion Alternative, could result in regional economic effects. The population in Merced County is projected to increase from 273,935 in 2010 to 348,690 in 2020, a 2.4 percent increase in population. Jobs are project to increase by approximately 42,000 from 2010 to 2030. The population in Santa Clara County is projected to increase from 1.82 million in 2010 to 2.43 million in 2035. Jobs are projected to increase from 906,270 in 2010 to 1.4 million in 2035. Increases in population and jobs would increase economic activity in the counties as more housing would be developed and commercial development would likely increase. These would be beneficial economic effects in the county. A portion of the regional economic effects associated with construction expenditures for the San Luis Reservoir Expansion Alternative would occur in Merced and Santa Clara Counties. There would also be jobs generated in Merced and Santa Clara Counties. These effects would also benefit the Merced and Santa Clara County economies and would occur during the 8 to 12 year construction period. Construction of San Luis Reservoir Expansion Alternative would have a positive cumulative economic effect. O&M expenditures would be long-term, but have relatively minor beneficial regional cumulative economic effects.

The San Luis Reservoir Expansion Alternative, combined with the San Luis Reservoir SRA RMP/GP, San Luis Transmission Project, and San Luis Solar Project, could affect recreational expenditures at the San Luis Reservoir SRA and, in turn, affect the Merced County regional economy. Cumulative effects would be similar to those described for the Lower San Felipe Alternative; however, the effects would be more substantial under the San Luis Reservoir Expansion Alternative because of the 8 to 12 year construction period. The reduced visitor spending would occur for an 8 to 12 year period, which would be a substantial cumulative effect to the regional economy in Merced County.

S.3.14.4 Alternative 5 – Pacheco Reservoir Expansion Alternative

The Pacheco Reservoir Expansion Alternative, in combination with the Bay-Delta Conservation Plan and CVP M&I Water Shortage Policy, could have cumulative effects on CVP M&I, including SCVWD, water supply. The Pacheco Reservoir Expansion Alternative would have similar cumulative economic effects to water supplies to CVP contractors in the Bay Area Region, including SCVWD water supply, as described for the Lower San Felipe Intake Alternative. The Pacheco Reservoir Expansion Alternative would increase CVP, including SCVWD water supply reliability during low-point years, and allow CVP M&I contractors to avoid some economic effects of water shortages. Cumulatively, the projects would have a beneficial economic effect for CVP M&I contractors in the Bay Area Region, including SCVWD.

The Pacheco Reservoir Expansion Alternative, in combination with the Bay-Delta Conservation Plan, could have cumulative effects on SWP water supply. The Bay-Delta Conservation Plan would increase water supplies to SWP contractors in the Bay Area and Southern California. However, the Pacheco Reservoir Expansion Alternative would have no impact on water supply deliveries to SWP contractors and would therefore have no cumulative impact on SWP M&I contractors.

The Pacheco Reservoir Expansion Alternative, in combination with the Bay-Delta Conservation Plan and CVP M&I Water Shortage Policy, could have cumulative effects on agricultural water supplies in the San Joaquin Valley. These cumulative projects could increase water supplies for agricultural water contractors in the San Joaquin Valley. With increased and more reliable water supplies, growers could increase crop acreage planted or switch to higher value crops. Crop value of production would increase output, employment, and income in the regional economy. These projects would result in cumulative benefits to the regional economy in areas where agricultural water supplies are increased. The Pacheco Reservoir Expansion Alternative would contribute to increased water supplies and also provide a cumulative economic benefit to the San Joaquin Valley region.

The Pacheco Reservoir Expansion Alternative, in combination with the B.F. Sisk Dam SOD Modification Project and the California High Speed Rail Project, could have regional economic effects. The B.F. Sisk Dam SOD Modification Project would be constructed at San Luis Reservoir and a portion of the California High Speed Rail Project track alignment traverses Pacheco Pass adjacent to SR 152 and San Luis Reservoir. Construction expenditures for the project would result in economic output, labor income, and employment in Santa Clara and Merced counties as construction workers spend money in the counties and some construction materials may be purchased. This would be a positive economic effect. Similarly, construction expenditures for the Pacheco Reservoir Expansion Alternative would also result in increased economic output, labor income, and jobs in Merced and Santa Clara counties. These would be positive cumulative economic effect.

Projected population and employment growth in Merced County, combined with the Pacheco Reservoir Expansion Alternative, could result in regional economic effects. The population in Merced County is projected to increase from 273,935 in 2010 to 348,690 in 2020, a 2.4 percent increase in population. Jobs are project to increase by approximately 42,000 from 2010 to 2030. The population in Santa Clara County is projected to increase from 1.82 million in 2010 to 2.43 million in 2035. Jobs are projected to increase from 906,270 in 2010 to 1.4 million in 2035. Increases in population and jobs would increase economic activity in the counties as more housing would be developed and commercial development would likely increase. These would be beneficial economic effects in the county. A portion of the regional economic effects associated with construction expenditures for the Pacheco Reservoir Expansion Alternative would occur in Merced and Santa Clara Counties. There would also be jobs generated in Merced and Santa Clara Counties. These effects would also benefit the Merced and Santa Clara County economies and would occur during the 5 year construction period. Construction of the Pacheco Reservoir Expansion Alternative would have a positive cumulative economic effect. O&M expenditures would be long-term, but have relatively minor beneficial regional cumulative economic effects.

S.3.15 Land Use and Agricultural Resources

S.3.15.1 Alternatives 2 and 3 - Lower San Felipe Intake Alternative and Treatment Alternative

Neither the Lower San Felipe Intake Alternative or the Treatment Alternative would have short-term or long-term impacts on land use or agricultural resources in the area of analysis.

Of the cumulative projects considered for all resources, construction and operations of the proposed alternatives for the *Bay-Delta Conservation Plan*, the B.F. Sisk Dam SOD Modification Project, California High Speed Rail Project, CVP M&I Water Shortage Policy, San Joaquin River Restoration Program, the San Luis Solar Project, and the San Luis Transmission Project could result in short-term and long-term changes in land use and agricultural resources. For example, potential land acquisitions could change land use designations or convert important farmland to nonagricultural land. The land use and agricultural resource effects of these projects would be analyzed in appropriate environmental impact documents and significant impacts would be mitigated where necessary.

Future growth and development in counties and cities in the area of analysis would undergo environmental review with mitigation for significant impacts, as required. Neither the Lower San Felipe Intake Alternative or the Treatment Alternative would result in cumulative effects relative to projects identified in the region or future potential growth and development in counties in the area of analysis. **Since there would be no impacts to land use and agricultural**

resources as a result of the Lower San Felipe Intake Alternative or the Treatment Alternative, there would be no contribution to cumulative effects.

S.3.15.2 Alternative 4 - San Luis Reservoir Expansion Alternative

Construction of the San Luis Reservoir Expansion Alternative would generate no short-term or long-term impacts on land use or agricultural resources in the area of analysis. Operation of the alternative would however generate small changes in CVP and SWP water deliveries to south-of-Delta contractors. These changes would include increases in deliveries to the CVP contractors and improved reliability in SWP Table A water supplies in dry and critically dry water years at the expense of reduced Article 21 supplies in wet water years. In addition, operation of the San Luis Reservoir Expansion Alternative would also inundate 394 additional acres of land at the San Luis Reservoir shoreline in years that the expanded reservoir would fill to capacity.

Of the cumulative projects considered for all resources, construction and operations of the proposed alternatives for the *Bay-Delta Conservation Plan*, California High Speed Rail Project, CVP M&I Water Shortage Policy, San Joaquin River Restoration Program, the San Luis Solar Project, and the San Luis Transmission Project could result in short-term and long-term changes in land use and agricultural resources. For example, potential land acquisitions could change land use designations or convert important farmland to nonagricultural land. The land use and agricultural resource effects of these projects would be analyzed in appropriate environmental impact documents and significant impacts would be mitigated where necessary.

Future growth and development in counties and cities in the area of analysis would undergo environmental review with mitigation for significant impacts, as required which would lessen but may not fully address these impacts. Operation of the San Luis Reservoir Expansion Alternative would result in no permanent land use conversion as a result of increased reservoir inundation area or as a result in changes in water supply deliveries. **Therefore, the San Luis Reservoir Expansion Alternative's incremental contribution to any significant cumulative impact on land use in the area of analysis would not be cumulatively considerable.**

S.3.15.3 Alternative 5 – Pacheco Reservoir Expansion Alternative

Construction of the Pacheco Reservoir Expansion Alternative would generate no short-term and little long-term impacts on land use or agricultural resources in the area of analysis. The alternative would affect (inundate) approximately 1,245 acres of Ranchlands near the existing reservoir that are currently used for grazing. There would be no impacts to important farmland. Operation of the alternative would however generate small changes in CVP and/or SWP water deliveries to water users in the SCVWD service area. These changes could

include increases in deliveries and improved reliability to water users in wet water years.

Of the cumulative projects considered for all resources, construction and operations of the proposed alternatives for the *Bay-Delta Conservation Plan*, the B.F. Sisk Dam SOD Modification Project, California High Speed Rail Project, CVP M&I Water Shortage Policy, San Joaquin River Restoration Program, the San Luis Solar Project, and the San Luis Transmission Project could result in short-term and long-term changes in land use and agricultural resources. For example, potential land acquisitions could change land use designations or convert important farmland to nonagricultural land. The land use and agricultural resource effects of these projects would be analyzed in appropriate environmental impact documents and significant impacts would be mitigated where necessary.

Future growth and development in counties and cities in the area of analysis would undergo environmental review with mitigation for significant impacts, as required which would lessen but may not fully address these impacts.

Therefore, the Pacheco Reservoir Expansion Alternative's incremental contribution to any significant cumulative impact on land use in the area of analysis would not be cumulatively considerable.

Operation of the Pacheco Reservoir Expansion Alternative would inundate grazing lands currently covered by Williamson Act contracts. The inundation of this land would conflict with these Williamson Act contracts and would be **cumulatively considerable pre-mitigation**, although the impact would be reduced through Mitigation Measure LU-1 and **therefore would not be cumulatively considerable post-mitigation**.

S.3.16 Recreation

S.3.16.1 Alternative 2 - Lower San Felipe Intake Alternative

The *San Luis Reservoir SRA RMP/GP* has been identified as a cumulative plan and the San Luis Transmission Project has been identified as a cumulative project that could contribute to recreation effects during construction of the Lower San Felipe Intake. The proposed recreation facility expansions in the *San Luis Reservoir SRA RMP/GP* at the five use areas described in the Park Plan are presented below in Table S-8. The construction and operational effects of the San Luis Transmission Project is also described below. Together with the proposed project construction under the Lower San Felipe Intake Alternative, proposed improvements at San Luis Reservoir SRA and development of the San Luis Transmission Project could result in significant cumulative effects associated with recreation resources. No other cumulative projects or plans were identified that could contribute to recreation effects during construction of the Lower San Felipe Intake.

The *San Luis Reservoir SRA RMP/GP* includes a Park Plan, which outlines various alternatives for future park expansion. Funding for such improvements is not secured, thus a project construction timeline is not available. It is typical for park expansion projects to be phased; however, associated construction actions could take place prior to or concurrently with SLLPIP construction actions.

The B.F. Sisk Dam SOD Modification Project would complete modify the dam with a crest raise and embankment expansion. The project would generate construction related impacts to recreation at San Luis Reservoir with closure of the Basalt Use Area and the Medeiros Use Area throughout the 8-12 year construction schedule

The San Luis Transmission Project would construct new transmission lines near San Luis Reservoir to connect the San Luis Substation to a new transmission line that would be developed between the Tracy Substation and the Dos Amigos Substation. This new transmission line between Tracy and Dos Amigos would cross O'Neill Forebay and pass adjacent to the Medeiros Use Area. The San Luis Substation connection and the new transmission line segment near the Medeiros Use Area would generate short term, construction related impacts on recreation with the potential development of transmission line supports in the San Luis Reservoir SRA, which could require temporary closures during construction and could potentially, depending on placement, displace existing and planned camping sites.

The Park Plan proposes various trail improvements throughout the SRA, which could result in the temporary closure of additional trails during construction of the Lower San Felipe Intake Alternative. The Park Plan proposes new trails connecting to both the Basalt and Dinosaur Point use areas, which could result in reduced recreational trail use during construction of the Lower San Felipe Intake Alternative. A multi-modal trail system is proposed to connect both use areas to the Pacheco State Park (SP). The Dinosaur Point Use Area trail would also connect to the San Luis Wildlife Area (Reclamation and CDPR 2013). An additional trail is proposed to connect the Basalt and Los Banos Creek use areas.

If trail development is completed prior to construction of the Lower San Felipe Intake Alternative, recreational use of the new trails would be restricted during the construction period, due to the closure of both the Basalt and Dinosaur Point use areas. Users of the new trails during construction of the Lower San Felipe Intake Alternative would be unable to connect with San Luis Reservoir, which could cause a short-term (i.e., 33 to 47 months) reduction of recreational trail use. Closure of the new trails at the Basalt and Dinosaur Point use areas would cause a short-term reduction of recreational trail use at these sites. Together with the proposed project construction under the Lower San Felipe Intake Alternative, proposed improvements at San Luis Reservoir SRA could result in significant cumulative effects related to the short-term closure of trails.

Although trails at the Basalt Use Area would be temporarily affected, other hiking opportunities within the San Luis Reservoir SRA would still be available for use during project construction. These would include formally designated and primitive trails at both Los Banos Creek and San Luis Creek use areas, and within the designated wildlife use areas. In addition, Pacheco State Park, just west of the San Luis Reservoir SRA, offers several public hiking opportunities. **Therefore, the Lower San Felipe Intake Alternative's incremental contribution to any significant cumulative impact on recreation in the area of analysis would not be cumulatively considerable.**

The Park Plan proposes various park improvements at all five of the use areas within the SRA, which could result in the temporary closure of multiple recreation facilities during construction of the Lower San Felipe Intake Alternative. The San Luis Transmission Project proposes the development of transmission line support structures that could remove existing campsites at the Medeiros Use Area prior to construction of the Lower San Felipe Intake Alternative. If recreation facility expansions within the SRA identified in Table S-8 are completed during construction of the Lower San Felipe Intake Alternative, additional recreation facilities in the SRA could be temporarily closed to the public during the construction period. In addition, if recreation facilities in the Medeiros Use Area are made inaccessible by the B.F. Sisk Dam SOD Modification Project or removed by the San Luis Transmission Project prior to construction of the Lower San Felipe Intake Alternative, fewer facilities would be available to offset visitors unable to use the Basalt and Dinosaur Point use areas. This would be a significant cumulative impact. **The incremental contribution of the Lower San Felipe Intake Alternative to this significant cumulative effect on recreation opportunities in the area of analysis due to the temporary closure of recreation facilities would be cumulatively considerable if recreation facility expansions outlined in the Park Plan are completed at the same time.** Implementation of Mitigation Measure REC-1 would develop new campsites, a fish cleaning station, public storage lockers, and shower facilities and expand the boat launch to further reduce the impacts of the closure of the Basalt and Dinosaur Point use areas. **Thus, with implementation of Mitigation Measure REC-1, the Lower San Felipe Intake Alternative's incremental contribution to significant cumulative impacts on recreation would not be cumulatively considerable.**

Table S-8. Proposed Improvements at San Luis Reservoir SRA

Use Area	Camping			Boating/Water Sports	Day Use	Fishing	Picnicking	Trails	Other
	# of Sites	Group	RV						
Basalt	10	1	30					X	Reconfiguration of existing campsites to allow larger RV access and add full hookups. Upgraded campfire center or development of a new amphitheater.
Dinosaur Point	30			X	X			X	Potential new access road at Honker Bay off SR 152. Development of a new marina to relieve demand at San Luis Creek Use Area.
Los Banos Creek	40	1							Development of a motel and restaurant, along with concessions. New trail connecting to the Basalt Use Area.
Medeiros	250			X					Development of an additional 100 primitive and 100 tent camp sites, along with associated parking.
San Luis Creek	30	2		X		X	X		Additional concessions, interpretive programs, and group event shelter are proposed. An ADA accessible fishing pier. A new amphitheater in the northern beach area.
Total	360	4	30						

Source: Reclamation and CDPR 2013.

The Park Plan proposes various park improvements at all five of the use areas within the SRA, which could displace visitors and substantially contribute to overcrowded conditions at other local and regional recreation sites during construction of the Lower San Felipe Intake Alternative. As identified in Table S-8, the Park Plan proposes various park expansions that would require construction at all five of the use areas within the SRA.

If the planned recreation facility expansions described in the Park Plan are completed during construction of the Lower San Felipe Intake Alternative, additional recreation facilities in the SRA, besides the Basalt and Dinosaur Point use areas closed by the alternative, could be temporarily closed. Simultaneous closures at additional use areas could further displace visitors to other already overcrowded areas within the San Luis Reservoir SRA.

Pacheco SP and Henry Coe SP, both located near the San Luis Reservoir SRA, could experience an increase in visitation. Both SPs could supplement some of the hiking and camping opportunities lost by the closure of the Basalt Use Area. Neither Pacheco nor Henry Coe State Park currently report user capacity issues, and displaced San Luis Reservoir users would not be expected to overcrowd the two SPs. At 87,000 acres and the largest state park in northern California, Henry Coe SP accommodates over 40,000 visitors each year. Henry Coe SP offers

opportunities for hiking, fishing, and camping. Approximately 2,000 people visit Pacheco SP each year. Pacheco SP offers opportunities for hiking and camping. In addition, San Luis National Wildlife Refuge in Merced County is approximately 22 miles from San Luis Reservoir and offers fishing, hunting, nature trails, and wildlife viewing. Water based recreation, camping, hiking, and other activities are offered at Coyote Lake Harvey Bear Ranch County Park and Anderson Lake County Park in Santa Clara County, approximately 35 miles from San Luis Reservoir.

Given the implementation of Mitigation Measure REC-1 at the San Luis Creek and Los Banos Creek use areas to offset lost capacity at the Basalt and Medeiros use areas, it is assumed that only a portion of the 55,000 day-use and 6,500 overnight visitors offset at San Luis Reservoir would shift to the other regional recreation area. As a result, the current capacities at these regional recreation areas would not be exceeded. In addition, with a number of similar alternative recreational opportunities nearby, no one recreational area would be expected to experience substantial increase in use such that deterioration of its facilities would occur or be accelerated. **Therefore, Lower San Felipe Intake Alternative's incremental contribution to significant cumulative impacts on recreation in the area of analysis would not be cumulatively considerable.**

S.3.16.2 Alternative 3 - Treatment Alternative

The Treatment Alternative proposes treatment technology and facility upgrades, requiring construction at SCVWD's Santa Teresa WTP. No recreation facilities would be affected or are within proximity to the proposed project construction. Therefore, no cumulative activities or projects have been identified that, in combination with project construction, would affect recreation resources. The Treatment Alternative would have no cumulative effects on recreation.

S.3.16.3 Alternative 4 - San Luis Reservoir Expansion Alternative

The *San Luis Reservoir SRA RMP/GP* has been identified as a cumulative plan and the San Luis Transmission Project and San Luis Solar Project have been identified as a cumulative projects that could contribute to recreation effects during construction of the San Luis Reservoir Expansion Alternative. Together with the proposed project construction under the San Luis Reservoir Expansion Alternative, proposed improvements at San Luis Reservoir SRA and development of the San Luis Transmission Project and San Luis Solar Project could result in significant cumulative effects associated with recreation resources. No other cumulative projects or plans were identified that could contribute to recreation effects during construction of the San Luis Reservoir Expansion Alternative.

The San Luis Solar Project would develop a new 108-acre solar facility at the western corner of the Medeiros Use Area that would permanently convert land

that is currently used informally for recreation and is adjacent to approximately 18 established campsites.

The Park Plan proposes various trail improvements throughout the SRA, which could result in the temporary closure of additional trails during construction of the San Luis Reservoir Expansion Alternative. The Park Plan proposes new trails connecting to the use areas, which could result in reduced recreational trail use during construction of the San Luis Reservoir Expansion Alternative. A multi-modal trail system is proposed to connect both use areas to the Pacheco SP. The Dinosaur Point Use Area trail would also connect to the San Luis Wildlife Area (Reclamation and CDPR 2013). An additional trail is proposed to connect the Basalt and Los Banos Creek Trail use areas.

If trail development is completed prior to construction of the San Luis Reservoir Expansion Alternative, recreational use of the new trails would be restricted during the construction period, due to the closure of the Basalt, Medeiros, and Dinosaur Point use areas. Users of the new trails during construction of the San Luis Reservoir Expansion Alternative would be unable to connect with San Luis Reservoir, which could cause a reduction of recreational trail use. Together with the proposed project construction under the San Luis Reservoir Expansion Alternative, proposed improvements at San Luis Reservoir SRA could result in significant cumulative effects related to the short-term closure of trails.

Although trails at the Basalt Use Area would be temporarily affected, other hiking opportunities within the San Luis Reservoir SRA would still be available for use during project construction. These would include formally designated and primitive trails at both Los Banos Creek and San Luis Creek use areas, and within the designated wildlife use areas. In addition, Pacheco State Park, just west of the San Luis Reservoir SRA, offers several public hiking opportunities. **Therefore, the San Luis Reservoir Expansion Alternative's incremental contribution to any significant cumulative impact on recreation in the area of analysis would not be cumulatively considerable.**

The Park Plan proposes various park improvements at all five of the use areas within the SRA, which could result in the temporary closure of multiple recreation facilities during construction of the San Luis Reservoir Expansion Alternative. The San Luis Transmission Project proposes the development of transmission line support structures that could displace existing campsites at the Medeiros Use Area and the San Luis Solar Project proposes the permanent conversion of approximately 108 acres of land currently used for informal recreation in the Medeiros Use Area prior to construction of the San Luis Reservoir Expansion Alternative. If recreation facility expansions within the SRA identified in Table S-8 are completed during construction of the San Luis Reservoir Expansion Alternative, additional recreation facilities in the SRA could be temporarily closed to the public during the construction period. In addition, if recreation facilities in the Medeiros Use Area are removed by the San Luis Transmission Project and the San Luis Solar Project prior to

construction of the San Luis Reservoir expansion, fewer facilities would be available to offset visitors unable to use the Basalt and Dinosaur Point use areas. **This would be a significant cumulative impact.** Implementation of Mitigation Measure REC-1 would develop new campsites, a fish cleaning station, public storage lockers, and shower facilities and expand the boat launch to further reduce the impacts of the closure of the Basalt and Dinosaur Point use areas. **Therefore, San Luis Reservoir Expansion Alternative's incremental contribution to significant cumulative impacts on recreation in the area of analysis would not be cumulatively considerable.**

The Park Plan proposes various park improvements at all five of the use areas within the SRA, which could displace visitors and substantially contribute to overcrowded conditions at other local and regional recreation sites during construction of the San Luis Reservoir Expansion Alternative. As identified in Table S-8, the Park Plan proposes various park expansions that would require construction at all five of the use areas within the SRA.

If the planned recreation facility expansions described in the Park Plan are completed during construction of the San Luis Reservoir Expansion Alternative, additional recreation facilities in the SRA could be temporarily closed. Simultaneous closures at multiple use areas could displace visitors to other areas within the San Luis Reservoir SRA or at other local and regional recreation sites. This would be a significant cumulative impact because the displacement could contribute to overcrowding at these other recreation sites.

Pacheco SP and Henry Coe SP, both located near the San Luis Reservoir SRA, could experience an increase in visitation. Both SPs could supplement some of the hiking and camping opportunities lost by the closure of both the Basalt and Medeiros use areas. Neither Pacheco nor Henry Coe State Park currently report user capacity issues, and displaced San Luis Reservoir users would not be expected to overcrowd the two SPs. At 87,000 acres and the largest state park in northern California, Henry Coe SP accommodates over 40,000 visitors each year. Henry Coe SP offers opportunities for hiking, fishing, and camping. Approximately 2,000 people visit Pacheco SP each year. Pacheco SP offers opportunities for hiking and camping. In addition, San Luis National Wildlife Refuge in Merced County is approximately 22 miles from San Luis Reservoir and offers fishing, hunting, nature trails, and wildlife viewing. Water based recreation, camping, hiking, and other activities are offered at Coyote Lake Harvey Bear Ranch County Park and Anderson Lake County Park in Santa Clara County, approximately 35 miles from San Luis Reservoir.

Given the implementation of Mitigation Measure REC-1 at the San Luis Creek, Dinosaur Point, and Los Banos Creek use areas to offset lost capacity at the Basalt and Medeiros use areas, it is assumed that only a portion of the 60,000 day-use and 17,000 overnight visitors offset at San Luis Reservoir would shift to the other regional recreation area. As a result, the current capacities at these regional recreation areas would not be exceeded. In addition, with a number of

similar alternative recreational opportunities nearby, no one recreational area would be expected to experience substantial increase in use such that deterioration of its facilities would occur or be accelerated. **Therefore, San Luis Reservoir Expansion Alternative's incremental contribution to significant cumulative impacts on recreation in the area of analysis would not be cumulatively considerable.**

The Park Plan proposes various park improvements at all five of the use areas within the SRA, which could contribute to recreation access during operation of the San Luis Reservoir Expansion Alternative. As identified in Table S-8, the Park Plan proposes various park expansions that would require construction at all five of the use areas within the SRA.

If the planned recreation facility expansions described in the Park Plan are completed following construction of the San Luis Reservoir Expansion Alternative, trail closures generated at the Basalt Campground Trail and the Lone Oak Trail by increased water surface elevations could occur while other use areas are closed limiting overall access to hiking trails in the San Luis SRA. These facilities are currently identified as overcrowded and the closure of one or more facility simultaneously would amplify this overcrowding at the sites that remain open. **The incremental contribution of the San Luis Reservoir Expansion Alternative to this significant cumulative effect on trail access in the area of analysis due to the temporary closure of trails when reservoir storage utilizes the new expanded capacity would be cumulatively considerable if recreation facility expansions outlined in the Park Plan are completed at the same time.** The trail rerouting actions required with implementation of mitigation measure REC-2 would avoid this potential impact. **Therefore, with the implementation of REC-2, the San Luis Reservoir Expansion Alternative's incremental contribution to this significant cumulative effect on trail access and overcrowding would not be cumulatively considerable.**

S.3.16.4 Alternative 5 - Pacheco Reservoir Expansion Alternative

The Pacheco Reservoir Expansion Alternative consists constructing a new dam at the Pacheco Reservoir, which would allow for more storage and a pump station to connect to the Pacheco Conduit. This Alternative would inundate a portion of land upstream from the dam and would increase the existing surface area. However, the project is not within proximity to any recreational facilities and would not result in any impacts to recreation. Therefore, no cumulative activities or projects have been identified that, in combination with project construction, would affect recreation resources. **The Pacheco Reservoir Expansion Alternative would have no cumulative effects on recreation.**

S.3.17 Environmental Justice

S.3.17.1 Alternative 2 - Lower San Felipe Intake Alternative

Expose a minority and or low-income population to adverse or disproportionately high effects or hazards from project construction in combination with other cumulative projects. Under the Lower San Felipe Intake Alternative, construction of a lower intake at the San Luis Reservoir has the potential to adversely and disproportionately affect minority populations within the San Luis Reservoir region including Census Tracts 20, 21, Census Tract 21/Block Group 1, 22.01, 22.02, 23.01 and 23.02 and a low-income population group in Census Tract 22.01.

The San Luis Reservoir SRA RMP/GP has been identified as a cumulative project with the potential to contribute to construction related effects to minority and/or low-income populations surrounding the reservoir. The plan includes a Park Plan, identifying construction related park improvements over a twenty five year period, starting at the time of adoption. This plan has yet to be adopted; however, if adopted prior to the completion of the lower intake construction period, it is assumed that some of the proposed park improvements could be concurrently constructed during the construction period of the lower intake.

The B.F. Sisk Dam SOD Modification Project has been identified as a cumulative project with the potential to contribute to construction related effects to minority and/or low-populations surrounding the reservoir. The project proposes modifications to the B.F. Sisk Dam embankment to improve dam safety conditions. The San Luis Solar Project has been identified as a cumulative project with the potential to contribute to construction related effects to minority and/or low-populations surrounding the reservoir. The project proposes a 30-year land use authorization to access, install, operate, maintain and remove a 26-megawatt alternating current solar photovoltaic energy generating project in and adjacent to the San Luis SRA. Project construction would be congruent with construction of the lower intake facility. The San Luis Transmission Project has been identified as a cumulative project with the potential to contribute to construction related effects to minority and/or low-income populations surrounding the reservoir. The project proposes the construction, maintenance, and operation of new transmission lines, which would be located adjacent to existing lines in Alameda, San Joaquin, Stanislaus, and Merced Counties. Additional components of the project include a new 230-kilovolts (kV) line terminal bays at the Western Area Power Administration's (Western) San Luis and Dos Amigos Substation, as well as a new 230/700-kV transformer bank and interconnection facilities at the San Luis Substation, and auxiliary facilities. The project would be constructed and operated between 2017 and 2021. If construction of the lower intake begins prior to 2021 it is assumed that some of the projects components could be concurrently constructed during the construction period of the lower intake.

Multiple, simultaneous construction projects at the San Luis Reservoir SRA, could increase the likelihood of minority and/or low-income populations being adversely and disproportionately affected by air quality related construction effects. If construction of the lower intake and implementation of other construction projects at the San Luis Reservoir SRA occurred at the same time, the Lower San Felipe Intake Alternative could contribute to a disproportionate adverse cumulative effect on minority and/or low-income populations. The Lower San Felipe Intake Alternative's incremental contribution to this effect would be cumulatively considerable.

S.3.17.2 Alternative 3 - Treatment Alternative

Expose a minority and or low-income population to adverse or disproportionately high effects or hazards from project construction in combination with other cumulative projects. Under the Treatment Alternative, construction of treatment upgrades would occur on SCVWD privately owned land at the Santa Teresa WTP. The Santa Teresa WTP Census Tract 5119.11 is not considered a minority affected area. However, at a regional level, Santa Clara County has been identified as a minority affected area.

The Santa Teresa WTP lies within the City of San Jose City Council District 2 boundaries, four development projects have been identified as cumulative projects with the potential to contribute to construction related effects to the identified minority populations. These projects include the Young Ranch Residential Project, Equinix Data Center, San Jose Behavior Health Hospital, and Blanchard Road Warehouse/Distribution Center. All projects propose major construction related activities.

If the proposed treatment retrofit is developed during the construction period of any of the identified cumulative projects or plan, retrofit development could increase construction-related impacts on minority populations in addition to those already anticipated from the other cumulative construction projects. However, any potential effects from construction would be temporary, and would be reduced by mitigation measures discussed in Sections 4.7 - Air Quality, 4.10 - Noise and Vibration, and 4.11 - Traffic and Transportation.

S.3.17.3 Alternative 4 - San Luis Reservoir Expansion Alternative

Expose a minority and or low-income population to adverse or disproportionately high effects or hazards from project construction in combination with other cumulative projects. Construction of the San Luis Reservoir Expansion Alternative has the potential to adversely and disproportionately affect minority populations within the San Luis Reservoir region including Census Tracts 20, 21, Census Tract 21/Block Group 1, 22.01, 22.02, 23.01 and 23.02 and a low-income population group in Census Tract 22.01.

Similar to the cumulative projects described above for the Lower San Felipe Intake Alternative, the *San Luis Reservoir SRA RMP/GP*, the San Luis Solar Project and the San Luis Transmission Project have been identified as cumulative projects with the potential to contribute to construction related effects to minority and/or low-income populations surrounding the reservoir.

Multiple, simultaneous construction projects at the San Luis Reservoir SRA, could increase the likelihood of minority and/or low-income populations being adversely and disproportionately affected by air quality related construction effects. If construction of the reservoir expansion and implementation of other construction projects at the San Luis Reservoir SRA occurred at the same time, the San Luis Reservoir Expansion Alternative could contribute to a disproportionate adverse cumulative effect on minority and/or low-income populations. The San Luis Reservoir Expansion Alternative's incremental contribution to this effect would be cumulatively considerable.

S.3.17.4 Alternative 5 – Pacheco Reservoir Expansion Alternative

Expose a minority and or low-income population to adverse or disproportionately high effects or hazards from project construction in combination with other cumulative projects. Under the Pacheco Reservoir Expansion Alternative, construction of the new reservoir would occur within Census Tract 5135, which is not considered a minority affected area. However, at a regional level, Santa Clara County has been identified as a minority affected area.

The California High Speed Rail has been identified as a cumulative project with the potential to contribute to construction related effects to minority and/ or low-income populations regionally.

If Pacheco Reservoir is developed during the construction period of any of the California High Speed Rail, Pacheco reservoir development could increase construction-related impacts on minority populations in addition to those already anticipated from the other cumulative construction projects. However, any potential effects from construction would be temporary, and would be reduced by mitigation measures discussed in Sections 4.7 - Air Quality, 4.10 - Noise and Vibration, and 4.11 - Traffic and Transportation.

S.3.18 Public Utilities, Services, and Power

S.3.18.1 Alternative 2 - Lower San Felipe Intake Alternative

Construction activities for the Lower San Felipe Intake Alternative, in combination with projects and projections considered for cumulative effects, could result in adverse impacts associated with the provision of governmental services or facilities including fire and police protection, and schools. Short-term construction activities could increase risks to workers and the public.

Construction of the Lower San Felipe Intake Alternative would have a less than significant impact on governmental services including fire and police protection, and schools.

Construction of projects considered for cumulative impact in Merced County including the B.F. Sisk Dam SOD Modification Project, the California High Speed Rail project, the San Luis Transmission Project and the San Luis Solar Project and development projects related to projected growth in the county could create construction-related risks during the same time period.

Construction around San Luis Reservoir would be temporary and the implementation of emergency response or remediation and containment plans, as well as compliance with OSHA standards, would ensure that risks are properly managed and emergency situations are efficiently handled if they do occur. The majority of future construction work associated with projects considered for cumulative impacts would be completed by residents within the region. Thus, there would not be large population growth related to construction activities.

The impact analysis of general plan alternatives at the reservoir describes that future increases in population could lead to increases in demand for recreation at the reservoir. Thus, increased demand for emergency services would occur under each alternative considered for future development and expansion at the reservoir. The *San Luis Reservoir SRA RMP/GP* proposes specific mitigation measures to reduce impacts to the provision of public services. **As noted above, impacts associated with the Lower San Felipe Intake Alternative would be short-term and less than significant. Moreover, mitigation associated with other projects at San Luis Reservoir would ensure that impacts to public services would be less than significant. Cumulative impacts of the Lower San Felipe Intake Alternative, in combination with other projects at San Luis Reservoir, would not result in significant impacts on fire or police protection or schools.**

Construction activities under the Lower San Felipe Intake Alternative, in combination with projects and projections considered for cumulative effects could result in the need for new water, wastewater, or stormwater facilities. Projected population growth in Merced County could result in the need for new water supply facilities and related adverse physical impacts from their construction. Construction of water supply facilities under the Lower San Felipe Intake Alternative would be located at the reservoir and would not generate new demands on water supplies or wastewater treatment capacity.

Future growth and development in Merced County would likely require the construction and extension of water supply pipelines and wastewater and stormwater infrastructure close to where the growth and development takes place. This would be located in the vicinity of already developed urban areas in the county, not in close proximity to the reservoir.

The *San Luis Reservoir SRA RMP/GP* describes that, under all future development alternatives at the reservoir, maintenance and safety upgrades would be required. While increased visitation to the SRA under the alternatives in the *San Luis Reservoir SRA RMP/GP* would lead to an increased demand on water supply and wastewater facilities, the alternatives include varying amounts of utility upgrades in order to handle increased demands.

Utility upgrades at the reservoir proposed under the *San Luis Reservoir SRA RMP/GP* would be focused on providing water and wastewater services to visitors, and would expand on existing facilities in order to increase visitor capacity. Two of the development alternatives in the proposed *San Luis Reservoir SRA RMP/GP* include construction of new visitor and recreational facilities and could have impacts on public utilities during construction (Reclamation and CDPR 2013). These impacts, which include disruption to utility service during construction, would be minor after mitigation.

It is unlikely that the construction of new visitor facilities would occur at the same time as the construction associated with the alternatives discussed in this document, so no cumulative impacts associated with construction would be expected. Additionally, the Lower San Felipe Intake Alternative would not have a long term impact the visitor areas or infrastructure of the SRA.

The B.F. Sisk Dam SOD Modification Project proposes modifications to the B.F. Sisk Dam embankment to improve dam safety conditions. The San Luis Transmission Project would develop approximately 95 miles of new transmission lines connecting the Tracy Substation and the Dos Amigos Substation with segments crossing O'Neill Forebay and connecting to the San Luis Substation. The San Luis Solar Project would develop a new 108 acre solar facility adjacent to the SR 152 crossing of O'Neill Forebay. Both of these cumulative projects would introduce new impervious surfaces but would not generate new demands on water or wastewater systems. Construction of these projects would, similar to the Lower San Felipe Intake Alternative, be subject to a SWPPP that would require the implementation of BMPs to control stormwater runoff during construction.

No additional stormwater or wastewater facilities are proposed under this project, and no cumulative impacts to these utilities is expected as a result of implementation. **The Lower San Felipe Intake Alternative in combination with the other cumulative projects and plans in the study area would not contribute to any significant cumulative impacts on demands on water, wastewater, or stormwater facilities.**

Construction activities would generate solid waste, the disposal of which could, in combination with projects and projections considered for cumulative effects, exceed the capacity of landfills designated to accommodate the project's solid waste disposal needs. The landfill proposed for disposal of construction debris from the Lower San Felipe Intake Alternative would not be adversely affected

by the alternative. Over time, construction debris from the B.F. Sisk Dam SOD Modification Project and the California High Speed Rail construction as well as from future growth and development throughout Merced County could cause the landfill to reach capacity. There are two regional landfills in the area, both of which contain adequate space for the small amount of material expected to be disposed of as a result of the Lower San Felipe Intake Alternative. The Billy Wright landfill, which would be the primary landfill utilized by this project, is expected to reach capacity in 2054 under normal operations (CalRecycle 2016a). Construction debris from the alternative would comprise approximately 0.01 percent of the remaining capacity at this landfill. Another landfill in the county, the SR 59 Landfill, is projected to cease operations in 2030 (CalRecycle 2016b), and will not be used by this project. Earthen fill and other inert material generated by the tunnel boring and other excavation activities will be disposed of on-site and not transported to the area landfills. The Lower San Felipe Intake Alternative's contribution to the regional landfills' remaining capacity would be minimal. **The Lower San Felipe Intake Alternative's contribution to the significant cumulative effect from future construction projects and population growth on regional landfill capacity would not be cumulatively considerable.**

Construction activities involved in the Lower San Felipe Intake Alternative, in combination with projects and projections considered for cumulative effects could result in adverse impacts associated with the use and/or depletion of local or regional energy supplies. Temporary power facilities would be used during construction of the Lower San Felipe Intake Alternative. Construction-related energy use would not result in adverse impacts to energy supplies at the reservoir or in the larger Merced area because of the use of generators. Use of power supplies at the reservoir during construction would not change existing operations at the reservoir. Other construction at the reservoir and in the county would also utilize local energy resources. However, the energy demand associated with construction of the cumulative projects, including the Lower San Felipe Intake Alternative, could be met by regional supplies, especially with in the case of the Lower San Felipe Intake Alternative construction efforts using generators as necessary. **Therefore, the Lower San Felipe Intake Alternative would not contribute to any significant cumulative impact on regional energy supplies.**

Operations of the Lower San Felipe Intake Alternative in combination with projects and projections considered for cumulative effects could result in increases in stormwater runoff and the need for new stormwater drainage facilities. Construction of the B.F. Sisk Dam SOD Modification Project, rail facilities as part of the California High Speed Rail project, the San Luis Transmission Project and the San Luis Solar project would have to comply with NPDES permit requirements and measures identified in a SWPPP. Additionally, stormwater related impacts from the Lower San Felipe Intake Alternative would be localized around the reservoir; thus, stormwater impacts from the California High Speed Rail project would not cumulatively add to

runoff effects at the reservoir. As described in the *San Luis Reservoir SRA RMP/GP*, implementation of the management and development alternatives at the reservoir would include utility upgrades. Thus, stormwater would continue to be managed onsite. Stormwater associated with operation of the San Luis Solar project would also be managed onsite with permanent BMPs planned as part of the project design (Reclamation 2015b). **Therefore, cumulative impacts to stormwater drainage facilities at San Luis Reservoir would be less than significant.**

Long-term operations of the hypolimnetic aeration system and increases in pumping at the Pacheco Pumping Plant, in combination with projects and projections considered for cumulative effects, could result in the need for additional capacity of energy supplies or the depletion of local or regional energy supplies. Energy supplies for the operation of the aeration system would be planned in coordination with Pacific Gas & Electric (PG&E). In the case that PG&E determines their existing resources cannot accommodate long-term operations of an air compressor to power the aeration facility, a liquid oxygen (LOX) tank and vaporizers would be used to operate the hypolimnetic aeration system. When determining the most efficient and reliable source of power for the aeration system, PG&E would consider projected energy demands in their service area. In addition, San Felipe Division diversions would not be interrupted by low point conditions and the Pacheco Pumping Plant and associated facilities would have the ability to operate more frequently. While these facilities require electricity to operate, they were constructed to be able to operate at their maximum capacity; thus, they have the electrical capacity to continue to operate under the Lower San Felipe Intake Alternative. Overall, changes in operation of the Pacheco Pumping Plant and associated facilities resulting from the ability to withdraw water from a lower elevation would not result in the need for additional energy supplies and would not result in the substantial depletion of local or regional energy supplies.

The California High Speed Rail Authority (HSRA) and the California Energy Resources Conservation and Development Commission (ERCDC) have entered into a Memorandum of Understanding (MOU) regarding the expanded use of renewable energy for the High Speed Rail project, buildings which emit and use zero net energy, and zero emission vehicles in California. The HSRA has committed to powering the project facility with 100 percent renewable energy sources, including the production of renewable energy on its facilities (CHSRA 2016). The long term power consumption of the compressed air system in combination with the High Speed Rail project is not considered to be cumulatively considerable because of HSRA's commitment for 100 percent renewable energy sources. **Therefore, the Lower San Felipe Intake Alternative would not contribute to any significant cumulative impact on regional energy supplies.**

S.3.18.2 Alternative 3 - Treatment Alternative

Construction activities for the Treatment Alternative, in combination with projections considered for cumulative effects, could result in substantial adverse impacts associated with the provision of governmental services and public utilities including water supply, wastewater, or stormwater facilities. Construction activities would take place at the existing Santa Teresa WTP and would not significantly increase risks to workers or the public. Additionally, construction would not increase water demand or the need for wastewater or stormwater facilities. Potable water and wastewater handling capacity demands generated by construction activities and the presence of construction workers would be met by existing local facilities and temporary/portable drinking water and waste disposal facilities. Future growth and development in the City of San Jose and in other areas of Santa Clara County could increase demands on governmental services and public utilities; however, the construction of this project would not create a significant impact to government services or public utilities, or contribute to increased growth in the project area. **Therefore, the alternative's incremental contribution to the significant cumulative effect would not be cumulatively considerable.**

Construction activities would generate solid waste, the disposal of which, in combination with projections considered for cumulative effects, could exceed the capacity of landfills designated to accommodate the project's solid waste disposal needs. Construction debris generated during construction of the Treatment Alternative would take up approximately 0.2 percent of the existing capacity at the Guadalupe Sanitary Landfill. Future growth and development in San Jose and other areas of Santa Clara County could produce debris and solid waste that exceeds the capacity of local landfills, and lead to significant cumulative impact; however, the Treatment Alternative's incremental contribution to local landfill capacity would be minimal. **The Treatment Alternative's incremental contribution to the significant cumulative effect associated with exceeding the capacity of the landfill would not be cumulatively considerable.**

Construction activities, in combination with projections considered for cumulative effects, could result in adverse impacts associated with the use and/or depletion of local or regional energy supplies. Construction equipment would require the use of temporary onsite generators and vehicle fuels. Construction would be temporary and energy resources used during construction would be supplied by the contractor. Energy used during construction would not interfere with surrounding residential, commercial, or industrial energy supplies and use. Energy used during construction of commercial, residential, and industrial development projected through future growth scenarios in the county could place increased demands on local and regional energy supplies, and lead to a significant cumulative impact. However, the energy demand associated with the cumulative projects, including the Treatment Alternative, could be met by regional supplies, especially with construction efforts using generators as necessary. **Therefore, the Treatment**

Alternative's incremental contribution to significant energy impacts would not be cumulatively considerable.

Operations of technology retrofits, in combination with projections considered for cumulative effects could result in the need for new water treatment or stormwater drainage infrastructure, the construction of which could cause significant environmental impacts. Future growth and development within the county could result in the need for new water treatment and stormwater drainage infrastructure. Long-term operations of the Santa Teresa WTP would not differ significantly from existing operations at the site and would not result in a substantial increase in stormwater runoff that would exceed the capacity of the existing stormwater drainage system. The Treatment Alternative would not result in the need for new treatment plants or stormwater infrastructure because the alternative would not substantially increase impervious surfaces or increase point source drinking water or wastewater demands; **Therefore, the alternative's incremental contribution to the significant cumulative effect on the need for new public utilities would not be cumulatively considerable.**

Solid waste generated during operation of technology retrofits at the Santa Teresa WTP in combination with projections considered for cumulative effects could exceed the capacity of a local landfill. Future growth and development in San Jose and other areas of the county could produce debris and solid waste that exceeds the capacity of local landfills, creating a significant cumulative impact when added to the Treatment Alternative's impact. Additionally, the new processes at the WTP as a part of the Treatment Alternative would recover more solids from the raw water delivered to the plants than currently possible. Dried sludge recovered through the treatment process would be disposed of in a local landfill. As described above, in Santa Clara County, there are at least five solid waste landfills that are available for waste disposal. The closest landfill to Santa Teresa is the Guadalupe Sanitary Landfill in San Jose. There would be adequate capacity to serve solid waste disposal needs for operation and maintenance of Santa Teresa WTP. The cumulative contributions of the Treatment Alternative to area landfills remaining capacity would be minimal. **Therefore, the Treatment Alternative's incremental contribution to the significant cumulative effect of regional population growth on local landfill capacity would not be cumulatively considerable.**

Long-term operations of technology retrofits in combination with projections considered for cumulative effects could result in the need for additional capacity of energy supplies or the depletion of local or regional energy supplies. Future growth and development in Santa Clara County could stress energy resources, creating a significant cumulative impact when added to the Treatment Alternative's impact. Under the Treatment Alternative, SCVWD operations would remain largely unchanged except during periods of low point conditions in San Luis Reservoir (typically August and September). During pilot testing of the ballasted clarification, the electrical system capacity at the WTP would be analyzed in greater detail to understand any necessary upgrades.

These technologies do not add significantly to the electrical demands of the water treatment processes and would not result in adverse effects related to the depletion of local or regional energy supplies. The increased energy demand associated with the Treatment Alternative, would be met by regional suppliers and would be minimal. **Therefore, the Treatment Alternative's incremental contribution to the significant cumulative energy impacts would not be cumulatively considerable.**

S.3.18.3 Alternative 4 - San Luis Reservoir Expansion Alternative

Construction activities for the San Luis Reservoir Expansion Alternative, in combination with projects and projections considered for cumulative effects, could result in adverse impacts associated with the provision of governmental services or facilities including fire and police protection, and schools.

Construction of the San Luis Reservoir Expansion Alternative would have a less than significant impact on governmental services including fire and police protection, and schools. The impacts generated by cumulative projects and plans in the study area, described above under the Lower San Felipe Intake Alternative would also be less than significant. Impacts associated with the San Luis Reservoir Expansion Alternative would be short-term and less than significant. Moreover, mitigation associated with other projects at San Luis Reservoir would ensure that impacts to public services would be less than significant. **Cumulative impacts of the San Luis Reservoir Expansion Alternative, in combination with other projects at San Luis Reservoir, would not result in significant impacts on fire or police protection or schools.**

Construction activities associated with the San Luis Reservoir Expansion Alternative, in combination with projects and projections considered for cumulative effects could result in the need for new water, wastewater, or stormwater facilities. Construction of the San Luis Reservoir Expansion Alternative would have a less than significant impact on any changes in demand for new water, wastewater, or stormwater facilities.

The impacts generated by cumulative projects and plans in the study area, described above under the Lower San Felipe Intake Alternative would also contribute to the cumulative condition under the San Luis Reservoir Expansion Alternative. These cumulative effects with the implementation of mitigation actions would be less than significant. **The San Luis Reservoir Expansion Alternative in combination with the other cumulative projects and plans in the study area would not contribute to any significant cumulative impacts on demands on water, wastewater, or stormwater facilities.**

Construction activities would generate solid waste, the disposal of which could, in combination with projects and projections considered for cumulative effects, exceed the capacity of landfills designated to accommodate the project's solid waste disposal needs. Disposal of construction debris from the San Luis

Reservoir Expansion Alternative would generate a less than significant impact on remaining capacity at the landfill proposed for use. Over time, construction debris from the California High Speed Rail, the San Luis Solar Project and San Luis Transmission Project construction as well as from future growth and development throughout Merced County could however cause the landfill to reach capacity more quickly than originally planned when the facility was developed. There are two regional landfills in the area, both of which contain adequate space for the small amount of material expected to be disposed of as a result of this project. The Billy Wright landfill, which would be the primary landfill utilized by this project, is expected to reach capacity in 2054 under normal operations (CalRecycle 2016a). Construction debris from the alternative would comprise less than 1 percent of the remaining capacity at this landfill. Another landfill in the county, the SR 59 Landfill, is projected to cease operations in 2030 (CalRecycle 2016b), and will not be used by this project. The San Luis Reservoir expansion's incremental contribution to the regional landfills' remaining capacity would be minimal. **The San Luis Reservoir Expansion Alternative's contribution to the significant cumulative effect from future construction projects and population growth on regional landfill capacity would not be cumulatively considerable.**

Construction activities involved in the San Luis Reservoir Expansion Alternative, in combination with projects and projections considered for cumulative effects could result in adverse impacts associated with the use and/or depletion of local or regional energy supplies. Temporary power facilities would be used during construction of the San Luis Reservoir Expansion Alternative. Construction-related energy use would not result in adverse impacts to energy supplies at the reservoir or in the larger Merced area because of the use of generators or connections to existing power supplies at Gianelli Pumping Plant. Use of power supplies at the reservoir during construction would not change existing operations at the reservoir. Other construction at the reservoir and in the county would also utilize local energy resources. However, the energy demand associated with the cumulative projects, including the San Luis Reservoir Expansion Alternative, could be met by regional supplies, especially with in the case of the San Luis Reservoir Expansion Alternative expansion construction efforts using generators as necessary. **Therefore, the San Luis Reservoir Expansion Alternative would not contribute to any significant cumulative impact on regional energy supplies.**

Long-term operations of the San Luis Reservoir Expansion Alternative, in combination with projects and projections considered for cumulative effects, could result in the need for additional capacity of energy supplies or the depletion of local or regional energy supplies. Use of the existing Gianelli Pumping Plant to fill the new expanded space in San Luis Reservoir with additional water supply would require additional electricity when compared to existing operations. The projected frequency of this new storage capacity being filled is infrequent. In years when it is filled, the existing 10,600 megawatts of

production capacity in the Western Area Power Administration (WAPA) system can meet this increased demand.

The California HSRA and the ERCDC have entered into a MOU regarding the expanded use of renewable energy for the High Speed Rail project, buildings which emit and use zero net energy, and zero emission vehicles in California. The HSRA has committed to powering the project facility with 100 percent renewable energy sources, including the production of renewable energy on its facilities (CHSRA 2016). The long term power consumption of the compressed air system in combination with the High Speed Rail project is not considered to be cumulatively considerable because of HSRA's commitment for 100 percent renewable energy sources. **Therefore, the San Luis Reservoir Expansion Alternative would not contribute to any significant cumulative impact on regional energy supplies.**

S.3.18.4 Alternative 5 - Pacheco Reservoir Expansion Alternative

Construction activities for the Pacheco Reservoir Expansion Alternative, in combination with projects and projections considered for cumulative effects, could result in adverse impacts associated with the provision of governmental services or facilities including fire and police protection, and schools. Construction of the Pacheco Reservoir Expansion Alternative would have a less than significant impact on governmental services including fire and police protection, and schools. The impacts generated by cumulative projects and plans in the study area, described above under the Lower San Felipe Intake Alternative would also be less than significant. Impacts associated with the Pacheco Reservoir Expansion Alternative would be short-term and less than significant. Moreover, mitigation associated with other projects in the area would ensure that impacts to public services would be less than significant. **Cumulative impacts of the Pacheco Reservoir Expansion Alternative, in combination with other projects in the area, would not result in significant impacts on fire or police protection or schools.**

Construction activities associated with the Pacheco Reservoir Expansion Alternative, in combination with projects and projections considered for cumulative effects could result in the need for new water, wastewater, or stormwater facilities. Construction of the Pacheco Reservoir Expansion Alternative would have a less than significant impact on any changes in demand for new water, wastewater, or stormwater facilities.

The impacts generated by cumulative projects and plans in the study area, would also contribute to the cumulative condition under the Pacheco Reservoir Expansion Alternative. These cumulative effects with the implementation of mitigation actions would be less than significant. **The Pacheco Reservoir Expansion Alternative in combination with the other cumulative projects and plans in the study area would not contribute to any significant**

cumulative impacts on demands on water, wastewater, or stormwater facilities.

Construction activities would generate solid waste, the disposal of which could, in combination with projects and projections considered for cumulative effects, exceed the capacity of landfills designated to accommodate the project's solid waste disposal needs. Disposal of construction debris from the Pacheco Reservoir Expansion Alternative would generate a less than significant impact on remaining capacity at the landfill proposed for use. Over time, construction debris from the B.F. Sisk Dam SOD Modification Project and the California High Speed Rail construction as well as from future growth and development throughout Santa Clara County could however cause the landfill to reach capacity more quickly than originally planned when the facility was developed. There are two regional landfills in the area, both of which contain adequate space for the small amount of material expected to be disposed of as a result of this project. The Billy Wright landfill, which would be the primary landfill utilized by this project, is expected to reach capacity in 2054 under normal operations (CalRecycle 2016a). Construction debris from the alternative would comprise less than 1 percent of the remaining capacity at this landfill. Another landfill in the county, the SR 59 Landfill, is projected to cease operations in 2030 (CalRecycle 2016b), and will not be used by this project. The Pacheco Reservoir Expansion Alternative's incremental contribution to the regional landfills' remaining capacity would be minimal. **The Pacheco Reservoir Expansion Alternative's contribution to the significant cumulative effect from future construction projects and population growth on regional landfill capacity would not be cumulatively considerable.**

Construction activities involved in the Pacheco Reservoir Expansion Alternative, in combination with projects and projections considered for cumulative effects could result in adverse impacts associated with the use and/or depletion of local or regional energy supplies. Temporary power facilities would be used during construction of the Pacheco Reservoir Expansion Alternative. Construction-related energy use would not result in adverse impacts to energy supplies in the area because of the use of generators. Other construction in the county would also utilize local energy resources. However, the energy demand associated with the cumulative projects, including the Pacheco Reservoir Expansion Alternative, could be met by regional supplies, especially with in the case of the Pacheco Reservoir Expansion Alternative construction efforts using generators as necessary. **Therefore, the Pacheco Reservoir Expansion Alternative would not contribute to any significant cumulative impact on regional energy supplies.**

Long-term operations of the Pacheco Reservoir Expansion Alternative, in combination with projects and projections considered for cumulative effects, could result in the need for additional capacity of energy supplies or the depletion of local or regional energy supplies. Use at the new pump station to import and export water in and out of the expanded Pacheco Reservoir.

Operation of the new reservoir would also increase total electricity use at the new pump station to import and export water in and out of the reservoir would require additional electricity when compared to existing operations. The existing 70 kV PG&E transmission line would be upgraded to support the additional load required by the new pump station.

The CHSRA and the ERCDC have entered into a MOU regarding the expanded use of renewable energy for the High Speed Rail project, buildings which emit and use zero net energy, and zero emission vehicles in California. The HSRA has committed to powering the project facility with 100 percent renewable energy sources, including the production of renewable energy on its facilities (CHSRA 2016). The long term power consumption of the compressed air system in combination with the High Speed Rail project is not considered to be cumulatively considerable because of HSRA's commitment for 100 percent renewable energy sources. **Therefore, the Pacheco Reservoir Expansion Alternative would not contribute to any significant cumulative impact on regional energy supplies.**

S.3.19 Cultural Resources

S.3.19.1 Alternative 2 - Lower San Felipe Intake Alternative

The B.F. Sisk Dam SOD Modification Project, the California High Speed Rail Project, the San Luis Transmission Line Project, the San Luis Solar Project, and implementation of the *San Luis Reservoir SRA RMP/GP* have all been identified as cumulative actions that could contribute to cultural resource impacts during construction of the Lower San Felipe Intake Alternative. Each of these projects, similar to the Lower San Felipe Intake Alternative, could result in significant impacts to known and previously unreported cultural resources. Ground disturbing activities within the Lower San Felipe Intake Alternative Area of Potential Effect (APE), including the excavation of borrow pits, dredging, and the use or modification of staging areas and haul roads may alter or destroy cultural resources that are listed or may be eligible for listing in the National Register of Historic Places (NRHP) and/or the Center for Regional Heritage Research (CRHR). **Implementation of the Lower San Felipe Intake Alternative, when taken together with the cumulative actions noted above, could result in significant cumulative effects to cultural resources under CEQA.**

If the Lower San Felipe Intake Alternative is selected, CEQA Mitigation Measure CR-1, CR-2, and CR-3 would be implemented prior to signing a ROD. Because the APE for the proposed intake area is inundated and will remain so during construction of the tunnel or pipeline option, however, no mitigation measures are available to reduce the significance of potential impacts to known or previously unreported cultural resources in that location. **Therefore, even with the implementation of Mitigation Measure CR-1, CR-2, and CR-3, the Lower San Felipe Intake Alternative's incremental contribution to**

significant cumulative effects on cultural resources within the Lower San Felipe Intake project area may be cumulatively considerable.

Adverse effects, as described in Section 106 of the National Historic Preservation Act (NHPA), could occur to historic properties if this alternative is implemented and would need to be mitigated. Avoidance, minimization of impacts, and/or mitigation measures, determined through completion of the Section 106 process, would be required prior to implementation of this alternative.

S.3.19.2 Alternative 3 - Treatment Alternative

No other cumulative activities or projects that would result in impacts to potentially significant cultural resources have been identified that would take place at the same time as construction of the Treatment Alternative. Technological retrofits proposed within the existing boundaries of the Santa Teresa WTP would result in no impacts to known cultural resources, therefore **the Treatment Alternative would not contribute to cumulative cultural resource impacts in the Project area.**

S.3.19.3 Alternative 4 - San Luis Reservoir Expansion Alternative

The California High Speed Rail Project, the San Luis Transmission Line Project, the San Luis Solar Project, and implementation of the *San Luis Reservoir SRA RMP/GP* have all been identified as cumulative actions that could contribute to cultural resource impacts during construction of the San Luis Reservoir Expansion Alternative. Each of these projects could, similar to the San Luis Reservoir Expansion Alternative, result in significant impacts to known and previously unreported cultural resources. Ground disturbing activities within the San Luis Reservoir Expansion Alternative APE, including raising the B.F. Sisk Dam, excavating borrow pits, modifying or using staging areas and haul roads, and inundation or erosion through the expansion of the reservoir may alter or destroy cultural resources that are listed or may be eligible for listing in the NRHP and/or the CRHR. **Implementation of the San Luis Reservoir Expansion Alternative, when taken together with the cumulative actions noted above, could result in significant cumulative effects to known and previously unrecorded cultural resources under CEQA.**

If the San Luis Reservoir Expansion Alternative is selected, CEQA Mitigation Measure CR-1, CR-2, and CR-3 would be implemented prior to signing a ROD. Because the APE for the expanded reservoir area will be subject to unavoidable mechanical and biochemical impacts, however, no mitigation measures are available to reduce the significance of potential impacts to known or previously unreported cultural resources to a level that is less than significant. **Therefore, even with the implementation of Mitigation Measure CR-1, CR-2, and CR-3, the San Luis Reservoir Expansion Alternative's incremental**

contribution to significant cumulative effects on cultural resources within the Lower San Felipe Intake project area may be cumulatively considerable.

Adverse effects, as described in Section 106 of the NHPA, could occur to historic properties if this alternative is implemented and would need to be mitigated. Avoidance, minimization of impacts, and/or mitigation measures, determined through completion of the Section 106 process, would be required prior to implementation of this alternative.

S.3.19.4 Alternative 5 - Pacheco Reservoir Expansion Alternative

The B.F. Sisk Dam SOD Modification Project, the California High Speed Rail Project, the San Luis Transmission Line Project, the San Luis Solar Project, and implementation of the *San Luis Reservoir SRA RMP/GP* have all been identified as cumulative actions that could contribute to cultural resource impacts during construction of the Pacheco Reservoir Expansion Alternative. Similar to the Pacheco Reservoir Expansion Alternative, each of these projects could generate significant impacts to known and previously unreported cultural resources. Ground disturbing activities within the Pacheco Reservoir Expansion Alternative APE, including demolishing the existing North Fork Dam, excavating borrow areas, modifying and using staging areas and haul roads, constructing pipelines/tunnels, and modifying an existing transmission line may alter or destroy cultural resources that are eligible for listing in the NRHP and/or the CRHR. **Implementation of the Pacheco Reservoir Expansion Alternative, when taken together with the cumulative actions noted above, could result in significant cumulative effects to known and previously unrecorded cultural resources under CEQA.**

If the Pacheco Reservoir Expansion Alternative is selected, CEQA Mitigation Measure CR-1, CR-2, and CR-3 would be implemented prior to signing a ROD. Because the APE for the expanded reservoir area will be subject to unavoidable mechanical and biochemical impacts, however, no mitigation measures are available to reduce the significance of potential impacts to known or previously unreported cultural resources to a level that is less than significant. **Therefore, even with the implementation of Mitigation Measure CR-1, CR-2, and CR-3, the Pacheco Reservoir Expansion Alternative's incremental contribution to significant cumulative effects on cultural resources within the Lower San Felipe Intake project area may be cumulatively considerable.**

Adverse effects, as described in Section 106 of the NHPA, could occur to historic properties if this alternative is implemented and would need to be mitigated. Avoidance, minimization of impacts, and/or mitigation measures, determined through completion of the Section 106 process, would be required prior to implementation of this alternative.

S.3.20 Population and Housing

S.3.20.1 Alternative 2 - Lower San Felipe Intake Alternative

Construction of the Lower San Felipe Intake Alternative (tunnel or pipeline options) could have the potential to temporarily induce population growth in the area of analysis and could require new housing to accommodate this growth. The cities expected to accommodate non-local workers for the duration of construction are Los Banos, Newman, Gilroy, and Gustine. As noted above, these cities have projected population growth through 2030 and have planned for this growth through their General Plans by encouraging new development, including new housing. As identified in Table S-9, population increases in Merced and Santa Clara counties through 2030 are expected to be substantial in all of the nearby communities, ranging from 12 percent in Gilroy to almost 83 percent in Los Banos. This projected population increase, and the associated need for increased housing, is considered to be cumulatively significant. The Lower San Felipe Intake Alternative would have the potential to increase the population of any one of these four communities by a maximum of 30 people. These impacts would be temporary and would end after construction as the non-local workers would return to their places of origin. The number of new people attributable to the alternative is less than one percent of the population of any of the individual nearby communities, and only a fraction of one percent of the population of all four communities combined. Moreover, no new housing is expected to be required to be constructed in order to accommodate the temporary workers as sufficient available housing stock is expected to be available. **Therefore, the Lower San Felipe Intake Alternative’s incremental contribution to the significant cumulative effect associated with population growth and housing would not be cumulatively considerable.**

There would be no population and housing impacts from operation of this alternative; therefore there would be no cumulative effects.

Table S-9. Population Projections 2016-2030

Community	2016 ¹	2030	2030 Population Projection Source
Los Banos	37,012	67,100	Merced County 2012
Gilroy	52,576	57,000	LAFCO Santa Clara County 2015
Newman	10,698	16,525	Stanislaus County 2016
Gustine	5,684	9,000	Merced County 2012
San Jose	1,009,363	1,192,100	LAFCO Santa Clara County 2015
Saratoga	30,830	31,900	
Campbell	40,788	44,800	
Milpitas	73,447	93,600	

Note: ¹ U.S. Census Bureau 2016.

Key: LAFCO = Local Area Formation Committee

S.3.20.2 Alternative 3 - Treatment Alternative

Construction of the Treatment Alternative could have the potential to temporarily induce population growth in the area of analysis and could not require new housing to accommodate this growth. The City of San Jose is expected to accommodate non-local workers for the duration of construction. As noted above, San Jose has projected population growth through 2030 and have planned for this growth through their General Plan by encouraging new development, including new housing. As identified in Table S-9, the population increase in San Jose is expected to be almost 21 percent through 2030. This projected population increase, and the associated need for increased housing, is considered to be cumulatively significant. The Treatment Alternative would have the potential to increase the population of these communities by a maximum of 13 people. These impacts would be temporary and would end after construction as the non-local workers would return to their places of origin. The number of new people attributable to the alternative is a fraction of one percent of the population of San Jose. Moreover, no new housing is expected to be required to be constructed in order to accommodate the temporary workers as sufficient available housing stock is expected to be available. **Therefore, the Treatment Alternative's incremental contribution to the significant cumulative effect associated with population growth would not be cumulatively considerable.**

There would be no population and housing impacts from operation of this alternative; therefore there would be no cumulative effects.

S.3.20.3 Alternative 4 - San Luis Reservoir Expansion Alternative

Construction of the San Luis Reservoir Expansion Alternative could have the potential to induce population growth in the area of analysis and could require new housing to accommodate this growth. The cities expected to accommodate non-local workers for the duration of construction of the San Luis Reservoir Expansion Alternative are Los Banos, Newman, Gilroy, and Gustine. As noted above, these cities have projected population growth through 2020 and have planned for this growth through their General Plans by encouraging new development, including new housing. As identified in Table S-9, population increases in Merced and Santa Clara counties through 2020 are expected to be substantial in all of the nearby communities, ranging from 8 percent in Gilroy to almost 50 percent in Los Banos. This projected population increase, and the associated need for increased housing, is considered to be cumulatively significant. The San Luis Reservoir Expansion Alternative would have the potential to increase the population of any one of these four communities by a maximum of 54 people. These impacts would end after construction as the non-local workers would return to their places of origin however given the 8 to 12 year construction schedule of this alternative this effect is consider permanent. The number of new people attributable to the San Luis Reservoir Expansion Alternative is less than one percent of the population of any of the individual nearby communities, and only a fraction of one percent of the population of all

four communities combined. Moreover, no new housing is expected to be required to be constructed in order to accommodate the workers as sufficient available housing stock is expected to be available. **Therefore, the San Luis Reservoir Expansion Alternative's incremental contribution to the significant cumulative effect associated with population growth and housing would not be cumulatively considerable.**

There would be no population and housing impacts from operation of this alternative; therefore there would be no cumulative effects.

S.3.20.4 Alternative 5 – Pacheco Reservoir Expansion Alternative

Construction of the Pacheco Reservoir Expansion Alternative could have the potential to induce population growth in the area of analysis and could require new housing to accommodate this growth. The cities expected to accommodate non-local workers for the duration of construction of the Pacheco Reservoir Expansion Alternative are Los Banos, Newman, Gilroy, and Gustine. As noted above, these cities have projected population growth through 2020 and have planned for this growth through their General Plans by encouraging new development, including new housing. As identified in Table S-9, population increases in Merced and Santa Clara counties through 2020 are expected to be substantial in all of the nearby communities, ranging from 8 percent in Gilroy to almost 50 percent in Los Banos. This projected population increase, and the associated need for increased housing, is considered to be cumulatively significant. The Pacheco Reservoir Expansion Alternative would have the potential to increase the population of any one of these four communities by a maximum of 119 people. These impacts would end after construction as the non-local workers would return to their places of origin however given the 5-year construction schedule of this alternative this effect is consider permanent. The number of new people attributable to the Pacheco Reservoir Expansion Alternative is less than one percent of the population of any of the individual nearby communities, and only a fraction of one percent of the population of all four communities combined. Moreover, no new housing is expected to be required to be constructed in order to accommodate the workers as sufficient available housing stock is expected to be available. **Therefore, the Pacheco Reservoir Expansion Alternative's incremental contribution to the significant cumulative effect associated with population growth and housing would not be cumulatively considerable.**

There would be no population and housing impacts from operation of this alternative; therefore there would be no cumulative effects.

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