

CHAPTER 5

Cumulative Impacts

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5.1 Overview of Cumulative Impacts

Cumulative impacts, as defined in Section 15355 of the CEQA Guidelines, refer to two or more individual effects that, when taken together, are “considerable” or that compound or increase other environmental impacts. Cumulative impacts can result from individually minor, but collectively significant, actions when added to the impacts of other closely related past, present, or reasonably foreseeable future projects. Pertinent guidance for cumulative impact analysis is provided in Section 15130 of the CEQA Guidelines, which states:

- An EIR shall discuss cumulative impacts of a project when the project’s incremental effects are “cumulatively considerable” (i.e., the incremental effects of an individual project are considerable when viewed in combination with the effects of past, current, and probable future projects, including those outside the control of the agency, if necessary).
- An EIR should not discuss impacts that do not result in part from implementation of the project being evaluated in the EIR.
- A project’s contribution is less than cumulatively considerable, and thus not significant, 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 discussion of cumulative impact severity and likelihood of occurrence need not be as detailed as that presented for effects attributable to the project alone.
- The focus of analysis should be on the cumulative impact to which the identified other projects contribute, rather than on attributes of the other projects that do not contribute to the cumulative impact.

The analysis of cumulative effects associated with the Monterey Peninsula Water Supply Project (MPWSP or proposed project) along with other past, present, and reasonably foreseeable future projects is provided below. The analysis is organized by topical section, as presented in Chapter 4, Environmental Setting, Impacts, and Mitigation Measures. Where appropriate, additional measures are identified to mitigate potentially significant cumulative impacts.

5.1.1 Approach to Cumulative Impact Analysis

Two approaches to a cumulative impact analysis are discussed in CEQA Guidelines Section 15130(b)(1): (a) the analysis can be based on a list of past, present, and probable future projects producing related or cumulative impacts, or (b) a summary of projections contained in a general plan or related planning document or in an adopted or certified environmental document that described or evaluated regional or area-wide conditions contributing to the cumulative impact can be used to determine cumulative impacts. This EIR employs the list-based approach. The following factors were used to determine an appropriate list of projects to be considered in this cumulative analysis:

- ***Similar Environmental Impacts.*** A relevant project would contribute to effects on resources also affected by the MPWSP. A relevant future project is defined as one that is “reasonably foreseeable,” such as a project that has approved funding or for which an application has been filed with the approving agency.
- ***Geographic Scope and Location.*** A relevant project is located within the defined geographic scope for the cumulative effect.
- ***Timing and Duration of Implementation.*** The effects of relevant projects (e.g., short-term construction or demolition, or long-term operations) could coincide in terms of timing with the effects of the MPWSP.

5.1.1.1 Similar Environmental Impacts

Projects that are relevant to the cumulative analysis include those that could contribute incremental effects on the same environmental resources that would be affected directly or indirectly by the MPWSP. The cumulative impact discussions in Sections 5.2.1 through 5.2.19 of this chapter analyze the cumulative impacts that could occur when the effects of the MPWSP are combined with the effects of other past, present, and reasonably foreseeable future projects. Because these other projects are subject to independent environmental review and approval processes, funding constraints, or other challenges, it is possible that some of the projects identified as reasonably foreseeable future projects will not be approved or will be modified prior to approval (e.g., as a result of the CEQA alternatives analysis process or permitting requirements). For the purpose of assessing worst-case cumulative impacts, however, the

cumulative impact analysis in this EIR is premised on the approval and implementation of all of the reasonably foreseeable projects identified in this analysis.

5.1.1.2 Geographic Scope and Location

The geographic scope of the cumulative projects is delineated based on the resource topic affected and is described under each topical section below. For each resource, the geographic scope of analysis is based on the natural boundaries and physical conditions relevant to the resource affected, rather than jurisdictional boundaries. The geographic scope of cumulative effects often extends beyond the scope of the direct impacts, but not beyond the scope of the indirect impacts of the proposed project and alternatives.

5.1.1.3 Timing and Duration of Implementation

Construction of the MPWSP would span 30 months, from October 2016 through March 2019; operation and maintenance activities would occur thereafter (refer to Section 3.5.10 in Chapter 3, Project Description). Potential temporary (e.g., construction-related noise and vibration) and permanent (e.g., nighttime lighting) MPWSP impacts are considered in the cumulative impacts analysis if they could combine (in space and time) with similar impacts of cumulative projects identified in **Table 5-1**.

In general, because of the limited water supply available in the CalAm Monterey District service area (Monterey District), many development projects in the service area have been put on hold until supplemental supplies can be secured. On October 20, 2009, the State Water Resource Control Board (SWRCB) issued a Cease and Desist Order to CalAm (Order 2009-0060), Condition 2 of which required that CalAm not divert water from the Carmel River for new service connections or for any increased use of water at existing service addresses. The Cease and Desist Order is discussed in Chapter 2, Water Demand, Supplies, and Water Rights. In 2011, the California Public Utilities Commission (CPUC) approved a moratorium on new water service connections. This directed and authorized CalAm to prohibit new connections and certain increased uses of water by existing users that would be served by water diverted from the Carmel River, in CalAm's Monterey District. The moratorium is in place until either: (1) CalAm shows the CPUC written confirmation from the SWRCB that CalAm has obtained a permanent supply of water to replace its unpermitted diversions from the Carmel River, or (2) until litigation on the Cease and Desist Order results in the Monterey County Superior Court overturning the Cease and Desist Order, whichever comes first (MPWMD, 2011).

Because of the moratorium, it is possible that some of the reasonably foreseeable future projects will not be approved or constructed until the moratorium is lifted. Therefore, with the moratorium in place, the potential for construction-related impacts to occur simultaneously is less likely. However, because the timing of construction for many cumulative projects is unknown, and because some of the cumulative projects may have water allocations, this analysis conservatively assumes that the potential exists for incremental impacts of the construction, operation, and maintenance of some of these projects to overlap with those of the MPWSP. As a result, the cumulative impacts analysis and conclusions presented below may overstate some potentially cumulatively considerable impacts.

**TABLE 5-1
CUMULATIVE PROJECTS**

No.	Planning Jurisdiction/ Location	Project Description	Estimated Construction Schedule
Monterey County			
1	Salinas River near the City of Marina	<p>Salinas Valley Water Project Phase II – The project would allow the Monterey County Water Resources Agency (MCWRA) to facilitate further offsets of groundwater pumping by delivering additional surface water to the Pressure and East Side subareas. The project would divert up to 135,000 acre-feet per year (afy) of water from the Salinas River for municipal, industrial, and/or agricultural uses in the Pressure and East Side subareas. Continued reductions in groundwater pumping through use of the diverted surface water would help combat seawater intrusion in Monterey County.</p> <p>The project proposes two new surface water diversion points and appurtenant facilities for capture, conveyance, and delivery of the water. The capture and diversion facilities would consist of either a surface water diversion facility, similar to the Salinas River Diversion Facility, or subsurface collectors, such as radial arm wells. The conveyance facilities would be composed of pipelines and pump stations. The pipeline diameter, length, destination, number and location of turnouts, locations of pump stations, and physical layout of the conveyance facilities have not been determined.</p> <p>The delivery facilities may consist of injection wells for aquifer storage and recovery (ASR), percolation ponds, turnouts for direct use of the water, or other options. The construction design and physical location of the delivery facilities would be influenced by the type of facility, the end-users' intended application of the water (agricultural versus urban), and need for water treatment (MCWRA, 2014b).</p>	Construction anticipated after 2018; Project operation anticipated 2026
2	Former Fort Ord Military Base, East Garrison Area	<p>East Garrison Specific Plan – Mixed-use development project comprising residential, commercial, office, institutional, and recreational uses on approximately 244 acres. The project includes the construction of up to 1,470 dwelling units, 75,000 square feet of commercial uses, 11,000 square feet of public and institutional uses, 100,000 square feet of art/cultural/educational uses, and approximately 50 acres of open space. Development under the Specific Plan will be implemented in three phases. Phase I is scheduled for completion in 2016 (Michael Brandman Associates, 2004; FORA, 2013; Monterey County Planning Department, 2013a; East Garrison, 2015).</p>	Ongoing / Full Build-out Scheduled for 2025
3	24491 Citation Court	<p>Laguna Seca Villas – Construction of 20,306 square feet of professional office space on the Laguna Seca Office Park subdivision (Monterey County Planning Department, 2012).</p>	Unknown
4	5 Corral De Tierra Road	<p>Omni Enterprises, LLC – Development of a new 126,500-square-foot shopping center that includes retail and office space (Monterey County Planning Department, 2014a).</p>	Unknown
5	South side of State Highway 68, between River Road and San Benancio Road	<p>Ferrini Ranch Subdivision – Subdivision of an approximately 870-acre property into 212 lots, including 146 market rate single-family residential lots, 23 clustered market rate residential lots, and 43 lots for Inclusionary Housing units; three Open Space parcels of approximately 600 acres, and one agricultural-industrial parcel (Monterey County Planning Department, 2014b).</p>	Unknown
33	Monterey County Water Resources Agency / Prunedale	<p>Granite Ridge Water Supply Project – Includes a new 1,000 gallons per minute groundwater production well and associated backup well near Manzanita Regional Park, both drilled to a depth of up to 635 feet; up to 87,700 linear feet of 6- to 12-inch-diameter water transmission pipelines; two booster pump stations; two water storage tanks (350,000 and 250,000 gallons); and associated appurtenances. The project would consolidate existing water distribution infrastructure, including up to 119 existing water systems and 500 individual well users (MCWRA, 2010a; 2010b).</p>	Unknown
24	Monterey County Water Resources Agency / southern Monterey County and northern San Luis Obispo County	<p>Interlake Tunnel - The MCWRA Interlake Tunnel Project would construct an 11,000-foot-long tunnel to divert approximately 50,000 afy of water from Nacimiento Reservoir to San Antonio Reservoir that would have otherwise been spilled at Nacimiento Dam. The Nacimiento River basin produces nearly three times the average annual flow of the San Antonio River basin. During the winter season, the Interlake Tunnel would be used to transfer excess Nacimiento River flows to San Antonio Reservoir, thereby increasing the overall storage capacity of the system (MCWRA, 2014a). The water stored in San Antonio Reservoir would then be used for downstream groundwater recharge and abatement of salt water intrusion in the Salinas Valley Groundwater Basin (RWMG, 2014).</p>	Unknown

**TABLE 5-1 (Continued)
CUMULATIVE PROJECTS**

No.	Planning Jurisdiction/ Location	Project Description	Estimated Construction Schedule
City of Sand City			
6	330 Shasta Street	City of Sand City Coastal Desalination Plant – This existing desalination facility is capable of producing 300 afy of potable water supplies. Four seawater extraction wells are used to pump brackish water to the plant, where reverse-osmosis technologies are used for desalination. Brine concentrate is disposed of by injecting the concentrate into a subsurface slant well beneath the coastal bluff (City of Sand City, 2013).	Completed in 2010
43	Redwood Avenue and John Street	90-inch Bay Avenue Outfall Phase 1 – Improvement project involving: (1) installation of a discharge valve at the Bay Avenue outfall; (2) maintenance and manual breaching of the sand bar to allow gravity flow through the culvert; (3) creation of an infiltration basin at John Street and Redwood Avenue to mitigate flooding; (4) reconstruction of the existing elevated emergency outlet structure, including doubling the size of the box to increase the width of the emergency outlet structure; and (5) constructing a curbed channel along the top of the existing 90-inch-diameter culvert from the emergency outlet to the check valve (MPWMD, 2013).	Unknown
City of Marina			
7	Former Fort Ord Military Base Highway 2 / Imjin Parkway	The Dunes on Monterey Bay – Mixed-use development project comprising an additional 1,237 residential units, 500 hotel rooms, and retail and office space on 297 acres. Phase 1 (378,000-square-foot retail center) built in 2007-2008. Projects currently underway include the following: (1) South County Housing to develop and build 108 low- and very low-income affordable apartments many of which were completed by spring/summer 2014; (2) Cinemark multiple screen movie theater planned to be constructed by summer 2015; (3) Plans approved for two approximately 15,000 square foot retail buildings to be built near the proposed movie theater; and (4) Veterans Affairs Monterey Health Care Center located on a 14.31-acre project site within the Dunes on Monterey Bay Specific Plan area (City of Marina, 2011d; FORA, 2013).	Ongoing / Full Buildout Scheduled for 2020
8	Former Fort Ord Military Base 3rd Avenue / Imjin Parkway	Cypress Knolls Senior Residential Project – Senior residential community with active-adult housing, care services, senior community center, and supportive amenities and services on 188 acres (City of Marina, 2012).	Unknown
9	Former Fort Ord Military Base Imjin Parkway / California Avenue	Marina Heights – Removal of 828 abandoned residential units and replacement with a combination of 1,050 new townhouse, cottage, and single-family residential units. The project also includes 35 acres of parks, greenbelts, and open space (City of Marina, 2010).	Unknown
10	Reservation Road between Del Monte Boulevard and De Forest Avenue	Marina Downtown Vitalization Specific Plan – Redevelopment plan for Marina's 225-acre downtown area comprising mixed-use commercial, residential, educational, and civic uses (City of Marina, 2011b).	Unknown / Full Buildout Scheduled for 2040
11	Marina Airport Reservation Road / Blanco Road	Marina Airport Economic Development Area – Airport development project aimed at promoting growth of the airport. Individual projects include: • Airfield Electrical System Upgrades • Runway Rehabilitation and Extension • Taxiway Rehabilitation and Extension • Airfield NAVAIDS Improvements (City of Marina, 2011a).	Completed
39	3012-3032 Lexington Court, Marina (east of Abrams Drive on the former Fort Ord Military Base)	Rockrose Gardens – Affordable housing for people with disabilities, 20 units of permanent supportive housing for people with psychiatric disabilities (FORA, 2013).	Completed

**TABLE 5-1 (Continued)
CUMULATIVE PROJECTS**

No.	Planning Jurisdiction/ Location	Project Description	Estimated Construction Schedule
City of Marina (cont.)			
12	Armstrong Ranch, Marina (Along the northern limits of the city of Marina, on either side of Del Monte Avenue)	Marina Station – Development project comprising 1,360 residential units, approximately 60,000 square feet of retail space, 144,000 square feet of office space, and 652,000 square feet of business park/industrial uses (City of Marina, 2011c).	Unknown
13	California State University Monterey Bay Campus	CSUMB North Campus Housing Master Plan – Includes 583 student housing units, leasing office, community center on 8 acres (more recently known as the Promontory Housing Project) (City of Marina, 2011e; FORA, 2013).	Final Buildout Scheduled for August 2015
40	California State University Monterey Bay Campus (Divarty Street, east of General Jim Moore Boulevard)	ITCD Academic Building (CSUMB) – New 58,000-square-foot Information Technology and Communications Design (ITCD) and the School of Business academic building (FORA, 2013).	Final Buildout Scheduled for August 2015
47	CEMEX Sand Mining Facility (east of Highway 1 on Lapis Road)	CalAm Slant Test Well at CEMEX – Construct and operate a test slant well and associated monitoring wells. The project purpose is to develop the geologic, hydrologic, and water quality data needed to confirm the feasibility of using slant wells in the CEMEX active mining area as a Seawater Intake System for the MPWSP Desalination Plant. The test slant well extends diagonally beneath the seafloor through the Dune Sand Aquifer and the 180-Foot Aquifer Equivalent. The pilot program will be operated for up to 24 months (CCC, 2014).	2015 Construction completed, pilot program currently underway
19	Former Sand Mine site, near the Fremont / Highway 1 interchange.	Monterey Bay Shores Resort – The project consists of a 341-unit "eco-resort" on 39 acres approved. The proposal calls for 161 hotel rooms, 180 condominiums, a restaurant, conference center, spa, and three swimming pools (SNG, 2008).	Unknown
City of Seaside			
14	West of Fremont Boulevard, along Broadway Avenue, Del Monte Boulevard, and Canyon Del Rey Boulevard	The West Broadway Urban Village Specific Plan – Mixed-use, transit-oriented development comprising residential with ground-floor retail and commercial uses along Broadway Avenue, with supporting future transit-oriented development along the west side of Del Monte Boulevard. Includes a public library and parking structure on Broadway Boulevard and a hotel/conference center mixed-use development at the southeast corner of Canyon Del Rey and Del Monte Boulevards (City of Seaside, 2013b).	Ongoing construction due to redevelopment plans
15	Broadway Avenue / Fremont Boulevard	City Center Shopping Center Redevelopment Project – Approximately 40,000 square feet of retail and restaurant space (City of Seaside, 2013c).	Construction Completed in 2012
16	Former Fort Ord Military Base Monterey Road / Coe Avenue	The Seaside Resort – The first phase, completed in 2009, involved upgrades to the Bayonet and Black Horse Golf Courses. The next phase of development features a four-star hotel with approximately 275 hotel rooms, 175 timeshare units, and 125 residential units (City of Seaside, 2013c).	Stage 1 2017-2018
17	Former Fort Ord Military Base (East of General Jim Moore Boulevard, south of Inter-Garrison Road and north of Eucalyptus Road)	Monterey Downs and Horse Park and Central Coast Veteran's Cemetery Specific Plan – The Specific Plan project would include a 225,000-square-foot horse training facility comprising a track and stabling area, ancillary buildings, and a 6,500-seat sports arena and grandstand; a 330,000-square-foot commercial center; a 15,000-square-foot horse park with a visitors center, office space, veterinary clinic, and horse stables; two affordable extended-stay hotels with a total of 256 units; 1,280 residential units ranging from apartments to single-family residential homes; a 100,000-square-foot office park; a 200-room (100,000-square-foot) hotel; a 5,000-square-foot tennis and swim club; a 73-acre habitat preservation area; and 74 acres dedicated to open space and parks and infrastructure. The Central Coast Veterans Cemetery component of the Specific Plan project includes 13,838 burial sites for 20 years of interments, an administration building, a maintenance yard and building, memorial areas, veterans' hall, cultural history museum, chapel, and a 300-seat amphitheater for special events. An adjacent 45.9-acre parcel is proposed as a habitat restoration area (City of Seaside, 2013a).	Unknown

**TABLE 5-1 (Continued)
CUMULATIVE PROJECTS**

No.	Planning Jurisdiction/ Location	Project Description	Estimated Construction Schedule
City of Seaside (cont.)			
18	Former Fort Ord Military Base Between Highway 1 and 2nd Avenue, and Light Fighter Drive and 1st Street	Main Gate Specific Plan – Mixed-use development project featuring approximately 500,000 square feet of retail and entertainment space, and a 250-room hotel/conference center with spa amenities (City of Seaside, 2012).	Unknown
41	Broadway Avenue between Del Monte Boulevard and Fremont Boulevard, and Del Monte Boulevard between Broadway Avenue and Contra Costa Street	West Broadway Stormwater Retention – The project involves construction of a stormwater treatment and diversion systems in Broadway Avenue between Del Monte Boulevard and Fremont Boulevard and at Del Monte Boulevard. Treated water would be diverted to retention structures for groundwater recharge (MPWMD, 2013).	Unknown
42	Laguna Grande and Roberts Lake (Near the intersection of Highway 218 [aka Canyon Del Rey Boulevard] and Del Monte Boulevard)	Dredge Laguna Grande and Roberts Lake¹ – The project would create additional storage capacity, visitor-serving amenities, and habitat enhancements at Laguna Grande and Roberts Lake (MPWMD, 2013).	Unknown
44	Broadway Avenue between Del Monte Boulevard and Fremont Boulevard and at Del Monte Boulevard	Del Monte Blvd Dry Weather Diversion – The project consists of construction of a dry weather stormwater diversion at Del Monte Boulevard to the sanitary sewer system. Diverted water would be treated by the regional treatment plant and reused for existing non-potable and potential future potable uses (MPWMD, 2013).	Unknown
City of Monterey			
20	459 Alvarado Street	459 Alvarado Street – Development of 36 residential units and 12,000 square feet of commercial uses (City of Monterey, 2012).	Completion of Construction Anticipated 2015
21	480 Cannery Row	Ocean View Plaza – Mixed-use development project consisting of 87,362 square feet of commercial space, 30,000 square feet of restaurant space, 8,408 square feet of coastal/community use, 38 market-rate condominiums, and 13 inclusionary housing units (City of Monterey, 2012).	Unknown
City of Pacific Grove			
22	Sunset Drive	Pacific Grove Stormwater Recycling Project – Construction of a new local satellite recycled water treatment plant at the former Point Pinos Wastewater Treatment Plant and installation of 1,400 linear feet of conveyance pipeline. Project would provide 125 afy of recycled water to serve irrigation needs at the Pacific Grove Golf Links and the El Carmelo Cemetery, as well as water for toilet and urinal flushing at the golf links restrooms (City of Pacific Grove, 2014).	2015-2016
23	Pacific Grove	Pacific Grove Recycled Water – Recycled water from the Pebble Beach Community Services District (PBCSD) and raw wastewater from 500 homes in the Del Monte Park area of Pacific Grove would be captured and diverted to the existing Carmel Area Wastewater District (CAWD) reclamation facility for treatment. Recycled water from CAWD would be stored in the Forest Lake Reservoir and returned to the city through existing CAWD and PBCSD recycled water systems to a delivery point near the Spanish Bay Golf Course in Pebble Beach. Approximately 10,000 to 13,500 linear feet of new 12-inch diameter recycled water pipeline would be constructed to deliver water to the golf links, cemetery and other irrigation demands (CPUC, 2012).	Unknown

¹ Laguna Grande and Roberts Lake are collectively referred to as Laguna del Rey throughout this EIR.

**TABLE 5-1 (Continued)
CUMULATIVE PROJECTS**

No.	Planning Jurisdiction/ Location	Project Description	Estimated Construction Schedule
City of Carmel			
25	2770 15th Avenue, Carmel	Carmel Unified School District – Construction of a 5,070-square-foot building to house six classrooms. The project also includes the removal of five onsite temporary modules and six non-native ornamental landscape trees (Monterey County Planning Department, 2012).	Unknown
26	Del Monte Forest	Pebble Beach Company Project – The project consists of the build-out and preservation of the remaining undeveloped Pebble Beach Company properties located within the Del Monte Forest. The project calls for the renovation and expansion of visitor-serving uses, creation of 90 to 100 single-family residential lots, and preservation of 635 acres as primarily forested open space. The proposed development would result in new construction at four primary sites: The Lodge at Pebble Beach, The Inn at Spanish Bay, Spyglass Hill, and the Pebble Beach Equestrian Center (Monterey County Planning Department, 2012).	Unknown
27	Carmel Valley Road	Rancho Cañada Village – Development of 281 mixed-use residential units, including 182 single-family dwellings, 64 townhomes, and 35 condominiums (Monterey County Planning Department, 2013a).	Unknown
28	Carmel Valley Road	Rancho Cañada Golf Club – The development of 175 hotel or timeshare units and 50 employee housing units, golf course clubhouse and restaurant, four tennis courts, health club, spa, and administrative offices, and reconfiguration of the club's West Course (Monterey County Planning Department, 2013a).	Unknown
Monterey Peninsula Water Management District			
29	Former Fort Ord Military Base General Jim Moore Boulevard/ Eucalyptus Boulevard	Seaside Groundwater Basin Aquifer Storage and Recovery (Phase 1) – Water supply project consisting of two injection/extraction wells (ASR-1 and ASR-2 wells), a backwash percolation basin, a chemical/electrical building, and conveyance pipelines. During high-flow periods in the Carmel River, river water is injected into Seaside Groundwater Basin, then extracted during dry periods or periods of high demand (MPWMD, 2005).	Construction completed in 2008
30	Seaside Middle School General Jim Moore Boulevard/ Coe Avenue	Seaside Groundwater Basin Aquifer Storage and Recovery (Phase 2) – This phase includes two additional injection/extraction wells (ASR-2 and ASR-3 wells) and a backwash percolation basin (Denise Duffy & Associates, 2012).	Construction completed in 2014
Other			
32	Carmel River near confluence with San Clemente Creek	CalAm San Clemente Dam Removal Project – This project will remove the 106-foot-tall San Clemente Dam, reroute the Carmel River into San Clemente Creek, excavate and stabilize sediment that has accumulated in San Clemente Creek, and reconstruct and restore a half-mile reach of San Clemente Creek (San Clemente Dam Removal, 2012).	Construction scheduled for completion in 2016.
34	Moss Landing / Santa Cruz County	DeepWater Desal² – Construction of a 23-million-gallon-per-day seawater desalination facility located on a 110-acre site in Moss Landing, on Dolan Road, approximately 1,500 feet east of the Moss Landing Power Plant. The project would provide up to 25,000 afy of potable water supply to serve participating communities in the Monterey Bay region, potentially including the Monterey Peninsula, Castroville, Salinas, and parts of Santa Cruz County (DeepWaterDesal, 2015).	Beyond 2017
48	Moss Landing Green Commercial Park/ Santa Cruz County	The People's Moss Landing Water Desal Project² – The project would provide 3,652 afy of desalinated water to customers in North Monterey County and 9,752 afy to the Monterey Peninsula, to offset mandated water supply diversion curtailments on the Carmel River and Seaside Basin. The project would rehabilitate existing pipelines for open bay seawater collection and discharge of effluent, a new pump house and desalination plant, and desalinated water conveyance and storage facilities (The People's Project, 2015).	Unknown

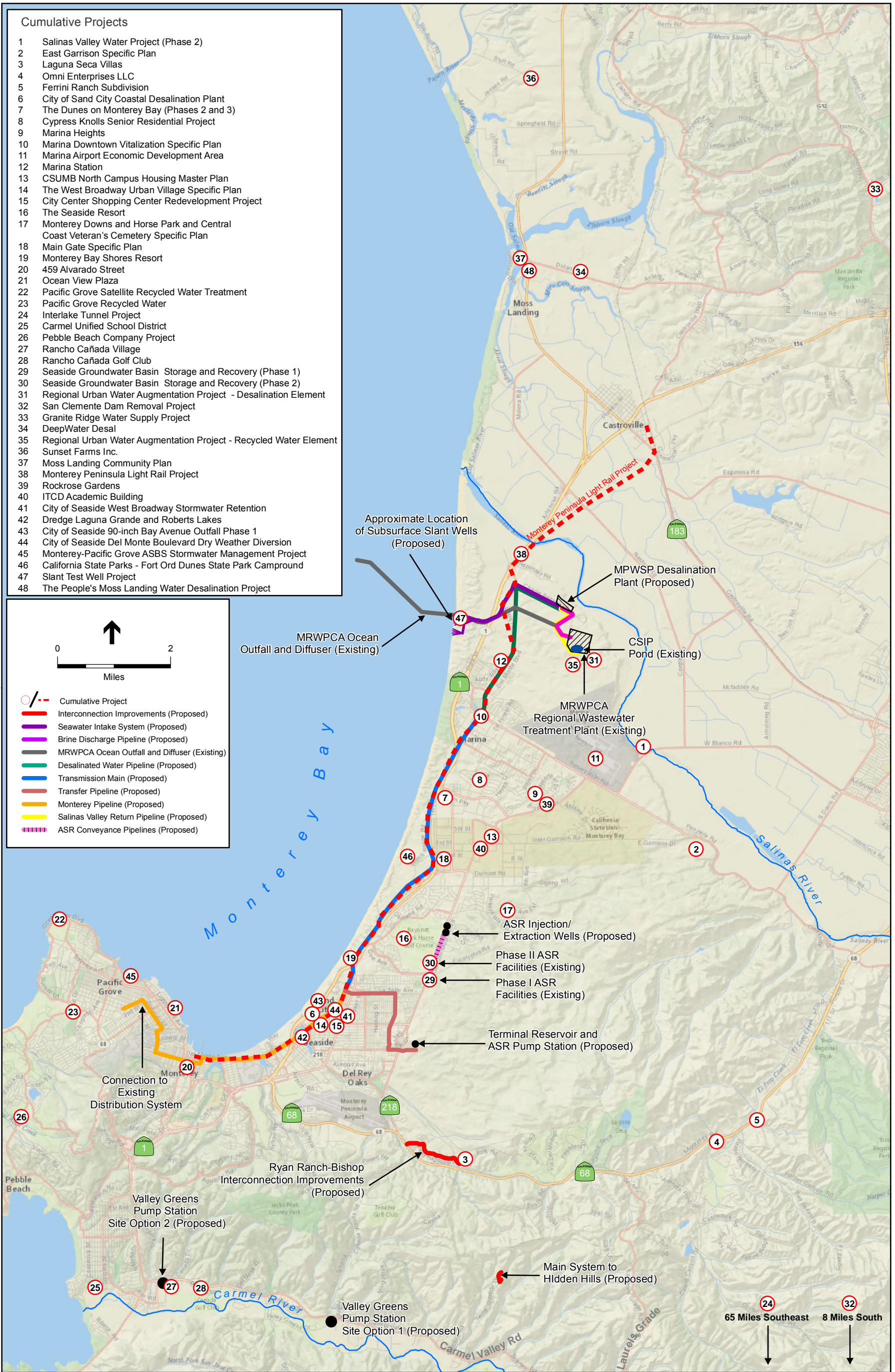
² The DeepWater Desal and The People's Moss Landing Water Desal projects would be constructed to serve the water needs of the same population. As a result, it is expected that only one of these projects would move forward. Accordingly, the cumulative analysis in this EIR considers the potential cumulative impact associated with each project separately, but not both projects together.

**TABLE 5-1 (Continued)
CUMULATIVE PROJECTS**

No.	Planning Jurisdiction/ Location	Project Description	Estimated Construction Schedule
Marina Coast Water District			
31	Marina Coast Water District / Salinas Valley Reclamation Plant, Monterey County	Regional Urban Water Augmentation Project (RUWAP) Desalination Element – Construction of a 1,500-afy desalination plant at the Marina Coast Water District Armstrong Ranch property, north of the city of Marina in Monterey County. The RUWAP Desalination Element would extract seawater and/or brackish water from Monterey Bay, produce desalinated water, and convey it to the Marina Coast Water District service area (MCWD, 2012).	Unknown
35	Marina Coast Water District / Salinas Valley Reclamation Plant, Monterey County	Regional Urban Water Augmentation Project (RUWAP) Recycled Water Element – The Recycled Water Element includes construction of a recycled water distribution system to provide up to 1,500 afy of recycled water to urban users in the Marina Coast Water District service areas, including the former Fort Ord. The water would be recycled at the existing Salinas Valley Reclamation Plant. This project includes the following facilities: a new pipeline connection to the Salinas Valley Reclamation Plant; two pump stations; 40,000 linear feet of distribution pipelines; and a 1.5-million-gallon storage tank known as Blackhorse Reservoir (MCWD, 2013).	Unknown
Moss Landing			
36	167 Jensen Road, Moss Landing	Sunset Farms Inc. – Demolition of four agricultural support buildings totaling 84,824 square feet and construction of four new agricultural support buildings totaling 42,750 square feet. Grading for the project would consist of approximately 189 cubic yards of cut and 1,376 cubic yards of fill (Monterey County Planning Department, 2012).	Unknown
37	Moss Landing	<p>Moss Landing Community Plan</p> <ul style="list-style-type: none"> • Revx-173 LLC – Demolition of an existing facility and construction of a 70,000-square-foot industrial warehouse on 189 acres. • Monterey Bay Aquarium Research Institute – Removal of a finger pier; construction of a 58,655-square-foot research facility; demolition of an existing building and construction of a 34,000-square-foot replacement facility; and construction of a 30-foot dock extension (Monterey County Planning Department, 2013a). In addition, construction of a 66,500-square-foot building to support science and engineering research activities. • 30-Unit Hotel • Pisto Restaurant – Construction of a 6,000-square-foot restaurant • Moss Landing Marine Laboratories – Development of a 36,000-square-foot warehouse and 15,000-square-foot dock/wharf area at 7539 Sanholdt Road. At 7544 and 7722 Sandholdt Road, development of a 2,600-square-foot mixed-use facility, a 7,400-square-foot research building, 8,520-square-foot concrete slab for aquaculture, and a 300-foot pier. • Gregg Drilling – Development of an 8,000- to 9,000-square-foot building for high-tech operations (Monterey County Planning Department, 2013b). 	Unknown
Other Projects			
45	Cities of Monterey and Pacific Grove (David Avenue Reservoir, Pine Avenue, Ocean View Boulevard, former wastewater treatment plant site)	Monterey-Pacific Grove Area of Special Biological Significance (ASBS) Stormwater Management Project – The project includes the diversion of both wet weather and dry weather flows from the Greenwood Park and Congress Storm Drain Watersheds to the David Avenue Reservoir site, and treatment and delivery of recycled water to irrigation sites throughout the city (CPUC, 2012). The project also includes revisions to the existing storm drain system in Pacific Grove to retain or treat stormwater flows. These retention facilities will help to meter or treat flows into either treatment facility thereby allowing up to a 90 percent reduction in pollutant loading during storm events. Diverted flows would ultimately be directed to either the rebuilt Pacific Grove Water Treatment Plant or the Monterey Regional Water Pollution Control Agency Regional Water Treatment Plant in Marina (MPWMD, 2013).	2018 -2020

**TABLE 5-1 (Continued)
CUMULATIVE PROJECTS**

No.	Planning Jurisdiction/ Location	Project Description	Estimated Construction Schedule
Other Projects (cont.)			
38	Cities of Castroville, Marina, Monterey, Seaside, Sand City, and County of Monterey.	TAMC Monterey Peninsula Light Rail Project – Construction of commuter light rail service predominantly, but not exclusively, along the Transportation Agency for Monterey County’s (TAMC’s) existing Monterey Branch Line right-of-way, from House Plaza in the city of Monterey to Blackie Road in Castroville. This 15.2-mile-long project would involve improvements to existing rail, construction of new rail, and 12 new stops/stations (one in Castroville, five in Marina, three in Seaside and Sand City, and three in the city of Monterey). Approximately 860 new parking spaces would be constructed at these stations. The project would also include a new maintenance facility; this facility would be located at one of three sites under consideration, all of which are near Highway 1 on lands formerly associated with the Fort Ord military base (TAMC, 2011). TAMC has placed this project on hold indefinitely until the agency can secure funding for environmental review, design, and construction.	Unknown
46	Fort Ord Dunes State Park (immediately west of the TAMC rail corridor and State Highway 1, west of the former Fort Ord Military Base)	Fort Ord Dunes State Park Campground – Construction and operation of a campground facility and associated infrastructure within Fort Ord Dunes State Park, including 45 RV sites and two host sites, 10 hike/bike sites, and 43 tent sites; parking; restrooms and showers; a multi-purpose building; an outdoor campfire center; interpretation/ viewing areas; renovation of existing bunkers; an entrance station near the 1st Street underpass; modular structures; storage yard and maintenance shop; improved beach access/trails; one plumbed restroom with shower; a 200-foot wildlife/habitat corridor; internal campground trail network, trail improvements, and roadway improvements; and off-site utilities (Denise Duffy & Associates, 2013).	2015



SOURCE: ESA, 2013

205335.01 Monterey Peninsula Water Supply Project
Figure 5-1
 Cumulative Projects

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5.1.2 List of Relevant Projects

Table 5-1 lists the past, present, and reasonably foreseeable projects and activities within and near the project area and provides brief descriptions of the projects and their expected schedules. The list of projects was developed by reviewing public agency websites, information provided by potentially affected agencies during the scoping process, and researching other projects known to be in the planning or development phase. **Table 5-1** also identifies project status, estimated cumulative project construction schedules and the potential cumulative impact topics associated with each project or activity. The following cumulative impact analysis conservatively assumes that approved projects whose construction schedules are unknown would be constructed during the anticipated MPWSP construction phase (i.e., between October 2016 and March 2019).

Figure 5-1 shows the general location of the cumulative projects listed.

5.2 Cumulative Impacts and Mitigation Measures

This section presents the cumulative impact analysis for the MPWSP by environmental resource topic. Each impact discussion assesses whether the incremental effects of the MPWSP could combine with similar effects of one or more of the projects identified in **Table 5-1** to cause or contribute to a significant cumulative effect. If so, the analysis considers whether the incremental contribution of the MPWSP would be cumulatively considerable (i.e., significant).

5.2.1 Summary of Impacts

A summary of cumulative impacts by topic is provided in **Table 5-2**. The detailed cumulative impact analysis is presented under each resource topic in the subsections that follow.

**TABLE 5-2
SUMMARY OF CUMULATIVE IMPACTS**

Impact	Significance Determination
Cumulative impacts related to geology, soils, and seismicity	LS
Cumulative impacts related to surface water hydrology and water quality	LS
Cumulative impacts related to groundwater resources	LS
Cumulative impacts related to marine biological resources	LS
Cumulative impacts related to terrestrial biological resources	LS
Cumulative impacts related to hazards and hazardous materials	LS
Cumulative impacts related to land use and recreation	NI
Cumulative impacts related to transportation and traffic	SUM
Cumulative impacts related to air quality	LS
Cumulative impacts related to greenhouse gas emissions	SU
Cumulative impacts related to noise and vibration	SU
Cumulative impacts related to public services and utilities	LS
Cumulative impacts related to aesthetic resources	LS

TABLE 5-2 (Continued)
SUMMARY OF CUMULATIVE IMPACTS

Impact	Significance Determination
Cumulative impacts related to cultural and paleontological resources	LS
Cumulative impacts related to agricultural and forestry resources	LS
Cumulative impacts related to mineral resources	LS
Cumulative impacts related to energy resources	LS
Cumulative impacts related to population and housing	SU

NI = No Impact

LS = Less than Significant contribution to cumulative impacts (i.e., not cumulatively considerable), no mitigation required

SU = Significant and Unavoidable contribution to significant cumulative impact (i.e., cumulatively considerable) for which no mitigation is available

SUM = Significant and Unavoidable impact with implementation of feasible mitigation measures

5.2.2 Geology, Soils, and Seismicity

Cumulative impacts related to geology, soils, and seismicity (*Less than Significant*)

Although the Monterey Bay area is located within a seismically active region with a wide range of geologic and soil conditions, these conditions can vary greatly within a short distance. Accordingly, geologic and seismic impacts tend to be site-specific and depend on the local geology and soil conditions. For these reasons, the geographic scope for potential cumulative geologic and seismic impacts consists of the project component sites and immediate vicinity. The timeframe during which the MPWSP could contribute to cumulative geology, soils, and seismicity effects includes the 30-month construction phase, as well as the anticipated approximately 40-year operations phase. With the exception of the constructed Slant Test Well project (No. 47), which if proven viable would become a component of the MPWSP, none of the projects listed in **Table 5-1** would be expected to have a footprint that overlaps with that of a proposed MPWSP component. Because of the localized nature of the anticipated MPWSP impacts, the projects listed in **Table 5-1** would not combine with those of the MPWSP to cause or contribute to potential cumulative geologic, soil, or seismic impacts associated with soil erosion or loss of topsoil (Impact 4.2-1), fault rupture (Impact 4.2-2), or expansive soils (Impact 4.2-8) (*no impact*).

As described in Impacts 4.2-3, 4.2-4, and 4.2-9, seismically induced ground shaking, liquefaction and lateral spreading, and corrosive soils could cause pipeline leaks or ruptures. State and local building regulations and standards, many of which are described in Section 4.2.2, Regulatory Framework, have been established to address and reduce the potential for such impacts to occur. The MPWSP and cumulative projects identified in **Table 5-1** would be required to comply with applicable provisions of these laws and regulations. Through compliance with these requirements, the potential for impacts such as pipeline leaks or ruptures would be reduced. Therefore, the incremental impacts of the MPWSP when combined with impacts of the cumulative projects

would not cause or contribute to a significant cumulative impact related to seismically induced ground shaking, liquefaction and lateral spreading, or corrosive soils (*less than significant*).

As discussed in Impact 4.2-5, the Main System-Hidden Hills Interconnection Improvements are proposed for an area with high to moderate landslide susceptibility. As indicated on **Figure 5-1**, there are no cumulative projects in the vicinity of the Main System-Hidden Hills Interconnections Improvements site. Moreover, as discussed in Impact 4.2-5, upon completion of construction activities, the pipeline would be buried below the street, the surface would be restored to the approximate pre-construction paved condition (e.g., slope and drainage), and the risk of the MPWSP initiating ground movement would be the same as pre-construction conditions. As a result, the MPWSP would not cause or contribute to any potential cumulative effect related to landslide (*no impact*).

As discussed in Impact 4.2-6, if exposed to tidal action due to coastal erosion and bluff retreat associated with sea level rise, the subsurface slant wells and Monterey Pipeline could exacerbate shoreline erosion and scour and/or be subject to damage or failure associated with severe storm events. These potentially significant impacts would be reduced to a less-than-significant level through implementation of **Mitigation Measure 4.2-6a (Slant Well Abandonment Plan)**, which would require CalAm to monitor coastal retreat rates and initiate well decommissioning before the subsurface slant wells become exposed on the active beach.

The only cumulative project in the vicinity of these project components is the CalAm Slant Test Well Project (**Figure 5-1**, No. 47). As indicated above, if proven viable, and if the MPWSP is approved as proposed, the Slant Test Well would become permanent and operated as part of the MPWSP's seawater intake system. Were this to occur, the Slant Test Well Project and the MPWSP would be the same project and both would be subject to **Mitigation Measure 4.2-6a**. Because implementation of this mitigation measure would reduce the impacts of both components to a less-than-significant level, and the residual impacts would not combine to create a significant impact because the subsurface slant wells and test wells would be decommissioned before becoming exposed on the active beach, there would be no cumulatively significant effect resulting from these projects (*less than significant*).

As discussed in Impact 4.2-7, portions of the Salinas Valley Groundwater Basin (SVGB) have experienced overdraft conditions, resulting in the replacement of freshwater by seawater. Subsidence typically occurs in association with the extraction of groundwater in excess of recharge from a confined aquifer, resulting in compaction of soil pores once occupied by water. The modeling discussed in Section 4.4, Groundwater Resources, anticipates that the source of water to the seawater intake system would be predominantly seawater infiltrating through the ocean floor and migrating to the slant wells. The modeling of the flow anticipates that only 989 afy (about 4 percent) of the source water would come from inland sources. This 989 afy of inland water would be returned to the SVGB via the existing Castroville Seawater Intrusion Project (CSIP) pond, serving as in-lieu groundwater recharge by reducing an equivalent volume of groundwater pumping by local agriculture from the SVGB. This action would balance out the slant well extraction with an equal reduction of inland groundwater pumping, resulting in no

impact that could increase the risk of subsidence. The only cumulative project in the vicinity of the MPWSP subsurface slant wells is the CalAm Slant Test Well Project (**Figure 5-1**). As noted above, if proven viable, and if the MPWSP is approved as proposed, the Slant Test Well would become permanent and operated as part of the MPWSP seawater intake system. Geologic units composed of sand and gravel, such as those of the test well and subsurface slant well site and underlying aquifer, are less prone to subsidence than clayey or organic soils because the granular structure is better able to support the overlying weight of soil. In addition, the test well and subsurface slant wells would draw water from unconfined aquifers that are predominantly recharged by seawater, thereby keeping the pore spaces between soil grains filled with water and further supporting its granular structure. Consequently, as described for the MPWSP slant wells, the soil structure above the test slant would not be subject to subsidence as a result of pumping. Therefore, neither project would contribute to a cumulative subsidence impact (*no impact*).

5.2.3 Surface Water Hydrology and Water Quality

Cumulative impacts to surface water hydrology and water quality (*Less than Significant*)

The geographic scope for potential cumulative surface hydrology and water quality impacts consists of the project area and surrounding Salinas River and Carmel River watershed lands as well as marine waters in Monterey Bay. The analysis of potential cumulative impacts on hydrology and water quality considers those cumulative projects listed in **Table 5-1** and shown in **Figure 5-1**. The analysis focuses on cumulative adverse effects on water quality associated with construction and operations. The timeframe during which the MPWSP could contribute to cumulative surface water hydrology and water quality effects includes the 30-month construction phase, as well as the anticipated approximately 40-year operations phase.

Impacts to Surface Hydrology and Surface Water Quality during Construction

Construction activities associated with the MPWSP could result in the degradation of water quality from increased soil erosion and associated sedimentation of water bodies due to stormwater runoff, as well as accidental releases of hazardous materials (see Impact 4.3-1). In addition, discharges of dewatering effluent from excavated areas and treated water and disinfectant from pipelines could adversely affect water quality (see Impacts 4.3-2 and 4.3-3).

Nearly all the cumulative projects identified in **Table 5-1** involve excavation and use of heavy equipment during construction. Therefore, the cumulative projects in **Table 5-1** have the potential to degrade surface water quality as a result of construction-related soil erosion or accidental discharges of hazardous construction chemicals. A number of the cumulative projects could also require construction dewatering. Cumulative projects that include the installation of new pipelines, such as the Salinas Valley Water Project, Granite Ridge Water Supply Project, DeepWaterDesal, RUWAP, and Pacific Grove projects (Nos. 1, 33, 34, 31, 22, 23, and 45) would likely involve discharges of treated water produced during pipeline draining and disinfection. The effects of MPWSP construction in combination with similar cumulative projects construction effects could combine to cause a cumulatively significant impact related to the degradation of water quality.

As described in Impact 4.3-1, projects that would disturb more than one acre of soil (including nearly every project in **Table 5-1**) would be subject to the National Pollutant Discharge Elimination System (NPDES) Construction General Permit requirements. The NPDES Construction General Permit requirements, established by the RWQCB, are themselves measures based, in part, on the consideration of cumulative effects to receiving waters. Such requirements include the preparation and implementation of project-specific Stormwater Pollution Prevention Plans (SWPPPs). The SWPPPs would include specific erosion and stormwater control measures to prevent substantial adverse effects on water quality during construction and would be implemented throughout the duration of construction activities. Nearly every cumulative project would be required to implement a SWPPP. As a result, the effects of the MPWSP would not be expected to combine with those of cumulative projects to cause a cumulatively significant water quality impact from increased soil erosion and sedimentation, or inadvertent releases of toxic chemicals during general construction activities. The proposed project's contribution to this cumulative impact would not be cumulatively considerable (*less than significant*).

As with the MPWSP, the cumulative projects in **Table 5-1** could also require dewatering during construction to create a dry work area if groundwater is encountered in open excavations. In addition, for cumulative water supply projects, segments of existing pipelines would need to be drained and disinfected prior to being returned to service and newly installed pipelines would need to be disinfected before being put into service. The dewatering effluent from open excavations, treated water from the draining of existing pipelines, and the effluent generated from disinfection of pipelines could be discharged to the storm drainage system or to vegetated upland areas. As discussed in Impacts 4.12-2 and 4.12-3, these discharges would be regulated by the Regional Water Quality Control Board (RWQCB) and would be subject to *General Waste Discharge Requirements for Discharges with a Low Threat to Water Quality* (General WDRs). The General WDRs include measures to bring such effluent into conformance with State standards prior to discharge (e.g., neutralizing residual chlorine and reducing total dissolved solids). For the discharges of treated water and disinfection effluent, compliance with the General WDRs and the conditions therein would protect water quality in receiving water bodies. Since all other water supply projects that involve pipelines would also need to comply with the General WDRs, the effects of MPWSP treated water and disinfection effluent discharges when combined with those of cumulative projects would not cause a cumulatively significant effect. The proposed project's contribution to this cumulative impact would not be cumulatively considerable (*less than significant*).

However, if the MPWSP's dewatering effluent from open excavations were to contain materials from previous spills or leaks, discharges of contaminated dewatering effluent to vegetated upland areas or the local storm drain system would result in a significant impact. To reduce the potential for residual contaminants in the MPWSP dewatering effluent to adversely affect water quality, Impact 4.12-2 calls for implementation of **Mitigation Measure 4.7-2b (Soil and Groundwater Management Plan)**, which would require construction contractors to comply with all relevant environmental regulations and plan for the safe and lawful disposal of contaminated groundwater, when encountered. With implementation of **Mitigation Measure 4.7-2b**, the residual effects of MPWSP discharges of dewatering effluent would not be expected to combine with that of

cumulative projects to cause a cumulatively significant effect. The proposed project's contribution to this cumulative impact would not be cumulatively considerable (*less than significant*).

The water extracted during drilling and development of the subsurface slant wells and ASR-5 and ASR-6 Wells would be disposed in accordance with the RWQCB's *General Waiver of WDRs for Specific Types of Discharges* (General Waiver). The General Waiver would allow the extracted water to be discharged to upland areas after allowing suspended solids to settle out (e.g., routing to temporary holding tank). The conditions of the General Waiver would minimize the potential for water quality degradation by regulating the types and concentrations of pollutants in the discharges, and restricting the location and method of disposal. With implementation of **Mitigation Measure 4.7-2b (Soil and Groundwater Management Plan)** and mandatory compliance with the NPDES Construction General Permit, General Waiver, and General WDRs, residual effects of MPWSP discharges of water extracted during well drilling and development would not be expected to combine with those of cumulative projects to cause a cumulatively significant effect. The proposed project's contribution to this cumulative impact would not be cumulatively considerable (*less than significant*).

Impacts to Surface Hydrology and Surface Water Quality during Operation and Maintenance

Operation and maintenance of MPWSP facilities could degrade surface and marine water quality during the anticipated approximately 40-year operations phase as a result of altered drainage patterns, operational discharges, flooding and flood hazards.

Discharge from the Operation of the MPWSP Desalination Plant

For the impact related to the brine discharge from the operation of the MPWSP Desalination Plant, the cumulative projects whose impacts could overlap with those of the MPWSP include the Sand City Coastal Desalination Plant (No. 6), Slant Test Well (No. 47), RUWAP Desalination Element (No. 31), and RUWAP Recycled Water Element (No. 35). In addition, it is expected that either the Deep Water Desal Project (No. 34) or The People's Moss Landing Desal Project (People's Project; No. 48), but not both, would be constructed and operated in the reasonably foreseeable future.

Operation of the MPWSP Desalination Plant under the proposed project would result in a brine discharge through an existing outfall into Monterey Bay, which could affect surface water quality and is discussed under Impacts 4.3-4 and 4.3-5 in Section 4.3, Surface Water Hydrology and Water Quality. As discussed in Section 4.3, currently, the wastewater treated at the Monterey Regional Water Pollution Control Agency (MRWPCA) Regional Wastewater Treatment Plant is discharged through an existing outfall owned and operated by MRWPCA and is subject to the water quality requirements in the NPDES Permit (R3-2014-0013) issued by the Central Coast RWQCB. The permit would be amended to incorporate the brine discharge from the MPWSP Desalination Plant, where the brine and its combination with the wastewater (as "combined discharge") would be subject to the water quality requirements in the amended NPDES Permit, which would incorporate the Ocean Plan water quality objectives.

The cumulative water quality impact is discussed below for Monterey Bay as the geographic area for the impact. The significance thresholds identified for the long-term water quality impact from the brine discharge would apply to the cumulative impacts as listed below. The MPWSP would have a cumulatively considerable impact if the discharges from the MPWSP Desalination Plant in combination with other past, current, or future point discharges would:

- Exceed water quality objectives established in the Ocean Plan at the edge of the zone of initial dilution (ZID).

At the project level, the brine discharge and the combined discharge (brine and low-wastewater (0.25 million gallons per day [mgd]) flows from the MRWPCA Regional Wastewater Treatment Plant) would exceed the Ocean Plan water quality objective for PCBs. The combined discharge with moderate wastewater flow would result in an exceedance in PCBs as well as ammonia. This would result in a significant impact, which would be minimized to a less-than-significant level by implementation of **Mitigation Measure 4.3-4**. As discussed in Section 4.3, Surface Water Hydrology and Water Quality, source water drawn through the subsurface intake wells and the brine would require testing prior to the operation of the MPWSP Desalination Plant, where the testing would be conducted as per protocol approved by the RWQCB. **Mitigation Measure 4.3-4** would be implemented based on the testing results and would involve employing design features and/or operational measures such as achieving dilution of the discharge through temporary storage and batched release of brine at higher flows or treatment methods such as filtration (in the case of source water and/or brine-only discharge) or auto-control and release of the brine with wastewater when adequate flows are available (in the case of combined discharge) to avoid exceedances over the Ocean Plan water quality objectives. The impact would therefore be less than significant.

The MPWSP would comply with the Ocean Plan water quality objectives, which would be incorporated in the MRWPCA NPDES permit limitations. The NPDES permit requirements would be established to achieve the water quality objectives, which are intended to protect the beneficial uses of the receiving waters, in this case Monterey Bay. The MPWSP would not contribute or add to the volume, or loading of PCBs in the ocean water and therefore would not contribute to the cumulative water quality impact related to PCBs.

As discussed in Section 4.3, Surface Water Hydrology and Water Quality, far-field modeling of the MPWSP brine discharge from the MRWPCA outfall indicates that the brine effluent would be below the greater than 2 parts per thousand (ppt) above ambient salinity significance threshold at its highest concentration. The modeling further indicates that the brine plume would generally move downslope (southwest) and reach ambient salinity levels at a distance of approximately 0.26 mile (**Appendix D1**). All existing and proposed outfalls associated with the cumulative projects (listed above) are greater than 0.26 mile from the MRWPCA outfall. Therefore, the likelihood of discharge plumes from different outfalls or their Zone(s) of Initial Dilution intersecting and resulting in exceedances of Ocean Plan defined water quality objectives and adversely affecting beneficial uses of receiving waters (Monterey Bay) is very low.

The brine discharge from the operation of the proposed MPWSP Desalination Plant would be subject to water quality requirements in the amended NPDES Permit for the discharge through the MRWPCA outfall. Any new or modified waste discharges to the bay are subject to the water quality requirements under the NPDES permits issued by the Central Coast RWQCB. Thus, operation of the cumulative projects that would result in waste discharge (listed above), including and similar to the proposed project would be subject to, would be required to comply, with the regulatory requirements for the protection of the beneficial uses of Monterey Bay. Particularly in the case of the Sand City Coastal Desalination Project and RUWAP Desalination Element that would involve discharge of their individual effluents into Monterey Bay through the existing MRWPCA outfall, the existing NPDES permit issued by the RWQCB to MRWPCA would be required to be amended to incorporate the changes in the discharge through the outfall and subject to the new permit limitations. The SWRCB, establishes the regulatory limitations and guidance on compliance, and continues to develop and administer regulations through the RWQCBs (the Central Coast RWQCB in the project area) to regulate the water quality of the waters of the U.S. The most recent proposed amendment to the Ocean Plan (SWRCB, 2015) reflects the SWRCB's process of adapting to the need to regulate discharges from desalination projects. As also discussed above, the Ocean Plan objectives are incorporated into the NPDES permits issued to the dischargers by RWQCBs in the form of specific water quality requirements.

With mandatory compliance with the regulatory requirements and the NPDES effluent limitations, the cumulative impact from the discharges resulting from MPWSP and the projects in **Table 5-1** is therefore considered less than significant. Implementation of MPWSP would not have a cumulatively considerable contribution to the cumulative water quality impact in Monterey Bay (*less than significant*).

Discharges Related to Maintenance of Subsurface Intake Wells and ASR Wells

As discussed in Impact 4.3-6, the proposed project would require site disturbance for the slant well maintenance and routine cleaning of the ASR wells, which could result in discharges that would affect water quality. Site disturbance as part of the proposed project would occur once in five years and would be subject to the water quality control requirements of the General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (Order No. 2009-0009, NPDES No. CAS000002) (Construction General Permit). Nearly all the cumulative projects identified in **Table 5-1** would involve site disturbance activities as part of construction and as discussed above would be subject to the Construction General Permit requirements. The NPDES Construction General Permit requirements, established by the RWQCB, are themselves measures based in part on the consideration of cumulative effects to receiving waters. Such requirements include the preparation and implementation of project-specific SWPPPs (as discussed above). The SWPPPs would include specific erosion and stormwater control measures to prevent substantial adverse effects on water quality during construction and would be implemented throughout the duration of construction activities. Nearly every cumulative project would be required to implement a SWPPP. As a result, the effects of the MPWSP would not be expected to combine with those of cumulative projects to cause a cumulatively significant water quality impact from increased soil erosion and sedimentation, or inadvertent releases of toxic chemicals during general construction activities as part of the slant

well maintenance. The proposed project's contribution to this cumulative impact would not be cumulatively considerable (*less than significant*).

As discussed in Impact 4.3-6, as part of the ASR well maintenance, MPWSP would require backflushing of the accumulated sediment and turbid water in the two ASR wells. The duration of backflushing would range from a few minutes to 2 hours. The discharge of the backflushed effluent would be subject to specific requirements under the General Waiver of WDRs for Specific Types of Discharges (Resolution R3-2008-0010) to protect surface water quality. Cumulative projects in **Table 5-1** that would include maintenance-related discharges from water supply wells would be subject to and be required to comply with the water quality control requirements under the General Waiver. As a result, the effects of the MPWSP would not be expected to combine with those of cumulative projects to cause a cumulatively significant water quality impact from ASR well maintenance-related discharges. The proposed project's contribution to this cumulative impact would not be cumulatively considerable (*less than significant*).

Alteration of Drainage Patterns and Non-point Source (Stormwater) Pollution

As discussed in Impacts 4.3-7 and 4.3-8, the MPWSP would require site disturbance and a net increase in impervious surface area at several project sites. Most of the projects identified in **Table 5-1** would also involve new impervious surfaces, which may alter site drainage. Alterations to site drainage could cause increased peak flows in creeks, exacerbate erosion and sedimentation, and result in greater non-point source pollution in downstream water bodies. Increased areas of impervious surfaces could also increase flooding of downstream waterways and cause runoff volumes to exceed stormwater conveyance system capacities.

However, operation of the proposed project would not represent a substantial land use change within the geographic scope when combined with the cumulative projects identified in **Table 5-1** as compared to current conditions at the site and in the surrounding area. The majority of the cumulative projects identified in **Table 5-1** are located within the urbanized portion of the Salinas River and Carmel River watershed lands (the geographic scope), and along the margin of Monterey Bay. The urbanized portions of these watershed lands no longer reflect natural historic conditions in terms of stormwater quality, volume, and drainage. The majority of the surfaces associated with the identified cumulative projects, including most locations affected by the Project, are covered with impervious surfaces and as a result stormwater runoff is generally rapid and surface infiltration rates are very low. Stormwater flows in the lower portions of the affected watershed lands adjacent to the proposed project are generated as runoff from paved surfaces and drain down gradient into stormwater conveyance systems and can contain pollutants typical of urbanized watersheds. While the proposed project and many of the cumulative projects identified in **Table 5-1** would result in some increase in impervious area, storm runoff volumes and rates as well as water quality generated during the operations phase would be similar to the existing runoff typical of urbanized watersheds.

Additionally, as discussed in Impacts 4.3-7 and 4.3-8, such developments would be required to comply with the Central Coast RWQCB Resolution No. R3-2013-0032, as implemented through the Monterey Regional Stormwater Management Program and NPDES Municipal Stormwater

Permit. Adherence to these requirements, which include low-impact design (LID) measures and other stormwater best management practices (BMPs) identified in Section 4.3, Surface Water Hydrology and Water Quality, would ensure potential effects of the MPWSP on site drainage would be less than significant. Cumulative projects commencing on or after March 6, 2014 that would create or replace 2,500 square feet of impervious surface area would also be subject to these requirements.

As the previously noted stormwater requirements are part of a regional program designed to address the potential cumulative effects of past, present, and foreseeable projects within the region, adherence to these requirements would ensure hydrology and water quality effects related to the alteration of drainage patterns would not cause a cumulatively significant effect. The proposed project's contribution to this cumulative impact would not be cumulatively considerable (*less than significant*).

Risk of Loss, Injury, or Death due to Flooding

As discussed in Impacts 4.3-9, 4.3-10, and 4.3-11, the MPWSP would involve the siting of facilities in locations within or near areas subject to inundation due to 100-year flood, tsunami, and sea level rise. Specifically, the subsurface slant wells, and portions of the Monterey Pipeline and Source Water Pipeline would be located in areas subject to inundation from 100-year flood and sea level rise. The subsurface slant wells and portions of the Monterey Pipeline would also be subject to inundation from tsunami. However, once constructed, all of these facilities would be located below ground surface and would not be expected to impede flood flows, contribute to flood hazards, or otherwise be subject to damage from inundation. The MPWSP Desalination Plant would be constructed at elevations between 85 and 110 feet above mean sea level, well above areas of anticipated inundation due to flood, tsunami, and sea level rise. Some of the cumulative projects identified in **Table 5-1** and shown on **Figure 5-1** could have significant adverse effects related to flooding, tsunami, and sea level rise inundation. However, because the MPWSP components within such areas would be below grade, and with construction areas returned to their approximate pre-construction topography, they would not contribute considerably to cumulatively significant effects associated with flooding, tsunami, and sea level rise (*less than significant*).

5.2.4 Groundwater Resources

Cumulative impacts related to groundwater resources (*Less than Significant*)

The geographic scope of the groundwater resources impacts encompasses the SVGB and the Seaside Groundwater Basin (SGB), described in Section 4.4, Groundwater Resources. The timeframe during which the MPWSP could contribute to cumulative groundwater resources effects includes the anticipated approximately 40-year operations phase. Groundwater resources that could be impacted in the SVGB would include the Dune Sand Aquifer and the 180-Foot Aquifer; the slant wells would be screened beneath the seafloor adjacent to these aquifers. Groundwater resources that could be impacted in the SGB would include the Deep Aquifer; the ASR wells would be constructed within the Santa Margarita Sandstone within the Deep Aquifer.

The surface infrastructure associated with the slant wells and the ASR wells, such as pipelines and pump stations, would not impact groundwater resources and is therefore not discussed further in this section.

Cumulative groundwater impacts would be significant if they result in substantial depletion of or interference with groundwater supplies or violate water quality standards or degrade water quality. The cumulative projects listed in **Table 5-1** would could have cumulative groundwater resources impacts include Site Nos. 1, 31, 33, and 47 within the SVGB and Sites Nos. 6, 29, 30, and 44 within the SGB. As noted above, the potential cumulative groundwater resources impacts would occur during the operations-phases of the projects; significant quantities of groundwater would not be used or affected during the project construction phases. The potential cumulative operations-phase groundwater resources impacts are discussed below. The discussion is organized by groundwater basin.

SVGB – Operation of Slant Wells

Groundwater Supplies

As discussed in Impact 4.4-3, the groundwater levels would be expected to decrease by 5 or more feet within approximately 1 mile of the MPWSP subsurface slant wells. The area within which groundwater levels would be expected to decrease by one foot or more extends further to the east and could overlap with the footprints of the following cumulative projects: the Salinas Valley Water Project Phase II (No. 1), the RUWAP Desalination Element (No.31), and the Slant Test Well Project (No. 47), as shown on **Figure 5-1**. The Granite Ridge Water Supply Project (No. 33), located about 11 miles northeast of the MPWSP subsurface slant wells, is beyond the area where the MPWSP would affect groundwater.

The Salinas Valley Water Project Phase II (No. 1) would divert surface water from the Salinas River to offset groundwater pumping and provide for aquifer storage and recovery. Therefore, this cumulative project would have a beneficial cumulative impact from a groundwater resources perspective by reducing groundwater draw-down, while increasing the volume of water in groundwater storage. The project may also improve the water quality of groundwater by adding freshwater to the aquifers.

The RUWAP Desalination Element (No. 31) would extract water from two vertical wells along the coast about 1 and 1.5 miles south of the MPWSP subsurface slant wells. The screened sections of these wells would be within the 180-Foot Aquifer. This cumulative project would be within the estimated maximum radius of influence of the MPWSP wells and the simultaneous operation of these two projects would have a cumulative effect. However, both projects would be drawing the majority of their source water from seawater infiltrating through the ocean floor. As required by the Agency Act, any water that is drawn from inland sources would be returned to the SVGB, resulting in no net impact to the basin. As previously discussed (see Cumulative impacts related to geology, soils, and seismicity), the MPWSP would return water drawn from inland sources to the SVGB. In addition, the modeling discussed in Section 4.4, Groundwater Resources, simulated groundwater flow directions using 2060 land use conditions and assumed the RUWAP desalination plant would be operating. The results are shown on **Figure 5-2** and anticipate that the

RUWAP wells would draw no groundwater from inland areas. In the event that the RUWAP wells do draw water from inland sources, the same regulatory requirements discussed in Section 4.4, Groundwater Resources would also require the RUWAP project to return that water to the basin, resulting in no net cumulative impact (*no impact*).

The Slant Test Well Project (No. 47) would pump water from the Dune Sand Aquifer and the 180-Foot Equivalent Aquifer³ on the coastline adjacent to and beneath the seafloor for a period of 12 to 18 months. The purpose of this project is to test the aquifer characteristics and further inform the design of the MPWSP subsurface slant wells. All of the pumped water would be discharged back into the ocean via the existing ocean outfall pipeline. The majority of the feed water would be seawater pumped through the overlying ocean floor. The radius of influence for the Slant Test Well Project would be substantially smaller than that of the MPWSP and have no appreciable effect on groundwater levels. Upon completion of the pilot study, the project would either be decommissioned or incorporated into the MPWSP. If incorporated into the MPWSP, as noted above, the portion of the source water attributed to inland sources would be returned to the basin.

Groundwater Quality

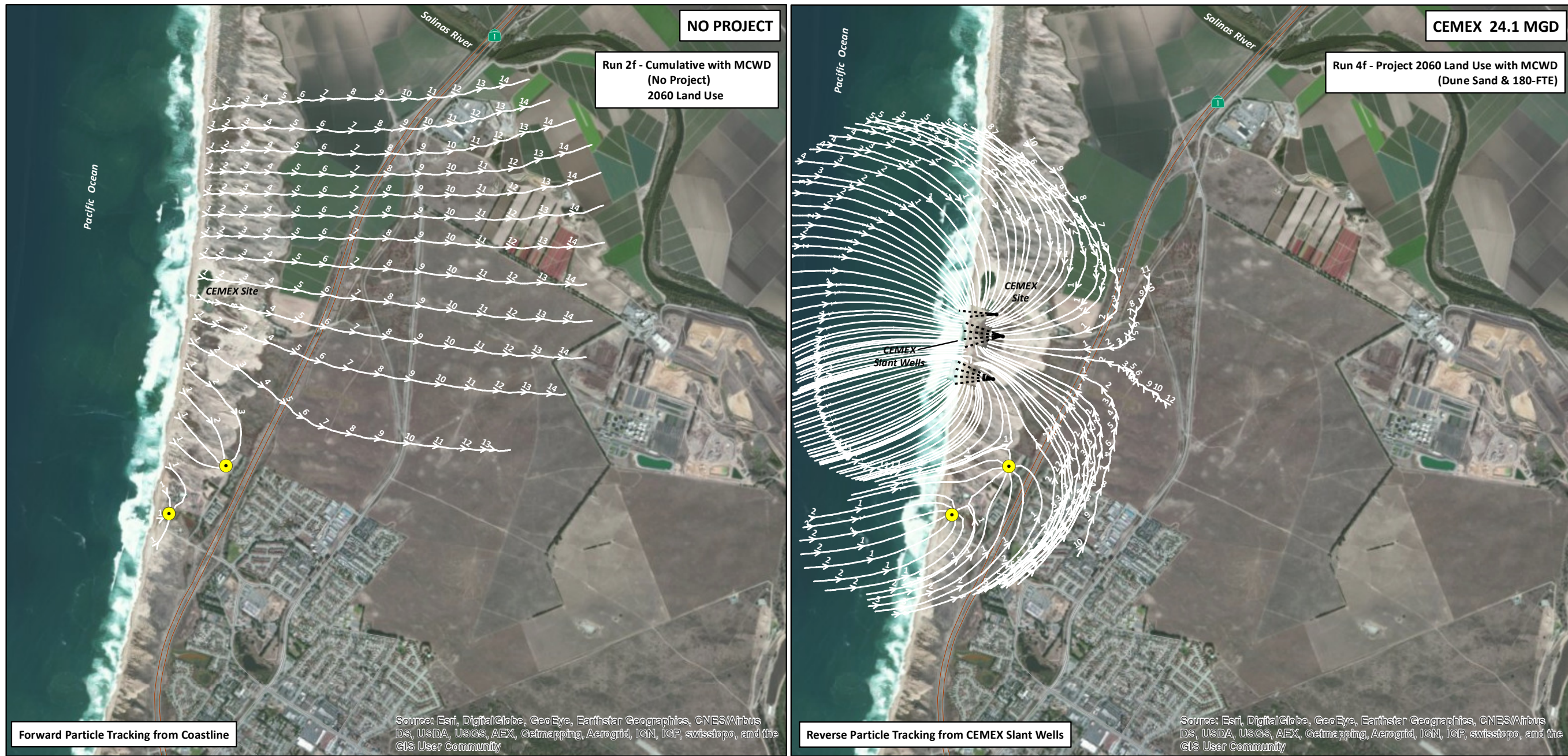
As discussed in Section 4.4, Groundwater Resources, seawater intrusion extends up to 8 miles inland for the 180-Foot Aquifer (see **Figure 4.4-9**). As discussed in Section 4.4, Groundwater Resources, the modeling results anticipate that the operation of the MPWSP would migrate the seawater/freshwater interface back toward the ocean, resulting in a beneficial effect, regardless of the nature of other cumulative projects. **Figure 5-2** illustrates this simulated result, showing that some of the groundwater flow paths on the inland (east) side of the slant wells would draw a fraction of source water from inland sources.

SGB – Operation of ASR Wells

Groundwater Supplies

As discussed in Impact 4.4-3, the operation of the additional ASR injection/extraction wells would inject and extract water treated to drinking water standards from the desalination plant into the Santa Margarita Sandstone about 1,000 feet below the ground surface. The injection and extraction volumes of water from the desalination plant would be managed such that there would be no net change to the storage of groundwater on an annual basis. Water not used in a given year could be stored for the next year. However, in no case, would the volume of groundwater in storage be reduced from the existing volume. Therefore, this would result in a less than significant impact to the SGB, regardless of the nature of other cumulative projects. In addition, as discussed in Section 4.4, Groundwater Resources, the Seaside Basin has been adjudicated due to overdraft and the concern for the potential of that overdraft to result in seawater intrusion. Consequently, the Seaside Basin Watermaster would place restrictions on any cumulative project that would also require no net increase in overdraft and therefore no cumulative impact would be expected.

³ As discussed in Section 4.4, Groundwater Resources, the depth interval for the screened section of the slant wells is within the depth interval of the inland 180-Foot Aquifer deposits. However, the geologic materials at that depth beneath the CEMEX site are different and older than the inland deposits at the same depth interval and it is uncertain that the correlating depth intervals at CEMEX and the inland deposits are directly connected. Consequently, the deposits beneath the CEMEX site are referred to as the 180-Foot Equivalent Aquifer.



EXPLANATION

white line Particle Travel Path

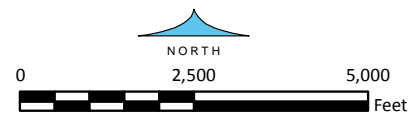
white arrow Direction of Particle Travel and Travel Time (1 Year Increments)

● Proposed Marina Coast Water District Desalination Well

Note: 180-FTE = 180-Foot Equivalent Aquifer

---● Slant Wellhead
Blank Casing
Well Screen

CEMEX Slant Wells - Conf (Feedwater Supply of 24. (See Figure 47 for Detail)



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Groundwater Quality

As discussed in Impact 4.4-4, the injection of treated desalinated water into the SGB would have a short-term effect on groundwater quality due to the increase of DBPs. However, the DBPs degrade to below action levels after about 90 days. This return to the existing water quality would occur regardless of the nature of other cumulative projects. In addition, as noted above, the SGB has been adjudicated and the Seaside Basin Watermaster would require that any proposed cumulative projects that interact with groundwater demonstrate no long-term degradation to the existing water quality in the basin. For these reasons, the MPWSP would not be expected to contribute to a cumulatively significant SGB groundwater quality impact.

Interfere with Groundwater Remediation Efforts

In addition to the cumulative projects identified in this subsection, Section 4.7, Hazards and Hazardous Materials, also lists several ongoing groundwater cleanup projects (see Figures 4.7-1 and 4.7-2). A significant cumulative impact regarding interference with groundwater remediation efforts would occur if the MPWSP and cumulative projects' groundwater injection or extraction caused a combined radius of influence that interfered with ongoing groundwater cleanup efforts.

Seawater Intake System

As shown on Figure 4.4-17, three of the former Fort Ord groundwater cleanup projects are located within the MPWSP subsurface slant well radius of influence. Consequently, the MPWSP's seawater intake system would cause or contribute to a significant cumulative impact related to groundwater cleanup. The significant cumulative impact would be reduced to less than significant with the implementation of **Mitigation Measure 4.4-4: (Groundwater Monitoring and Avoidance of Impacts to Fort Ord Plumes)**.

ASR System

As discussed in Section 4.4, Groundwater Resources, the ASR system would inject and extract water treated to drinking water standards by the desalination plant into the Santa Margarita Sandstone about 1,000 feet below the ground surface. None of the groundwater cleanup projects shown on **Figures 4.7-1** and **4.7-2** involve aquifers at this depth. Therefore, there would be no impact from the operation of the ASR System and the operation would not cause or contribute to a cumulative impact related to groundwater cleanup.

All Other MPWSP Components

None of the MPWSP's other proposed facilities would involve the use of wells that could affect groundwater resources. Therefore, none of the other MPWSP components could cause or contribute to a cumulative groundwater quality impact.

5.2.5 Marine Biological Resources

Cumulative impacts related to marine biological resources (*Less than Significant*)

The geographic scope of potential cumulative impacts on marine biological resources encompasses all of the waters of Monterey Bay, the subtidal and intertidal habitats contained therein, and all marine biological communities. The cumulative projects whose impacts could

overlap with those of the MPWSP include the Sand City Coastal Desalination Plant (No. 6), Slant Test Well (No. 47), RUWAP Desalination Element (No. 31), and RUWAP Recycled Water Element (No. 35). In addition, it is expected that either the Deep Water Desal Project (No. 34) or The People's Moss Landing Desal Project (People's Project; No. 48), but not both, would be constructed and operated in the reasonably foreseeable future. The timeframe during which the MPWSP could contribute to cumulative marine biological resources effects includes the 30-month construction phase, as well as the anticipated approximately 40-year operations phase.

The Sand City Coastal Desalination Plant (0.26 mgd) extracts brackish source water from a shallow (60 feet below ground surface) aquifer and discharges diluted brine concentrate via injection wells at a depth of approximately 50 feet below ground surface (CCC, 2005). The constructed Slant Test Well (No. 47) will be operated continuously as test wells for a period of 24 months (1,000 to 2,500 afy), during which time the effluent from the test program will be discharged via temporary pump-to-waste pipeline to the existing MRWPCA ocean outfall. The RUWAP Desalination Element would produce 1,500 afy (1.34 mgd) of fresh water. Ocean water would be obtained through subsurface slant wells for desalination. Assuming a 42 percent recovery, 3.19 mgd of ocean source water would be required. The resulting 1.85 mgd of brine would be discharged through either subsurface injection or the MRWPCA wastewater outfall (Denise Duffy and Associates, 2007; Trussell Technologies, 2012). The DeepWater Desal project would involve a new desalination plant on the Moss Landing Power Plant East Parcel and new intake and discharge pipelines between the plant and Monterey Bay. The discharge pipeline may involve repurposing an abandoned Moss Landing Power Plant fuel line. Approximately 50 mgd of seawater would be treated to provide 23 mgd of potable water; the remaining 27 mgd of brine would be discharged to the ocean (Jenkins and Wasyl, 2014). The People's Project would involve construction of a new desalination plant at the site of the former Kaiser National Refractories and would primarily utilize existing pipelines between the plant and Monterey Bay for source water intake and brine discharge. The People's Project would draw up to 30 mgd of seawater to produce approximately 12 mgd of desalinated product water. The remaining 18 mgd of brine would be discharged to the ocean (The People's Project, 2015). Potential cumulative impacts associated with MPWSP construction and operations are presented below.

Cumulative Impacts during Project Construction

As discussed in Section 4.5, Marine Biological Resources, potential MPWSP construction-period impacts on marine biological resources would be less than significant and would be limited to water quality impacts from the disruption of beach sand resulting in its suspension in ocean water and noise impacts resulting from directional drilling. As described in Section 4.5.3.4, Construction Impacts and Mitigation Measures, these impacts would be highly localized around the immediate drilling location for the MPWSP subsurface slant well drilling, because if suspended in nearshore waters, the coarse sand would settle quickly, and drilling noise would attenuate quickly, such that these effects would not spread beyond the immediate drilling area. Therefore, the only cumulative project from **Table 5-1** that could contribute to cumulative impacts within the geographic scope of these MPWSP-specific construction-period impacts would be the Test Slant Well Project, which as shown on **Figure 5-1** is located in approximately the same location as the MPWSP's proposed subsurface slant wells. Because the Test Slant Well Project already has been constructed, however,

its ongoing effects are not related to suspension of sands or to noise. Therefore, there are no other projects whose effects would combine with the construction-period impacts of the MPWSP (*less than significant*).

Cumulative Impacts during Project Operations

Because the MPWSP would not increase the mass of PCBs in the ocean water and would not degrade the existing water quality of Monterey Bay as measured by PCB concentration, it would not contribute to a cumulative impact related to PCBs, and this impact is not discussed further (*no impact*). Additionally, because the MPWSP's less-than-significant impact related to impingement of marine organisms and/or fine organic matter would be highly localized and none of the cumulative projects could cause similar impacts within the same area of seafloor, no cumulative impact would occur and this impact is not discussed further (*no impact*).

As discussed in Section 4.3, Surface Water Hydrology and Water Quality, far-field modeling of the MPWSP brine discharge from the MRWPCA outfall indicates that the brine effluent would be below the greater than 2 ppt above ambient salinity significance threshold at its highest concentration. The modeling further indicates that the brine plume would generally move downslope (southwest) and reach ambient salinity levels at a distance of approximately 0.26 mile (Appendix D).

Because the Test Slant Well Project's effluent discharges would consist primarily of seawater with some portion of freshwater, that project is expected to produce effluent with total dissolved solids concentrations equal to or lower than that of seawater at the discharge point and, therefore, not be expected to affect marine biological resources as a result of increased salinity (NOAA, 2014). The Test Slant Well Project would not contribute to a cumulative effect related to increased salinity.

Brine effluent from the RUWAP Desalination Element could be discharged approximately 2 miles down coast from the MRWPCA outfall through two radial wells beneath the sea floor, or could be discharged through the MRWPCA outfall. The salinity of the discharge would be slightly higher than that of seawater. If discharged through subsurface radial wells, it would become diluted as it migrates towards the water column. Although the physical change on the benthic community could be substantial over an approximately 16-acre area below the sea floor, because of the high-energy mixing that occurs along the seafloor in the Marina area, the brine would mix with the ocean water and dilute rapidly after emerging from the seafloor (Denise Duffy & Associates, 2004). Because this modeled 16-acre sub-seafloor brine plume would be limited in width (parallel to the shore) to within 1,400 feet north and south of the radial wells (Denise Duffy & Associates, 2004, Appendix E, Figure 6), it is assumed that this plume would reach ambient salinity levels within approximately 0.25 mile of the radial wells. Therefore, any increased salinity from this discharge would not combine with that of the MPWSP before both discharges reached ambient salinity, resulting in no contribution to a cumulative impact.

Should the RUWAP Desalination Element utilize the MRWPCA outfall, the 1.85 mgd of RUWAP brine effluent would combine with that of the MPWSP prior to discharge, and would be of a similar salinity. Increased volume of brine in the outfall system would raise the pressure, thereby increasing the discharge velocity and the resultant rate and extent of brine dispersion and

dilution upon exiting the outfall. Because the salinity at the edge of the ZID would remain below the greater than 2 ppt above ambient significance threshold, the effects on marine biological resources would be similar to those anticipated for MPWSP brine only.

Approximately 7 miles down coast from the MRWPCA outfall, brine effluent from the Sand City Coastal Desalination Project is diluted to achieve salinity levels similar to seawater prior to subsurface injection (CCC, 2005). Therefore, this project would not contribute to increased salinity levels and would not contribute to a cumulative impact associated with increased salinity.

Modeling of the brine plume from the two possible DeepWater Desal project outfalls at the head of the Monterey Bay submarine canyon, located approximately 5.5 miles to the north of the MRWPCA outfall, predicts drift mostly to the west and northwest, with the heavier-than-ambient plume slipping down into the Monterey Submarine Canyon during any southward drift (Jenkins and Wasyl, 2014). Any plume movement away from the canyon would return to very near ambient salinities within just over 1 mile. A similar result would be expected for the People's Project effluent, but dispersion would likely be more rapid due to the reduced brine effluent volume. Therefore, any increased salinity from either discharge would not combine with that of the MPWSP before both discharges reached ambient salinity, resulting in no contribution to a cumulative impact.

Because the impacts of the projects described above would not combine with those of the MPWSP to create a cumulative impact related to increased salinity, the potential effects of the MPWSP and the cumulative projects would not be cumulatively significant (*less than significant*).

As indicated above, if the RUWAP Desalination Element uses the MRWPCA outfall, the RUWAP brine effluent would combine with that of the MPWSP prior to discharge, and would increase the discharge velocity of the effluent. Under this scenario, the maximum cumulative discharge consisting of the RUWAP (1.85 mgd) and the MPWSP's combined discharge (33.76 mgd) would be 35.61 mgd. As described in Section 4.5.3.5, the discharge velocities associated with the MPWSP's brine-only discharge (13.98 mgd; 9.5 feet per second) and combined discharge (15.2 feet per second) would not have a significant impact on shear-stress-related injury or mortality of marine organisms. Although the discharge velocity of the potential 35.61 mgd cumulative discharge has not been modeled, this relatively minor increase in discharge volume is not expected to increase the discharge velocity such that it would increase potential shear-stress-related impacts on marine organisms, because it is similar to the 33.76 mgd combined discharge (*less than significant*).

5.2.6 Terrestrial Biological Resources

Cumulative impacts related to terrestrial biological resources (*Less than Significant*)

The geographic scope of analysis for cumulative impacts on terrestrial biological resources includes sites proposed for MPWSP components, as well as biologically linked terrestrial areas within approximately 5 miles of these sites. This cumulative impact analysis considers the incremental effects of the proposed project, when combined with the effects of past, present, and reasonably foreseeable projects (as listed in **Table 5-1** and shown on **Figure 5-1**) on the same biological

resources (special-status species; riparian habitat, critical habitat, or other sensitive natural communities; wetlands or other waters of the U.S. or State; trees protected by local tree ordinances).

Special-Status Species and Sensitive Natural Communities

A cumulatively significant effect would result if the incremental effects of construction and operation of the MPWSP combined with those of cumulative projects to cause a substantial adverse effect on special-status species or sensitive natural communities during the MPWSP's 30-month construction period and the anticipated 40-year design life.

Many of the cumulative projects within the geographic scope of analysis occur on former Fort Ord lands (including the East Garrison Specific Plan [No. 2], Cypress Knolls Senior Residential Project [No. 8], Marina Heights [No. 9], Marina Airport Economic Development Area [No. 11], Rockrose Gardens [No. 39], CSUMB North Campus Housing Master Plan [No. 13], ITC Academic Building [CSUMB] [No. 40], The Seaside Resort [No. 16], Monterey Downs and Horse Park and Central Coast Veteran's Cemetery Specific Plan [No. 17], Main Gate Specific Plan [No. 18], Seaside Groundwater Basin Aquifer Storage and Recovery [Phase 1] [No. 29], Seaside Groundwater Basin Aquifer Storage and Recovery [Phase 2] [No. 30], and Fort Ord Dunes State Park Campground [No. 46]). The Fort Ord Reuse Plan EIR and Habitat Management Plan (HMP), which cover the former Fort Ord lands, have established designated development areas and habitat reserves on former Fort Ord lands to mitigate impacts from projects within development areas on biological resources, such as Monterey spineflower, sandmat manzanita, Smith's blue butterfly, black legless lizard, California red-legged frog, California tiger salamander, and western snowy plover, on a regional scale. The preservation of certain habitat types such as maritime chaparral and dune scrub within these habitat reserves also protects habitat for other species not directly impacted by the HMP, such as coast horned lizard and badger. The preservation of habitat reserves not only benefits these species within the former Fort Ord, but also benefits these same species on a regional scale within the southern Monterey Bay Area.

As noted, the HMP mitigates the effects of projects within the Fort Ord Reuse Plan area on habitat communities and associated species explicitly identified for conservation in the HMP. It is possible that the MPWSP and cumulative projects proposed within the HMP area could affect other habitat types that are not explicitly identified for conservation in the HMP (e.g., non-native grassland, coastal sage scrub, and oak woodland). If not properly mitigated, impacts from these cumulative projects on such habitats and dependent special-status species could be cumulatively significant. As discussed in Impacts 4.6-1, 4.6-2, 4.6-5, and 4.6-6, any impacts from the MPWSP on such habitat communities would be temporary and no permanent impact would result. As summarized in the following subsections, with mitigation, the residual effect of the MPWSP on these habitat types would be negligible. As a result, the MPWSP would not have a considerable contribution to a cumulatively significant impact on habitats within the HMP area. Therefore, the above-listed projects are not considered further in this cumulative impacts analysis.

Western Snowy Plover

As described in Impacts 4.6-1, 4.6-2, 4.6-5, and 4.6-6, and as summarized in **Table 4.6-4**, construction and operation of the MPWSP components could impact special-status species and

the sensitive natural communities that support these species. The MPWSP would result in temporary impacts to western snowy plover. Implementation of **Mitigation Measures 4.6-1a (Retain a Lead Biologist to Oversee Implementation of Protective Measures); 4.6-1b (Construction Worker Environmental Awareness Training and Education Program); 4.6-1c (General Avoidance and Minimization Measures); 4.6-1d (Protective Minimization Measures for Western Snowy Plover); 4.6-1n (Habitat Mitigation and Monitoring Plan); 4.6-2a (Consultation with Local Agencies and the California Coastal Commission regarding Environmentally Sensitive Habitat Areas); 4.6-2b (Avoid, Minimize, and Compensate for Construction Impacts to Sensitive Communities); 4.6-5 (Installation and Monitoring of Bird Deterrents at the Brine Storage Basin); 4.12-1b (General Noise Controls for Construction Equipment); 4.14-1 (Outdoor and Security Lighting); and 4.14-2 (Site-Specific Construction Lighting Measures)** would reduce the significance of project-specific impacts to a less-than-significant level. Cumulative projects identified in **Table 5-1** and within the geographic scope of cumulative impact analysis could also impact western snowy plover. Specifically, the Monterey Shores Resort (No. 19), 90-Inch Bay Avenue Outfall Phase 1 (No. 43), DeepWater Desal (No. 34), Slant Test Well Project (No. 47), and Moss Landing Community Plan (No. 37) would affect beach areas that may support western snowy plover. Implementation of the Monterey Bay Shores Resort (No. 19) and Moss Landing Community Plan (No. 37) projects could occur at the same time as the proposed MPWSP construction and therefore could adversely affect western snowy plover and its habitat through heavy equipment use, dust generation, elevated noise levels, and increased human activity. These effects would be cumulatively significant. However, the residual effects of the MPWSP would not be cumulatively considerable, given the distance between the MPWSP and subject cumulative projects (approximately 5 miles), the abundance of alternative habitat areas available to displaced western snowy plover between the MPWSP and cumulative projects (several miles of Monterey Bay shoreline), and the temporary nature of these effects (only the MPWSP Desalination Plant would have operational impacts beyond the 30-month construction phase). As discussed in Chapter 3, Project Description, all habitat areas disturbed during construction would be returned to their approximate pre-construction condition. No permanent loss of western snowy plover habitat would occur. For these reasons, the incremental effects of the MPWSP would not contribute to a cumulatively significant effect on western snowy plover (*less than significant*).

Migrating Waterfowl

As described in Impact 4.6-5, operation of the brine storage basin at the MPWSP Desalination Plant could impact migrating waterfowl. Implementation of **Mitigation Measure 4.6-5 (Installation and Monitoring of Bird Deterrents at the Brine Storage Basin)** would reduce project-specific impacts to a less-than-significant level. Additionally, the potential residual impacts from the brine pond would only occur when it is in use periodically. The Peoples' Moss Landing Water Desalination Project (No. 48) also would include a brine storage pond, which could have similar impacts to migrating waterfowl as the proposed project, and is expected to be used only periodically as well. The Dredge Laguna Grande and Roberts Lake Project (No. 42) could potentially impact migratory waterfowl by disturbing them during dredging activities, a short-term effect. The effects of these projects would not combine to result in a cumulatively significant impact on migrating waterfowl due to the intermittent and/or short-term nature of the

impacts. Therefore, the residual effects of the MPWSP would not have a cumulatively considerable contribution to a significant cumulative effect (less than significant).

Sensitive Habitat Communities

Construction of MPWSP components would affect non-native grassland, coastal sage scrub, central maritime chaparral, and oak woodland. Operation of MPWSP components could affect central dune scrub. Disruption to these habitat communities could also affect special-status species reliant upon these habitats, including: Monterey spineflower, robust spineflower, Seaside bird's beak, Menzies' wallflower, sand gilia, Yadon's rein orchid, Smith's blue butterfly, California tiger salamander, California red-legged frog, Hickman's onion, Hooker's manzanita, Toro manzanita, Pajaro manzanita, sandmat manzanita, Monterey Coast paintbrush, Monterey ceanothus, Congdon's tarplant, branching beach aster, Eastwood's goldenbush, sand-loving wallflower, Kellogg's horkelia, Carmel Valley bush-mallow, marsh microseris, south coast branching phacelia, Michael's rein orchid, Monterey pine, Santa Cruz microseris, Santa Cruz clover, Pacific Grove clover, black legless lizard, silvery legless lizard, coast horned lizard, western burrowing owl, Monterey dusky-footed woodrat, Monterey shrew, American badger, and special-status bats and birds. Implementation of **Mitigation Measures 4.6-1a; 4.6-1b; 4.6-1c; 4.6-1e (Avoidance and Minimization Measures for Special-status Plants); 4.6-1f (Avoidance and Minimization Measures for Smith's Blue Butterfly); 4.6-1g (Avoidance and Minimization Measures for Black Legless Lizard, Silvery Legless Lizard, and Coast Horned Lizard); 4.6-1h (Avoidance and Minimization Measures for Western Burrowing Owl); 4.6-1i (Avoidance and Minimization Measures for Nesting Birds); 4.6-1j (Avoidance and Minimization Measures for American Badger); 4.6-1k (Avoidance and Minimization Measures for Monterey Dusky-Footed Woodrat); 4.6-1l (Avoidance and Minimization Measures for Special-Status Bats); 4.6-1m (Avoidance and Minimization Measures for Native Stands of Monterey Pine); 4.6-1n; 4.6-1o (Avoidance and Minimization Measures for California red-legged frog and California tiger salamander); 4.6-2a; 4.6-2b; 4.6-5; and 4.14-1** would mitigate for any potential permanent effects and reduce project-specific impacts to less-than-significant levels. Cumulative projects identified in **Table 5-1** and within the geographic scope of cumulative impact analysis could also adversely affect the above-listed habitat communities and associated species. Specifically, the Laguna Seca Villas (No. 3), Omni Enterprises, LLC (No. 4), Ferrini Ranch Subdivision (No. 5), Marina Downtown Vitalization Specific Plan (No. 10), Marina Station (No. 12), Monterey Bay Shores Resort (No. 19), Rancho Canada Village (No. 27), Rancho Canada Golf Club (No. 28), RUWAP Desalination Element (No. 31), RUWAP Recycled Water Element (No. 35), Moss Landing Community Plan (No. 37), TAMC Monterey Peninsula Light Rail Project [No. 38], and 90-Inch Bay Avenue Outfall Phase 1 (No. 43) could have impacts to non-native grassland, central dune scrub, coastal sage scrub, central maritime chaparral, and/or oak woodland. Concurrent construction and/or operation of these projects could result in a cumulatively significant on sensitive habitat communities and associated special-status species through vegetation trimming or removal, elevated noise and dust levels, and increased human presence. Most MPWSP effects would be limited to the 30-month construction phase, with restoration of temporarily disturbed areas to previous conditions or better at the end of construction. Permanent impacts on sensitive habitat communities and associated special-status species would be compensated for as described in Mitigation

Measure 4.6-2a. Given the limited extent of effects at any given MPWSP component site, the prevalence of such habitats within the geographic scope of analysis relative to the areas of MPWSP effect, and the nearby availability of such habitats for use by species displaced during the construction period, the MPWSP's incremental contribution to cumulative effects on sensitive natural communities would not be cumulatively considerable (*less than significant*).

Construction of MPWSP components would affect riparian woodland and scrub. Disruption to these habitat communities could also affect special-status species reliant upon these habitats, including western pond turtle and tricolored blackbird. Implementation of **Mitigation Measures 4.6-1a, 4.6-1b, 4.6-1c, 4.6-1i, 4.6-1n, 4.6-2a, and 4.6-2b** would reduce the significance of project-specific impacts to less-than-significant levels. One cumulative project within the geographic scope of cumulative analysis could also affect riparian woodland or scrub habitats: the Ferrini Ranch Subdivision (No. 5). Construction of this cumulative project could cause direct or indirect impacts on the above-described sensitive habitat communities and associated special-status species, resulting in a cumulatively significant effect. However, given the MPWSP's distance from the Ferrini Ranch Subdivision, the limited duration of potential effects, the restoration of disturbed areas following construction, and the availability of other similar habitats for use by displaced species during construction, the incremental contribution of effects from the MPWSP would not be cumulatively considerable (*less than significant*).

Wetlands or Other Waters

A cumulatively significant effect would result if the incremental effects of the MPWSP combined with those of cumulative projects to cause a substantial adverse effect on federal wetlands, federal other waters, and/or waters of the state during the 30-month construction period and/or the estimated 40-year design life.

As described in Impact 4.6-3 and 4.6-7, MPWSP construction and operation could affect federal wetlands, federal other waters, and/or waters of the state. These impacts would be temporary and, upon completion of construction, any affected wetlands would be restored to their approximate pre-construction condition. Implementation of **Mitigation Measures 4.6-1a, 4.6-1b, 4.6-1c, and 4.6-3 (Avoid, Minimize, and or Mitigate Impacts to Wetlands)** would reduce the significance of project-specific impacts to less-than-significant levels. Many of the cumulative projects listed in **Table 5-1** could cause temporary or permanent impacts to federal wetlands, federal other waters, and/or waters of the state. Specifically, the Ferrini Ranch Subdivision (No. 5), Marina Station (No. 12), Moss Landing Community Plan (No. 37), and Monterey Pacific Grove ASBS Stormwater Management Project (No. 45) would have wetlands impacts. Other projects listed in **Table 5-1** may have similar effects. Concurrent construction and/or operation of these projects could result in cumulatively significant impacts on these resources through wetlands fill or draining and increased human presence. However, the MPWSP's residual effects on federal wetlands, federal other waters, and/or waters of the state would be limited to a small percentage of wetlands habitat in the geographic scope of analysis – the MPWSP would potentially temporarily impact a maximum of approximately 4 acres of potential wetlands or other waters compared to approximately 5,500 acres of potential freshwater wetlands within the geographic scope of analysis as mapped by the National Wetland Inventory (USFWS, 2012). Additionally, a

considerable amount of nearby wetlands habitat available for displaced species and ecological function would remain within the geographic scope of analysis, and the MPWSP effects would be temporary and fully restored upon completion of construction. Therefore, the MPWSP's incremental contribution would not be cumulatively considerable (*less than significant*).

Local Tree Ordinances

A cumulatively significant effect would result if the incremental effects of the MPWSP combined with those of cumulative projects to cause conflicts with local tree ordinances during the MPWSP's 30-month construction period. As described in Impact 4.6-4, construction of MPWSP components could require trimming or removal of protected trees, in conflict with local tree ordinances. Implementation of **Mitigation Measure 4.6-4 (Compliance with Local Tree Ordinances)** would reduce the significance of project-specific impacts to less-than-significant levels.

Other cumulative projects identified in **Table 5-1** that are within the geographic scope of cumulative impacts analysis may also need to trim or remove trees that are subject to local tree protection ordinances. For example, the Monterey Downs and Horse Park and Central Coast Veteran's Cemetery Specific Plan (No. 17) would involve removal of a substantial number of trees. Local governments with jurisdiction over the geographic scope of cumulative impacts analysis (e.g., Seaside and Monterey County) have tree ordinances established for the purpose of protecting important trees and compensating for their removal. If the MPWSP and cumulative projects within the geographic scope of cumulative impact analysis involved tree removal and failed to comply with applicable tree ordinances, a cumulatively significant effect would result. However, as noted previously and discussed in Impact 4.6-4, the MPWSP would be required to comply with applicable local tree ordinances. Therefore, the effects of the MPWSP regarding conflicts with local tree ordinances would not be cumulatively considerable (*less than significant*).

Conflict with an adopted Habitat Conservation Plan

A cumulatively significant effect would result if the incremental effects of the MPWSP combined with those of cumulative projects to conflict with an adopted Habitat Conservation Plan, natural community conservation plan or other approved local, regional, or state habitat conservation plan during the MPWSP's 30-month construction phase and approximately 40-year design life.

As described in Impact 4.6-8, the Terminal Reservoir/ASR Pump Station and a portion of the Transfer Pipeline alignment located east of General Jim Moore Boulevard are located within the *1997 Installation-Wide Multispecies HMP*. Installation of these facilities does not include HMP-prescribed maintenance measures (such as control of invasive species or firebreaks) specified in the HMP, so the proposed project could conflict with the provisions of the HMP, which is a significant impact. Implementation of **Mitigation Measure 4.6-8 (Management Requirements within Borderland Development Areas along Natural Resource Management Area Interface)** would reduce the significance of project-specific impacts to less-than-significant levels.

As described above, many cumulative projects occur on former Fort Ord lands within the boundaries of the HMP. Construction and operation of these projects may include activities subject to HMP resource conservation and management requirements. Failure of the MPWSP and a cumulative project to implement an applicable HMP conservation and/or management

requirement would constitute a cumulatively significant impact. However, as noted previously and discussed in Impact 4.6-8, the MPWSP would be required to comply with applicable provisions of the HMP. Therefore, the effects of the MPWSP regarding conflicts with an adopted Habitat Conservation Plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan would not be cumulatively considerable (*less than significant*).

5.2.7 Hazards and Hazardous Materials

Cumulative impacts related to hazards and hazardous materials (*Less than Significant*)

The geographic scope of analysis for cumulative hazards and hazardous materials impacts encompasses the Project area and nearby areas that (1) could affect soil and groundwater conditions within the project area; or (2) are in or near areas classified by California Department of Forestry and Fire Protection (CAL FIRE) as High or Very High Fire Hazards Severity Zones. The former types of impacts are generally site-specific and depend on past, present, and future land uses and existing soil, sediment, and groundwater conditions. The latter tend to be in suburban or rural areas, within or adjacent to large tracts of densely vegetated upland open spaces. The timeframe during which the MPWSP could contribute to cumulative hazards and hazardous materials effects includes the 30-month construction phase, as well as the anticipated approximately 40-year operations phase.

Cumulative Impacts during Project Construction

Significant cumulative impacts related to hazards could occur if the incremental impacts of the MPWSP combined with the incremental impacts of one or more projects identified in **Table 5-1** to: (1) substantially increase risk that people or the environment would be exposed to hazardous materials; or (2) substantially increase risk of wildfire.

Discussed in Section 4.7, Hazards and Hazardous Materials, MPWSP grading and excavation activities could encounter and thereafter expose to the environment contaminated soil or groundwater from nearby sites of past or present industrial activity. The MPWSP components would be located within 0.25 mile of a bulk fuel storage terminal, gasoline stations, dry cleaners, a manufactured gas plant, and former military installations (see **Table 4.7-1**). The types of contaminants that may be encountered include petroleum hydrocarbons, volatile organic compounds, polynuclear aromatic hydrocarbons, metals, and unexploded ordnance and military munitions. In addition, MPWSP construction activities would require the use of and could result in accidental spills of small quantities of hazardous materials (e.g., fuels, oils, solvents, lubricants, paint). Accidental disruption of contaminated sites or releases of hazardous chemicals could result in significant public or environmental exposure.

The MPWSP would be required to adhere to all regulations regarding hazardous materials storage and handling, and implement all water quality best management practices and controls specified in the RWQCB's Construction General Permit and associated SWPPP. In addition, **Mitigation Measures 4.7-2a (Site Health and Safety Plan)** and **4.7-2b (Soil and Groundwater**

Management Plan) require preparation and implementation of a site-specific Site Health and Safety Plan and a Soil and Groundwater Management Plan. Together, these measures and regulatory requirements would reduce MPWSP impacts related to potential exposure to hazardous materials, including impacts within 0.25 mile of schools. The residual less-than-significant effects of the MPWSP that would remain after mitigation would not combine with those potential residual effects of cumulative projects to cause a potential cumulatively significant effect. With implementation of the project SWPPP and **Mitigation Measure 4.7-2b**, any potential for exposure to hazardous materials would be contained within the MPWSP construction sites, and spills would be cleaned up promptly, using methods and to standards that would reduce residual contamination to levels below established numeric action levels and prevent the potential for migration to surface or groundwaters.

Two cumulative projects – the Slant Test Well Project (No. 47) and TAMC’s Monterey Peninsula Light Rail Project (No. 38) – would overlap geographically with the MPWSP project area. Both of these projects would be subject to the same regulatory requirements noted above, including the implementation of health and safety plans and soil and groundwater management plans. That is, cumulative projects involving releases of hazardous materials also would be required to remediate the site to established regulatory standards. This would be the case regardless of the number, frequency, or size of the release(s), or the residual amount of chemicals present in the soil from previous spills. And so while it is possible that the MPWSP and cumulative projects could result in releases of hazardous materials at the same location, the responsible party associated with each spill would be required to remediate site conditions to the same established regulatory standards. Accordingly, no cumulatively significant impact with respect to hazards or hazardous materials would result.

For the above reasons, the combined effects of the MPWSP and of the cumulative projects would not cause or contribute to a cumulatively significant impact with respect to hazards and hazardous materials (*no impact*).

As described in Section 4.7, Hazards and Hazardous Materials, MPWSP components proposed in or near areas classified by CAL FIRE as High or Very High Fire Hazard Severity Zones include Main System Hidden Hills Interconnection Improvements, Ryan Ranch-Bishop Interconnection Improvements, and Valley Greens Pump Station (site Option 2) (CAL FIRE, 2007; 2008). As described in Impact 4.7-5, compliance with CAL FIRE’s regulations governing the use of construction equipment in fire-prone areas (see Section 4.7.2, Regulatory Framework) would reduce the project-specific incremental impact to a less-than-significant level.

Two of the cumulative projects identified in **Table 5-1** – Rancho Canada Village and Golf Club (Nos. 27 and 28) – are proposed for the Very High Fire Hazard Severity Zone within which the Valley Greens Pump Station (site Option 2) is proposed. The Rancho Canada projects could overlap with the timing of the MPWSP and involve the use of construction equipment or other vehicles with internal combustion engines and/or gasoline powered tools that may produce a spark, flame, or fire. Concurrent activities could result in a cumulative increase in wildland fire risk. This compounded increase in risk could place an additional burden on local fire departments,

particularly if access for emergency vehicles were impeded. CAL FIRE's fire prevention regulations related to the use of construction equipment in fire-prone areas also would apply to all cumulative projects involving construction. Compliance with these regulations would reduce the potential for a cumulatively significant impact with respect to substantial increase in wildfire risk (*less than significant*).

Cumulative Impacts during Project Operations

Significant cumulative impacts related to operational hazards could occur if the incremental impacts of the MPWSP combined with those of one or more of the projects identified in **Table 5-1** to cause: (1) a substantial increase in risk that people or the environment would be exposed to hazardous materials used or encountered during the operations phase; (2) substantial increase in risk of wildfire, or (3) a substantial safety hazard for people working or residing in an airport land use planning area.

A significant cumulative effect would result if incremental operations-related impacts of the MPWSP combined with those of one or more of the cumulative projects to cause a substantial increase in the risk of human or environmental exposure to hazardous materials. As discussed in Section 4.7, Hazards and Hazardous Materials, maintenance of the MPWSP subsurface slant wells would require use of cleaning materials and vehicles, introducing potential for inadvertent releases of hazardous materials into the soil and groundwater. MPWSP Desalination Plant operation would require the use of hazardous materials, such as fuels and water treatment chemicals, to be stored onsite. The ASR injection/extraction wells would require disinfection chemicals stored at the Phase I ASR facilities site to be used at a higher rate, but would not cause an increase in onsite storage volume. Operation of the ASR system would require 250 kilowatt (kW) emergency diesel gas-powered generator and 1,000-gallon double-walled aboveground diesel storage tank at the Terminal Reservoir/ASR Pump Station site. A 50 kW portable 200-gallon diesel-powered generator would be stored at the Valley Greens Pump Station to provide backup power in the event of a power outage. Compliance with the various regulations regarding the safe transport, use, and storage of hazardous materials (see Section 4.7.2, Regulatory Framework) as well as the NPDES General Construction Permit requirements (e.g., SWPPP) would reduce the project-specific incremental impact to a less-than-significant level.

Many of the cumulative projects identified in **Table 5-1** also would require the transport, use, and storage of hazardous chemicals. However, none of the cumulative projects would be expected to store or handle large quantities of hazardous materials on or immediately adjacent to sites of proposed MPWSP components that would also require storage or handling of such materials. As a result, no cumulatively significant impact would be expected in association with the storage or handling of hazardous materials. However, cumulatively significant impacts involving hazardous materials releases could occur along transportation corridors used by the MPWSP and cumulative projects.

All project components involving the handling, storage, and disposal of hazardous materials would be required to prepare a Hazardous Materials Business Plan and comply with applicable regulations, including those governing containment, site layout, and emergency response and

notification procedures in the event of a spill or release. Transportation and disposal of wastes, such as spent cleaning solutions, would also be subject to regulations for the safe handling, transportation, and disposal of chemicals and wastes. A summary of applicable regulations is provided in Section 4.7.2, Regulatory Framework. As noted previously, such regulations include standards to which parties responsible for hazardous materials releases must return spill sites, regardless of location, frequency, or size of release, or existing background contaminant concentrations. Therefore, compliance with existing laws and regulations regarding hazardous materials transport would reduce the risk of environmental or human exposure to such materials. The combined effects of the MPWSP and cumulative projects would, therefore, not be cumulatively significant (*less than significant*).

Cumulative impacts related to the risk of wildfire during operation could occur if incremental impacts of MPWSP above-ground components combined with those of one or more of the cumulative projects in the same CAL FIRE-designated High or Very High Fire Hazard Severity Zone to cause a substantial increase in wildfire hazards risk. As discussed in Impact 4.7-5, the Valley Greens Pump Station (site Option 2) would be operated in an area mapped by CAL FIRE as a Very High Fire Hazard Severity Zone (CAL FIRE, 2007). Operation of the Valley Greens Pump Station could require temporary and intermittent use of a diesel-powered generator. The Valley Greens Pump Station (site Option 2) generator would be enclosed within the pump-station housing and its operation would not be expected to increase wildfire risk.

Two of the cumulative projects identified in **Table 5-1** would occur within the same fire hazard severity zone within which the Valley Greens Pump Station (site Option 2) is proposed. The Rancho Canada developments (Nos. 27 and 28) would introduce a substantial amount of new lodging and residential development near or into a Very High Fire Hazard Severity Zone. The Rancho Canada development could substantially increase fire hazard risk. However, given that the Valley Greens Pump Station (site Option 2) generator would be enclosed and operated only infrequently and for limited periods of time, the combined effects of the MPWSP and Rancho Canada developments would not be cumulatively significant with respect to substantially increased risk of wildfire (*less than significant*).

Cumulative impacts related to safety hazards in an airport land use planning area could occur if the incremental effects of the MPWSP combined with those of one or more of the cumulative projects to cause a substantial impediment to safe aviation, or attract large numbers of people to existing airport-related hazard areas. The types of development that could present aviation safety hazards include tall towers and antennas, bright lights, and bird attractions, among others. Existing airport-related hazard areas include aircraft approach, departure, turning, and traffic pattern zones.

Several MPWSP components are proposed for sites within the planning area of the Comprehensive Land Use Plan for the Monterey Peninsula Airport (MCALUC, 1987). Several other MPWSP components are proposed for areas near, but beyond the planning area for the Marina Municipal Airport (MCALUC, 1996). No above-ground MPWSP components are proposed within the Monterey Peninsula Airport's Primary Planning Area. The Terminal

Reservoir and ASR Pump Station are the only above-ground facilities that would be located within an airport planning area; they would occur within the Monterey Peninsula Airport's Secondary Planning Area and would be consistent with the height, location, and use limitations set forth in that planning area (MCALUC, 1987). The MPWSP would not attract large numbers of people to an area subject to increased airport-related hazards. For these reasons, as presented in Impact 4.7-8, the project-specific incremental impact would be less than significant.

Several cumulative projects listed in **Table 5-1** also would be located within the Marina or Monterey airport land use plan areas. A number of these projects, such as Monterey Bay Shores (No. 19), the West Broadway Urban Village Specific Plan (No. 14), and the City Center Shopping Center Redevelopment Project (No. 15), would attract large numbers of people to lands within an airport planning area, which could result in a cumulatively significant effect. The MPWSP and cumulative projects would be required to comply with the applicable airport land use plan policies. In addition, each project would be subject to local agency review for compliance with these plans and, if appropriate, referred to the Monterey County Airport Land Use Commission for review. Airport land use plan compliance would reduce the potential for the MPWSP and cumulative projects to cause a cumulatively significant impact with respect to public hazards in an airport planning area. Nevertheless, given that the Terminal Reservoir would not attract large numbers of people or birds, would not include substantial sources of light or glare, and would not involve tall vertical structures, the incremental contribution of these components regarding safety hazards within an airport land use planning area would not be cumulatively considerable (*less than significant*).

5.2.8 Land Use, Land Use Planning, and Recreation

Cumulative impacts related to land use and recreation (*No Impact*)

As analyzed in Section 4.8, Land Use, Land Use Planning, and Recreation, the MPWSP would not divide an established community; therefore, it could not cause or contribute to any cumulative impact related to this issue. The potential for the MPWSP to conflict with an applicable habitat conservation plan or natural community conservation plan is addressed in Section 4.6, Terrestrial Biological Resources; cumulative impacts to which this project-level impact may contribute are described in Section 5.2.6, Terrestrial Biological Resources. The MPWSP could disrupt use of and/or access to recreational facilities within the project area. These effects would be temporary, mainly limited to the 30-month construction period, and no long-term effects would result. Therefore, the proposed project would not be expected to substantially conflict with any plans, policies, or regulations related to land use or recreation that were adopted for the purpose of avoiding or mitigating an environmental effect. Nor would the proposed project cause any other project to conflict with an applicable environmental plan, policy, or regulation related to land use or recreation. Therefore, the effects of the MPWSP, when combined with those of cumulative projects identified in **Table 5-1** would not cause a cumulatively significant effect related to land use, land use planning, and recreation (*no impact*).

5.2.9 Traffic and Transportation

Cumulative impacts related to transportation and traffic (*Significant and Unavoidable with Implementation of Mitigation*)

As analyzed in Section 4.9, Traffic and Transportation, the MPWSP would result in no impact with respect to conflicts with an applicable congestion management plan, changes in air traffic patterns, permanent increases in traffic safety hazards due to a design feature or incompatible uses, or conflicts with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities. Therefore, it could not cause or contribute to any cumulative effect related to these traffic and transportation topics (*no impact*).

The geographic scope for cumulative traffic impacts analysis encompasses the local and regional roadways and highways that would be used for project-related construction and operational activities and for access by construction worker and full-time employee vehicles. A significant cumulative effect to transportation and traffic could occur if the incremental impacts of the MPWSP combined with those of one or more of the projects listed in **Table 5-1** that would use the same transportation network as the MPWSP during the life of the project to substantially and adversely affect the effectiveness of the circulation system or to result in inadequate emergency access.

Cumulative Impacts during Project Construction

As discussed in Section 4.9, Traffic and Transportation, the MPWSP's significant impact related to increased congestion from construction traffic would be reduced with the implementation of **Mitigation Measures 4.9-1 (Traffic Control and Safety Assurance Plan)**, **4.9-6 (Roadway Rehabilitation Program)**, and **4.9-7 (Construction Worker Parking Requirements)**. However, less-than-significant residual impacts would remain; these are discussed in greater detail below. Due to increased traffic and transportation network disruptions, concurrent construction of the MPWSP and the projects listed in **Table 5-1** would result in potentially significant cumulative impacts on traffic and transportation access and facilities. Such impacts would include a short-term increase in vehicle traffic; reductions in the number or the available width of travel lanes on roads where construction would occur; increased wear-and-tear on the designated haul routes used by construction vehicles; and increases in demand for parking spaces to accommodate construction worker vehicles, among others. In addition, concurrent construction of these projects could create traffic safety hazards for vehicles, bicyclists, and pedestrians on public roadways. Access to adjacent land uses and streets for both general traffic and emergency vehicles could be disrupted. The MPWSP's contributions to these impacts would occur along routes adjacent to most pipeline alignments and above-ground project components south of Reservation Road. These impacts would be most pronounced along roadway segments and intersections presently operating at or near capacity.

Noted previously, given the moratorium on development requiring new water connections within the general project area, the construction schedule for most of the projects listed in **Table 5-1**

remains unknown. However, several projects are presently or expected to soon be under construction and could overlap with the anticipated MPWSP construction schedule, thereby causing the types of regional and local traffic and transportation impacts described above. These projects include projects in Monterey County (Nos. 2, 4, 5, 32), Marina (Nos. 7, 8, 9, 19), Seaside (Nos. 14, 16, 41, 46), and Pacific Grove (Nos. 22, 45). The other projects identified in **Table 5-1** are in various stages of planning or entitlement processes and also could occur during the MPWSP's anticipated 2016-2019 construction timeframe.

Potentially significant cumulative traffic and transportation access and facility impacts of the type described above could occur along regional transportation corridors, including Highways 1, 68, and 218, in the vicinity of proposed MPWSP components. Such impacts also would be expected along local arterial and neighborhood roadways connecting regional thoroughfares with specific project construction sites. Based upon the anticipated MPWSP and cumulative project construction schedules (**Table 5-1**), potentially significant cumulative impacts on local roadways would likely be concentrated in the cities of Marina, Seaside, and Sand City. However, as discussed, several other projects whose construction timelines remain unknown also could be constructed within the anticipated MPWSP construction window and have similar transportation effects. Accordingly, this analysis conservatively assumes that at least some of the cumulative projects whose construction schedules remain unknown would be constructed concurrent with the MPWSP. Therefore, the possibility for potential significant cumulative impacts in Monterey City, Pacific Grove, and Monterey County cannot be ruled out.

As discussed in Section 4.9, Traffic and Transportation, CalAm would be required to implement **Mitigation Measures 4.9-1 (Traffic Control and Safety Assurance Plan)**, **4.9-6 (Roadway Rehabilitation Program)**, and **4.9-7 (Construction Worker Parking Requirements)**, each of which would lessen the MPWSP's contribution to cumulative construction-related traffic and transportation impacts. Specifically, these measures would reduce MPWSP's incremental contribution to safety hazards, emergency access, transportation facilities, wear and tear, and parking impacts. However, given the size of the MPWSP, along with the number of cumulative projects and uncertainty regarding cumulative project construction timing, the residual MPWSP transportation impacts could still contribute substantially to cumulative local and regional traffic and roadway capacity disruptions, a cumulatively significant impact.

Mitigation Measure 4.9-C.1, presented below, is designed to further reduce the MPWSP's incremental contribution such that it no longer would be cumulatively considerable. However, there is no guarantee that local agencies would participate in such coordination efforts. Therefore, even though this mitigation measure could reduce MPWSP's cumulative contribution to a less-than-significant level, the conclusion remains that the Project's incremental contribution to potential significant cumulative effects would be cumulatively considerable (*significant and unavoidable with implementation of mitigation*).

Mitigation Measure 4.9-C.1: Construction Traffic Coordination Plan.

CalAm shall coordinate with the appropriate planning agency within each affected jurisdiction to develop and implement a Construction Traffic Coordination Plan. The

purpose of the plan shall be to lessen the cumulative effects of MPWSP and local development project construction-related traffic delays and congestion. The plan shall address construction-related traffic associated with all project sites in the vicinity of MPWSP project components (i.e., within 1 mile or would use the same roads) and whose construction schedules overlap that of the MPWSP. However, the construction traffic coordination plan shall, at a minimum, include the following components:

- Identification of all projects located in the vicinity of MPWSP project components (within 1 mile or would use the same roads) and whose construction schedules overlap that of the MPWSP.
- Consideration for the types of construction-related vehicles and corresponding numbers and timing of trips associated with each said project.
- An evaluation of roadways affected by construction activities and measures to minimize roadway and traffic disturbances (e.g., lane closures and detours).
- Phasing of construction activities, as necessary to prevent degradation of levels of service on affected roadways.
- A program that provides for continual coordination with the affected agencies to allow for adjustments and refinements to the plan once construction is underway.

The construction traffic plan may be modeled after or included within the plan described in **Mitigation Measure 4.9-1 (Traffic Control and Safety Assurance Plan)**. If necessary, separate construction traffic coordination plans (i.e., one for each affected jurisdiction) may be prepared, provided each is compatible.

Cumulative Impacts during Project Operations

As described in Section 4.9, the MPWSP would have less-than-significant long-term traffic increases on regional and local roadways during project operations and maintenance. A significant cumulative impact associated with long-term traffic increases would occur if the traffic or transportation-related effects of MPWSP operations combined with those of one or more of the projects identified in **Table 5-1** to cause traffic on local and regional roadways to exceed established level of service standards. The number of new vehicle trips that would occur in association with operation of the projects in **Table 5-1** remains unknown. Given the large number and nature of these projects, the total operations-related traffic resulting therefrom is expected to be substantial.

As discussed in Impact 4.9-8, the MPWSP would require approximately 20 to 30 full-time workers (project facility operators and support personnel) to operate, monitor, and maintain the desalination facilities (all other facilities would be operated remotely by computer and require infrequent maintenance visits). MPWSP Desalination Plant workers would add up to an estimated 66 daily one-way trips to the local and regional road network. The anticipated increase in traffic associated with these vehicle trips would not be noticeable to other motorists and would not affect the users of alternative travel modes (e.g., pedestrians and bicyclists).

The combined effects of operations-related traffic from the projects identified in **Table 5-1** could have a potentially significant cumulative impact on local and regional traffic. However, the

addition of traffic associated with MPWSP operation and maintenance would not contribute substantially to those impacts; they would be mostly limited to Charles Benson Road and Highway 1. The only cumulative projects identified on **Table 5-1** expected to affect Charles Benson Road are the RUWAP (Nos. 31 and 35), whose operational traffic would be between 0 and 4 one-way trips daily (Denise Duffy & Associates, 2004). As a result, the MPWSP's incremental contribution to operations-related traffic would not cause a cumulatively significant impact (*less than significant*).

5.2.10 Air Quality

Cumulative impacts related to air quality (*Less than Significant*)

The geographic scope of analysis for potential cumulative air quality impacts is the North Central Coast Air Basin. The timeframe during which the MPWSP could contribute to cumulative air quality effects includes the 30-month construction phase, as well as the anticipated approximately 40-year operations phase.

In developing thresholds of significance for air pollutants, Monterey Bay Unified Air Pollution Control District (MBUAPCD) considered the emission levels for which a project's individual emissions would be cumulatively considerable. Based on MBUAPCD thresholds and CEQA guidance, if project emissions would exceed the identified significance thresholds, a significant cumulative air quality impact would occur and the project's contribution to the cumulative impact would be considered cumulatively considerable. If project emissions would not exceed the significance thresholds, the project's incremental contribution to any potential cumulative impact would not be cumulatively considerable.

In addition, per MBUAPCD guidance, if a project would generate emissions not accounted for in the MBUAPCD's 2012 AQMP and the unaccounted emissions would result in a significant project impact, the project would be cumulatively considerable and would result in a significant cumulative impact.

Cumulative Construction Impacts

As described in the Impact 4.10-1 discussion, MPWSP construction activities would generate short-term respirable particulate matter (PM₁₀) emissions in quantities that would exceed the MBUAPCD threshold. However, implementation of **Mitigation Measures 4.10-1a (Construction Fugitive Dust Control Plan)**, **4.10-1b (Stabilize Dust on Terminal Reservoir/ASR Pump Station Access Road)**, and **4.10-1c (Idling Restrictions)**, would reduce emissions of PM₁₀ during MPWSP construction activities to a level that would be below the MBUAPCD threshold. The air quality construction threshold established by MBUAPCD was designed for the North Central Coast Air Basin and is intended to address the incremental contributions of individual projects on the quality of the air basin as a whole. As such, conformance with the MBUAPCD threshold ensures that an individual project would not have a cumulatively considerable impact with respect to overall air quality within the air basin. As a result, the MPWSP's incremental contribution of

construction-related PM₁₀ emissions, when combined with that of cumulative projects identified in **Table 5-1**, would not result in a cumulatively significant impact (*less than significant*).

Regarding other criteria pollutants, the combined effects of the MPWSP would be cumulatively significant if project construction emissions that have not been accounted for in the 2012 AQMP would result in a significant impact. Pursuant to MBUAPCD policy, emissions from typical construction equipment, such as dump trucks, scrapers, bulldozers, and front-end loaders that emit precursors of ozone [(i.e., reactive organic gases (ROG) and nitrogen oxides (NO_x)] are already accounted for in the emission inventories MBUAPCD prepares for its air quality plans, such as the 2012 AQMP. Therefore, project-related emissions that would be associated with typical equipment types would not result in emissions that would be cumulatively considerable. The MPWSP would utilize less-common construction equipment, such as drill rigs for well installation, and jack-and-bore rigs and horizontal boring machines or augers for trenchless pipeline installation where open-cut trenching is not feasible or desirable. As described in the Impact 4.10-1, discussion of Other Criteria Pollutants, project emissions of non-typical construction equipment would not exceed the MBUAPCD significance thresholds ROG or NO_x. Therefore, the emissions generated by non-typical construction equipment would not be cumulatively considerable and the MPWSP's incremental contribution to the cumulative impact would not be significant (*less than significant*).

With regard to impacts on sensitive receptors, the total diesel particulate matter (DPM) emissions exposure periods from on-site equipment that would be required to construct MPWSP components would be limited to between several days and 25 months depending on the specific facility (see Impact 4.10-2 discussion relative to sensitive receptor exposure to toxic air contaminants (TACs)). Nearby cumulative projects with construction schedules that overlap with the MPWSP would also be expected to generate DPM emissions. While these emissions could be substantial, they would be temporary and generally limited to a period of a couple years or less for a given project. The Office of Environmental Health Hazard Assessment recommends health risk assessments consider an exposure period of 70-years when evaluating potential health risks related to exposure of sensitive receptors. The effects of MPWSP construction and cumulative projects would not be expected to result in long-term exposure of sensitive receptors to TAC emissions. As a result, no cumulatively significant impact would be expected. In addition, construction of the MPWSP would result in diesel emissions-based odors, which would result in a negligible and short-term effect on nearby sensitive receptors (see Impact 4.10-2 discussion relative to sensitive receptor exposure to odors). Cumulative projects could also contribute to increases in diesel emissions-based odors. However, as noted previously, such increases would be limited in duration and extent. As a result, no cumulatively significant effect related to odors would be expected (*less than significant*).

Cumulative Impacts during Project Operations

Noted previously, pursuant to MBUAPCD CEQA Guidelines, a project's operational emissions would have a significant cumulative impact if they exceed adopted significance thresholds. As discussed in Impacts 4.10-3 and 4.10-4, MPWSP operations would not cause emissions that would exceed the MBUAPCD significance thresholds. Therefore, the emissions generated by project

operations would not be cumulatively considerable and the MPWSP's incremental contribution to the cumulative impact would not be significant (*less than significant*).

With regard to impacts on sensitive receptors, onsite DPM emissions from project operation would be limited to emergency generators at the MPWSP Desalination Plant, ASR Pump Station, and the Valley Greens Pump Station. DPM emissions (in the form of PM_{2.5}) from routine testing and maintenance of these emergency generators would be less than 1 pound per day and would average up to 0.03 pound per day on an annual basis. As discussed in Impact 4.10-4, such emissions would be negligible and would not contribute to a cumulatively significant impact. Also discussed in Impact 4.10-4, MPWSP operation would not be expected to contribute substantially to offsite exposure of sensitive receptors to objectionable odors. To the extent the MPWSP would result in any objectionable odors, they would likely result from MPWSP Desalination Plant operation. The MPWSP Desalination Plant site is located within an industrial area with no sensitive receptors in the immediate vicinity. As a result, the MPWSP would not be expected to contribute to a cumulatively significant impact with respect to TACs or odors (*less than significant*).

5.2.11 Greenhouse Gas Emissions

Cumulative impacts related to greenhouse gas emissions (*Significant and Unavoidable with Implementation of Mitigation*) Because GHG emissions have global climate change implications, the evaluation of GHG emissions impacts is inherently a cumulative impact analysis. Through Executive Order S-3-05 and Assembly Bill 32 (AB 32), the State has established goals and policies for reducing its contribution of GHG emissions. Accordingly, these policy documents provide goals against which the significance of individual projects' emissions can be measured. Consistent with the goals and policies set forth in Executive Order S-3-05 and AB 32, and the AB 32 Scoping Plan developed pursuant thereto, the numeric significance criterion used to evaluate operational emissions plus construction emissions amortized over the project's estimated 40-year lifetime is 2,000 metric tons carbon monoxide-equivalent (CO₂e) per year. The analysis also considers the MPWSP's consistency with applicable AB 32 Scoping Plan Measure W-3. If MPWSP construction and operations would result in GHG emissions greater than 2,000 metric tons CO₂e per year, or conflict with AB 32 Scoping Plan Measures, the MPWSP would not be considered consistent with the State's GHG reduction goals and the associated impact would be cumulatively considerable. The timeframe during which the MPWSP could contribute to cumulative GHG emissions effects includes the 30-month construction phase, as well as the anticipated approximately 40-year operations phase.

Construction and Operational Emissions

As discussed in Impact 4.11-1, the MPWSP construction activities would generate approximately 21,637 metric tons CO₂e over the 30-month construction period. Amortized over the project's estimated 40-year lifetime, annual average emissions would be approximately 541 metric tons CO₂e (refer to **Appendix G** for all assumptions associated with the GHG construction emissions). The Impact 4.11-1 discussion also discloses that the MPWSP operations would generate approximately 5,640 metric tons CO₂e per year. Thus, the combined amortized annual

construction emissions and annual operations emissions would be approximately 6,181 metric tons CO₂e. **Mitigation Measure 4.11-1 (GHG Emissions Reduction Plan)** requires CalAm to prepare and implement a GHG Emissions Reduction Plan to address project emissions. The plan would identify specific technologies CalAm would implement to maximize energy efficiency and use of renewable energy technologies, and would be subject to CPUC review prior to the start of construction. In addition, CalAm would be required to implement **Mitigation Measure 4.18-1 (Construction Equipment Efficiency Plan)** to ensure project construction activities are conducted in a fuel-efficient manner, which would also limit the generation of GHG construction-related emissions.

Although implementation of these measures would reduce the overall carbon footprint of the project, the CPUC cannot substantiate that the mitigated GHG emissions would be reduced to a less-than-significant level. Therefore, with mitigation, the impact would remain cumulatively considerable, and the project would result in a cumulatively significant impact relative to the generation of GHG emissions that would conflict with the goals and policies set forth in S-3-05 and AB 32 (*significant and unavoidable*).

The intent of AB 32 Scoping Plan Measure W-3 (Water System Energy Efficiency) is to encourage GHG emissions reductions through the incorporation of energy saving technologies. As described in the Impact 4.11-3 discussion, CalAm has committed to implementing project features to ensure that the MPWSP would be operated in an energy efficient manner; although there may be additional feasible energy reducing features available to further reduce the electrical consumption associated with the project. Therefore, implementation of **Mitigation Measure 4.11-1 (GHG Emissions Reduction Plan)** is required to ensure that the proposed project is operated in an energy-efficient manner to the extent feasible. The California Air Resources Board has set a 20 percent electricity use reduction target for Measure W-3; therefore, a 20 percent reduction in electricity use associated with the proposed project's energy recovery and energy saving features would indicate a less-than-significant cumulative impact associated with the proposed project's consistency with this measure. However, the CPUC cannot substantiate that the proposed project's electricity use would be reduced to a less-than-significant level. Therefore, this impact is considered to be cumulatively considerable even with implementation of mitigation (*significant and unavoidable*).

5.2.12 Noise and Vibration

Cumulative impacts related to noise and vibration (*Significant and Unavoidable*)

Cumulative Construction Noise Impacts

The geographic scope of analysis for cumulative noise impacts is defined by the presence of sensitive receptors within 500 feet of MPWSP components whose daytime construction noise could exceed speech interference thresholds or whose nighttime construction noise could exceed sleep interference thresholds. Such MPWSP components include the proposed subsurface slant wells, the proposed pipelines, ASR-5 and ASR-6 Wells, pump stations and other project facilities. Beyond 500 feet, the MPWSP's contributions to cumulative noise impacts would be greatly

attenuated and not be expected to combine with that of cumulative projects to result in a significant cumulative effect.

This screening threshold distance was developed based on stationary source attenuation equations (Caltrans, 2013). **Table 5-3** presents the cumulative noise level generated by typical construction phases (multiple equipment) at a distance of 50 feet. Using the attenuation equations, the maximum noise level of 89 A-weighted decibels (dBA) for both excavation and finishing phases (as shown in **Table 5-3**) would diminish to 69 dBA at 500 feet. A receptor experiencing noise levels of 89 dBA from two immediately adjacent construction sites would experience a cumulative noise level of 91 dBA (the acoustical sum of 89dBA plus 89dBA. A receptor experiencing noise levels of 89 dBA from one immediately adjacent construction site and another at a distance of 500 feet would experience a cumulative noise level of 89.04 dBA (the acoustical sum of 89 dBA plus 69 dBA), which would not represent a statistically significant increase. A receptor at the mid-point of this distance (250 feet) would experience the equivalent of 75 dBA from each construction site with a resultant 3 dBA increase in noise which is characterized as a barely perceptible noise increase. Intervening structures would further lessen the realized contribution of another construction site at a given receptor.

**TABLE 5-3
TYPICAL CONSTRUCTION NOISE LEVELS**

Construction Phase	Noise Level^a (dBA, Leq)
Ground clearing	84
Excavation	89
Foundations	78
Erection	85
Finishing	89

^a Average noise levels correspond to a distance of 50 feet from the noisiest piece of equipment associated with a given phase of construction and 200 feet from the rest of the equipment associated with that phase.

dBA = A-weighted decibels, Leq = average noise exposure level for the given time period

SOURCE: Bolt, Baranek, and Newman, 1971; Cunniff, 1977.

Sensitive receptors for noise assessment generally include residential uses, schools, and hospitals. Sensitive receptors for vibration assessment generally include structures (especially older masonry structures), people, and locales with vibration-sensitive equipment such as hospitals. Accordingly, sensitive receptors considered in this cumulative impacts analysis generally include residences, schools and, for vibration impacts, adjacent structures. Noise impacts associated with MPWSP would result from construction-related equipment and hauling activities, as well as operational activities associated with the various above-ground MPWSP components. The timeframe during which the MPWSP could contribute to cumulative noise and vibration effects includes the 30-month construction phase.

As indicated in **Table 5-1** there are 48 past, present, and reasonably foreseeable future projects and activities in the geographical region of the proposed project. However, of these 48 cumulative projects only 18 would potentially occur within the geographic scope of analysis for cumulative noise and vibration impacts (i.e., 500 feet from a MPWSP project component). Twelve of these cumulative projects (Nos. 3, 7, 10, 12, 14, 18, 27, 31, 38, 41, 42, and 44) would have a construction schedule that could overlap with that of the MPWSP, meaning that equipment required for cumulative project construction within 500 feet of the MPWSP could be in operation at the same time as that required for MPWSP construction. Sensitive receptors within 500 feet of active cumulative project and MPWSP construction sites could experience a cumulative impact related to construction noise.

For these 12 projects that cannot be dismissed from contributing to cumulative construction noise impacts based on the screening distance threshold or timing, the potential for cumulative construction noise impacts are assessed based on the same project-level thresholds used in Section 4.12, Noise and Vibration. However, this analysis considers the incremental contribution of MPWSP construction noise as well as that of the cumulative project(s). For daytime construction activities, a significant noise impact would occur if noise levels at sensitive noise receptors remained above the 70 dBA speech interference threshold for longer than 2 consecutive weeks. For nighttime construction activities, a significant noise impact would occur if noise levels at sensitive noise receptors exceeded the sleep interference threshold of 60 dBA during nighttime hours (10 p.m. to 7:00 a.m.).

MPWSP components that could generate construction noise in excess of the daytime standard include the ASR Wells, ASR Settling Basin and the Valley Greens Pump Station. These daytime noise impacts would be reduced to a less-than-significant level through implementation of **Mitigation Measures 4.12-1a (Neighborhood Notice)** and **4.12-1b (General Noise Controls for Construction Equipment)** and for the ASR Wells, **Mitigation Measures 4.12-1d (Additional Noise Controls for ASR-5 and ASR-6 Wells)**, and **4.12-1e (Offsite Accommodations for Substantially Affected Receptors)**.

MPWSP components that could generate construction noise in excess of the nighttime standard include the Desalinated Water Pipeline, the Transmission main, the Monterey Pipeline and the ASR Wells. With the exception of the ASR wells, these nighttime noise impacts would be reduced to a less than significant level through implementation of **Mitigation Measures 4.12-1a (Neighborhood Notice)**, **4.12-1b (General Noise Controls for Construction Equipment)** and **4.12-1c (Noise Control Plan for Nighttime Pipeline Construction)**. The ASR wells would have a residual significant and unavoidable impact, even with the addition of **Mitigation Measures 4.12-1d (Additional Noise Controls for ASR-5 and ASR-6 Wells)**, and **4.12-1e (Offsite Accommodations for Substantially Affected Receptors)**.

Construction-related noise from the 12 above-referenced cumulative projects could combine with that of the MPWSP pipeline construction to cause a cumulative impact. MPWSP pipeline construction would progress at a rate of approximately 150 to 250 feet per day, thereby limiting the potential for a noticeable concurrent construction noise impact at any given receptor to less

than a week. Given this limited duration of potential concurrent activity, and associated combined noise effects, the MPWSP would not contribute considerably to a cumulatively significant daytime noise impact (*less than significant*).

Of the 12 cumulative projects identified above, seven are private development projects or specific plans (Nos. 3, 7, 10, 12, 14, 18, and 27) whose construction would not typically require nighttime construction work. The remaining five cumulative projects (Nos. 31, 38, 41, 42, and 44) are water- and transit-related infrastructure projects that could conceivably involve nighttime work to avoid daytime traffic impacts to major arterial roadways. None of these cumulative projects would be within 500 feet of the ASR wells but would be within this distance of MPWSP pipelines.

In the absence of detailed information regarding cumulative project construction equipment and exact construction phase timing, a quantitative assessment of cumulative nighttime noise impact cannot be reasonably estimated. However, it is conservatively assumed that the potential exists for residual (post-mitigation) MPWSP pipeline construction noise to combine with that of one or more of these five cumulative projects to cause nighttime noise levels to exceed the sleep interference threshold. As a result, temporary cumulative increases in nighttime construction noise could result in a cumulatively significant nighttime noise impact. No additional mitigation within the scope of this EIR is available to further reduce the potential for a cumulatively significant nighttime noise impact. Therefore, MPWSP nighttime construction noise could contribute considerably to a cumulatively significant effect (*significant and unavoidable*).

Cumulative Construction Vibration Impacts

The geographic scope of analysis for cumulative vibration impacts is defined by the presence of sensitive structures within 120 feet of MPWSP components whose construction-related vibration could cause damage to these structures. Such MPWSP components include the proposed subsurface slant wells, the proposed pipelines, the MPWSP Desalination Plant, ASR-5 and ASR-6 Wells, pump stations, and other project facilities. Beyond 120 feet, the MPWSP's contributions to cumulative vibration impacts would be greatly attenuated and not be expected to combine with that of cumulative projects to result in a significant cumulative effect.

This vibration screening threshold distance was developed based on the vibration levels of a vibratory compactor, a type of construction equipment used for compacting fill over pipeline trenches, and which would generate the highest vibration of any non-impact construction equipment that would be used for MPWSP construction. At a distance of 60 feet, vibration from a vibratory roller/compactor would be 0.056 inches/second Peak Particle Velocity (PPV). Assuming operation of a compactor at the MPWSP component site and one at a cumulative project site at a distance of 120 feet, the resultant vibration level would be 0.11 inches/second PPV which could be experienced by a mid-point receptor within the 120 foot screening distance. This vibration level would be below the 0.12 inches/second PPV threshold applied in Section 4.12, Noise and Vibration, and hence is used to justify the use of a 120 foot geographic scope, beyond which no cumulative vibration effect would result.

Impact 4.12-3 identifies significant project-level construction impacts from operation of roller/compactors and sheet pile drivers during pipeline installation. **Mitigation Measure 4.12-3 (Vibration Reduction Measures)** is identified to address construction-related vibration during pipeline installation activities and includes monitoring. With mitigation, project vibration levels would not exceed 0.12 inches per second.

Of the 48 cumulative projects, only six (Cumulative Projects Nos. 10, 12, 14, 41, 42, and 44) would potentially occur within the 120-foot geographic scope of cumulative impacts analysis. Without knowledge of the type of construction equipment or exact construction phase timing for these cumulative projects, a quantitative assessment of vibration impact cannot be reasonably estimated. However, the project-specific vibratory impact monitoring required under **Mitigation Measure 4.12-3** would also capture vibration contributed by the other six cumulative projects, should the timing and location of construction overlap, and allow the MPWSP construction to respond accordingly (i.e., use smaller equipment, adjust equipment operations, alternate construction methods) to avoid significant vibratory effects. Consequently, no cumulatively significant construction-related vibration impacts would result (*less than significant*).

Cumulative Impacts During Project Operations

The geographic scope of analysis for cumulative operational noise impacts is similar to that described above for construction noise (i.e., the presence of sensitive receptors within 500 feet of MPWSP components that could generate operational noise and cumulative projects). The 500-foot screening distance described for construction noise is conservative, as operational noise levels would be less than construction-related noise levels. Such MPWSP components include the proposed MPWSP Desalination Plant, the ASR well facilities, Main System-Hidden Hills Interconnection Improvements, and the Valley Greens Pump Station. The timeframe during which the MPWSP could contribute to cumulative operational noise effects includes the anticipated approximately 40-year operations phase.

As discussed in Impact 4.12-5, the MPWSP's project-specific operational noise impacts would be less than significant for the MPWSP Desalination Plant, the ASR well facilities, and the Valley Greens Pump Station. Impacts of the Main System-Hidden Hills Interconnection Improvements would be less than significant with mitigation. There are no cumulative projects within 500 feet of the MPWSP Desalination Plant, the ASR well facilities, Main System-Hidden Hills Interconnection Improvements or the Valley Greens Pump Stations. The nearest cumulative project to any of the above-reference MPWSP components is the Rancho Canada Village (No. 27).

Cumulatively significant operational noise impacts could occur if residual noise impacts from MPWSP operations combined with noise from cumulative projects to cause an increase in ambient noise levels in excess of 5 dBA, a noticeable increase by the human ear (Caltrans, 2013). Operational noise impacts at the Valley Greens Pump Station (Site Option 2) would generate operational noise levels of 50 dBA, L_{eq} , resulting in an overall estimated ambient increase of 0.4 dBA. The Rancho Canada Village would be located approximately 800 feet east of the Valley Greens Pump Station. The residential land uses proposed for Rancho Canada Village would not be expected to introduce new operational sources of noise other than common air handling units

or pool pump motors, the noise from which would be limited and enforced by the County noise ordinance. Given the distance between the Valley Greens Pump Station and the proposed Rancho Canada Village, contributions of noise from each would attenuate to below ambient levels over this distance and would not combine to cause an ambient noise level increase of 5 dBA. Consequently, MPWSP operational noise would not cause a considerable contribution to a cumulatively significant noise impact (*no impact*).

None of the MPWSP components would generation operational vibration. Therefore, the MPWSP would not cause a considerable contribution to a cumulatively significant operational vibration impact (*no impact*).

5.2.13 Public Services and Utilities

Cumulative impacts related to public services and utilities (*Less than Significant*)

As discussed in Section 4.13, Public Services and Utilities, the MPWSP would have no impact on public services. Accordingly, the MPWSP would not cause or contribute to cumulative impacts related to public services.

The geographic scope for cumulative utilities systems impacts consists of the service areas of utility providers for wastewater treatment, water treatment, stormwater drainage, water supply, and solid waste landfill needs. See Section 4.13, where these service areas are defined. For example, the geographic scope for landfill capacity and compliance with solid waste statutes and regulations considerations encompasses Monterey County. The MPWSP could contribute to potential cumulative effects related to utility systems during the 30-month construction phase, as well as the anticipated approximately 40-year operations phase.

Damage to or Disruption of Existing Utilities and Relocation of Utilities

A cumulatively significant impact to utilities and service systems could result if the incremental impacts of the MPWSP combined with those of one or more of the cumulative projects to cause utility damage, extended periods of utility service disruptions, or multiple disruptions within a short timeframe. As described in Impact 4.13-1, construction of the MPWSP could damage or interfere with existing water, sewer, stormwater drainage, natural gas, electric, or communication lines. MPWSP construction activities could involve accidental damage, temporary disconnection, or planned relocation of utility lines, each of which could interrupt service.

As discussed in Section 4.13, Public Services and Utilities, the MPWSP's potential utility impacts would be reduced to a less-than-significant level with implementation of **Mitigation Measures 4.13-1a (Confirm Utility Line Information), 4.13-1b (Coordinate Final Construction Plans with Affected Utilities), 4.13-1c (Safeguard Employees from Potential Accidents Related to Underground Utilities), 4.13-1d (Emergency Response Plan), 4.13-1e (Notify Local Fire Departments), and 4.13-1f (Ensure Prompt Reconnection of Utilities)**. These mitigation measures would require the MPWSP construction contractor(s) to: confirm the location of existing utilities and mark the confirmed locations accurately on the final construction

drawings; work with utility service providers to reduce the risk of damage to existing utility lines and ensure prompt reconnection of service in the event of a service disruption; clearly outline the procedures to follow in the event of a leak or explosion; take special precautions when working near high-priority utility lines; and immediately notify local fire departments of any damage to high-priority utility lines. Implementation of the above-listed mitigation measures would provide for accurate location and protection of existing utilities during MPWSP construction, emergency response procedures to reduce potential damage during construction, and avoidance or reduction of service disruptions.

Cumulative projects that could cause impacts similar to those described for the MPWSP include those identified in **Table 5-1** involving future construction. Due to the localized nature of utilities, most potential impacts would likely be limited to construction areas or utility distribution subareas, rather than affecting entire project area or utility service area. The incremental (post-mitigation) contribution of effects from the MPWSP would not be substantial. This is because most potential effects would be related to pipeline construction. Given the rate of pipeline installation (150 to 250 feet per day), MPWSP construction activities having the potential to disrupt utility service would not occur in the vicinity of other cumulative projects for extended periods of time such that prolonged or frequent disruption of service would occur in the vicinity (or utility service subarea) of cumulative projects with potential to cause similar effects. Therefore, the MPWSP's residual effects would be minimal and would not be expected to contribute considerably to cumulative utility service impacts (*less than significant*).

Landfill Capacity and Compliance with Solid Waste Statutes

A significant cumulative impact would occur if the incremental impacts of the MPWSP combined with those of one or more of the cumulative projects to generate waste volumes that exceed available landfill capacity, or if the handling of those materials would violate applicable solid waste statutes. As discussed in Impacts 4.13-2 and 4.13-3, construction of the MPWSP would generate an estimated 35,225 cubic yards (or 52,837 tons) of excess spoils. Conservatively assuming all MPWSP construction waste would be disposed at the Monterey Peninsula Landfill, the MPWSP would contribute to a 4 percent reduction in the facility's available daily receiving capacity (2.9 percent reduction in total daily receiving capacity) over the 30-month construction period, and a total of 0.07 percent reduction in the landfill's remaining lifetime capacity. As discussed in Section 4.13, Public Services and Utilities, the MPWSP would be required to implement **Mitigation Measure 4.13-2 (Construction Waste Reduction and Recycling Plan)**. This measure requires 100 percent of inert solids (such as asphalt, brick, concrete, dirt, fines, sand, soil, and stone) and at least 50 percent of all other non-inert materials (such as wood, metal, cardboard, and green waste) to be diverted from landfill disposal. With implementation of this measure, the MPWSP's contribution to Monterey Peninsula Landfill capacity limitations would be substantially reduced, and the project-specific incremental effect would be less than significant with mitigation.

Most of the cumulative projects listed in **Table 5-1** would also generate construction-related waste. Given the landfill's finite capacity and the potential for waste diversion, and conservatively assuming all cumulative projects would dispose of solid waste at the Monterey

Peninsula Landfill, a cumulatively significant effect could occur if cumulative projects generating solid waste did not adhere to State requirements for diversion of solid waste from landfills (see Section 4.13.2, Regulatory Framework, for additional details). As described above, the MPWSP would adhere to State mandates for waste diversion, and the project's incremental contribution would be substantially reduced. Therefore, the MPWSP would not contribute considerably to a cumulatively significant effect on landfill capacity (*less than significant*).

As discussed in Impact 4.13-3, operation of the MPWSP Desalination Plant would generate approximately 5 cubic yards (or 7.5 tons) of sludge or "cake" per day that would be disposed of at the Monterey Peninsula Landfill. As described in Section 4.13, this would result in an average daily disposal of 8.75 tons over the six days per week the landfill operates. This volume would represent approximately 0.35 percent of the facility's available daily receiving capacity of 2,500 tons (the difference between permitted capacity and current actual daily intake) and would continue throughout the project's lifetime. Over the assumed 40-year operating lifetime of the MPWSP, disposal of cake would represent 0.15 percent of the landfill's current remaining lifetime capacity. There are no known opportunities for reusing or recycling these solids, so diverting them from landfill disposal is not an option. As discussed previously, many of the cumulative projects identified in **Table 5-1** would also generate wastes. Given the relatively small effect of the MPWSP cake disposal on daily and absolute landfill receiving capacity, and the comparatively large contribution anticipated by cumulative projects, the MPWSP would not contribute considerably to a cumulatively significant landfill capacity impact (*less than significant*).

Increased Corrosion of the MRWPCA Outfall

A cumulatively significant impact would occur if the effects of the MPWSP combined with those of the cumulative projects to cause a substantial increase in corrosion of the MRWPCA outfall. The MPWSP Desalination Plant's brine effluent would be discharged through the existing MRWPCA ocean outfall and diffuser. The MPWSP brine stream salinity would be nearly twice that of Monterey Bay. Both the outfall pipeline and the diffuser are made of reinforced concrete pipe with various cast iron and stainless steel fittings, bolts, valves, and appurtenances (CH2MHill, 2010). Increased salinity could affect corrosion and scaling effects of the outfall and diffuser.

As discussed in Impact 4.13-5, lack of oxygen (anaerobic) at the outfall would protect the outfall from increased corrosion and scaling. However, the existing junction box at the shoreline and first 100 feet of the offshore pipeline could experience aerobic conditions which would increase the potential for corrosion of these facilities, resulting in a significant impact. As discussed in Impact 4.13-5, RUWAP notwithstanding, it is assumed that the amount of treated wastewater effluent available for blending with (i.e., diluting) the brine stream would be highly variable throughout the year, and the brine stream could be discharged without dilution for extended periods.

Mitigation Measure 4.13-5a (Protective Lining, Routine Inspections, and As-Needed Repairs for Offshore Segment of MRWPCA Ocean Outfall) requires a baseline inspection of the outfall and diffuser prior to MPWSP Desalination Plant operation, the application of a protective epoxy coating along the junction box and first 100 feet of the offshore outfall pipeline,

annual inspections of the outfall and diffuser, and performance of any necessary corrosion-related repairs. Additionally, **Mitigation Measure 4.13-5b (Evaluation of Land Segment of MRWPCA Ocean Outfall and Protective Lining, If Needed)** requires a detailed evaluation of the 13,000-foot-long land segment of the ocean outfall and, if needed, the application of a protective epoxy coating along the land segment.

MRWPCA currently utilizes the existing ocean outfall and diffuser to discharge secondary treated wastewater effluent from the MRWPCA Regional Wastewater Treatment Plant into Monterey Bay. No other wastewater flows are presently discharged through the outfall. Only two of the cumulative projects – RUWAP Recycled Water Element (No. 35) and the RUWAP Desalination Element (No. 31) – could potentially affect flows within the outfall pipeline or diffuser. The RUWAP Recycled Water Element could reduce the volume of wastewater discharged through the outfall and diffuser during the summer months, while the RUWAP Desalination Element could increase the volume of brine effluent discharged through the outfall and diffuser. Implementation of either project would result in an increase in the proportion of effluent that is composed of brine.

As noted previously, the analysis in Impact 4.13-5 assumes that the MPWSP brine stream could be discharged without dilution for extended periods; the MRWPCA wastewater flows presently vary substantially across seasons. Therefore, MRWPCA wastewater flow reductions resulting from the RUWAP Recycled Water Element would not be expected to affect brine effluent-related corrosion or scaling of the MRWPCA outfall or diffuser beyond that described for the MPWSP. The brine concentration in the RUWAP Desalination Element's effluent would be similar to that of the MPWSP. And so while the total volume of brine would increase with MPWSP and RUWAP Desalination Element, the salinity would not be expected to change substantially. Implementation of Mitigation Measure 4.13-5, which calls for routine inspections and as-needed repairs to the MRWPCA outfall and diffuser, would substantially reduce the potential for MPWSP-related corrosion and scaling effects on the outfall and diffuser. The (post-mitigation) potential for MPWSP operations to contribute cumulatively to MRWPCA outfall or diffuser corrosion would be substantially reduced. And given that cumulative brine concentrations would not be substantially different from that of MPWSP operations alone, a cumulatively significant impact regarding outfall or diffuser corrosion would not be expected (*less than significant*).

Generate Wastewater Flows that would Exceed the capacity of the Existing Ocean Outfall

A significant cumulative impact would occur if the effects of the MPWSP combined with those of the cumulative projects to cause effluent flows to exceed the MRWPCA outfall's capacity. The MRWPCA's ocean outfall has a physical discharge capacity ranging between 66.5 and 94.6 mgd (Trussell Technologies, 2012). The outfall and diffuser are permitted to discharge up to 81.2 mgd under the MRWPCA's existing NPDES Permit (Order R3-2008-0008) (RWQCB, 2008). The MRWPCA Regional Wastewater Treatment Plant's average monthly flows range from 0.90 mgd in July to 19.78 mgd in January (MRWPCA, 2013).

The MPWSP's brine stream would increase the outfall's average monthly discharge by 13.84 mgd. No other wastewater flows are presently discharged through the outfall. However, most of the cumulative projects identified in **Table 5-1** would generate new wastewater streams, many of which

would be routed to the MRWPCA's Regional Wastewater Treatment Plant. The Regional Wastewater Treatment Plant has a design capacity of 29 mgd. In addition, the RUWAP Desalination Element (No. 35) could increase brine effluent flows through the MRWPCA outfall and diffuser by 2 mgd. Under normal operating conditions, additional cumulative project wastewater effluent from the MRWPCA Wastewater Treatment Plant, when combined with that of the MPWSP and RUWAP brine streams, would not be expected to cause discharges to exceed the capacity of the existing ocean outfall. However, the increased average daily discharge volumes from the MPWSP brine stream and cumulative project effluent would reduce the outfall's capacity to accommodate maximum instantaneous flows during peak storm events, resulting in a cumulatively significant impact (Trussell Technologies, 2012). This impact would be attenuated with implementation of the RUWAP Recycled Water Element, which could reduce the volume of MRWPCA Regional Wastewater Treatment Plant effluent that is discharged through the outfall and diffuser.

As discussed in Section 3.6 of Chapter 3, Project Description, in the event that the brine stream, when combined with instantaneous peak flows of wastewater effluent from the MRWPCA Regional Wastewater Treatment Plant, were to exceed the capacity of the outfall and diffuser during large storm events, CalAm would detain the brine stream at the proposed brine storage basin until sufficient capacity is available in the outfall for discharge. The proposed 3-million-gallon brine storage basin has sufficient capacity to detain flows from approximately 5 hours of desalination plant operations. With detention, the MPWSP effluent would not substantially contribute to outfall capacity constraints. The residual effect of the MPWSP effluent on ocean outfall capacity impacts would not be cumulatively considerable (*less than significant*).

5.2.14 Aesthetic Resources

Cumulative impacts related to aesthetic resources (*Less than Significant*)

The geographic scope of potential cumulative impacts to aesthetic resources encompasses the locations from which a viewer could see the proposed project along with views of other projects in the cumulative scenario. The timeframe during which the MPWSP could contribute to cumulative aesthetic resources effects includes the 30-month construction phase, as well as the anticipated approximately 40-year operations phase. The incremental impacts of the MPWSP combined with those of one or more of the cumulative projects listed in **Table 5-1** would have potentially significant cumulative aesthetic resources impacts if they substantially disrupted scenic resources or areas identified in Section 4.14, Aesthetic Resources, as having moderate to high aesthetic resource value. A potentially significant impact would also occur if the MPWSP and cumulative projects created new substantial sources of light and glare that affected the same sensitive receptor. Scenic resources in the project area generally include views from designated or eligible scenic roadways, such as Highway 1, Highway 68, Reservation Road, and Carmel Valley Road, and the Monterey Peninsula Recreational Trail. Several MPWSP components are proposed for areas with moderate to high aesthetic resource value. Exceptions include sites of the proposed MPWSP Desalination Plant, the Brine Discharge and Salinas Valley Return Pipelines, the Valley Greens Pump Station (Options 1 and 2), and densely developed areas along portions of the Transmission Main (Marina); Transfer Pipeline (Seaside); and Monterey Pipeline (Seaside,

Monterey, and Pacific Grove). The potential cumulative construction- and operations-phase aesthetic impacts are presented below.

Cumulative Construction Impacts

A cumulatively significant effect on aesthetic resources (as described in the preceding paragraph) would result if the effects of the MPWSP construction period combined in space and time with those of cumulative projects to cause substantial degradation of the same scenic resources or have a substantial adverse lighting and glare impact on the same sensitive receptor. MPWSP construction and cumulative project activities that could combine to affect scenic resources and the visual character of the project area include the transport, operation, and staging of construction vehicles; equipment and materials storage; and the presence of construction fencing, stockpiles, and exposed soils, among others. As discussed in Impact 4.14-1, the MPWSP construction activities would have temporary adverse visual impacts of the type described above (e.g., presence of construction vehicles, staging of materials, and exposure of soils). However, given their temporary nature and that these areas would be restored to their approximate pre-construction condition following construction, such impacts would not be expected to have a significant impact with respect to aesthetic resources.

Cumulative projects whose effects could combine with those of the MPWSP construction to have an adverse effect on scenic resources include those that would involve construction-related ground disturbance, vegetation removal, and equipment and materials staging within view of and at the same time as that of the MPWSP. Cumulative projects meeting these criteria include Fort Ord Dunes State Park Campground (No. 46) and The Monterey Bay Shores (No. 19) projects. The remaining cumulative projects in proximity to the MPWSP and with construction schedules that could result in the types of effects described above either are not proposed for scenic areas or would not be visible from the MPWSP (or scenic resources affected by the MPWSP) due to topography or other visual obstruction.

The Fort Ord Dunes State Park Campground and Monterey Bay Shores projects are both located west of Highway 1. The former is proposed for lands approximately 4 miles south of the proposed MPWSP subsurface slant wells site. The latter is proposed for lands approximately 6 miles south of the proposed MPWSP subsurface slant wells site. All three projects would involve construction activities that would be visible to motorists traveling along Highway 1. The proposed construction sites are located several hundred feet west of Highway 1, and so would not appear as a dominant feature on the horizon. Each project site is also separated from Highway 1 (and each other) by intervening beach dune topography and vegetation, which precludes prolonged direct views to the proposed construction areas. To the extent such sites were visible to motorists traveling along Highway 1, such views would be fleeting, as motorists would be traveling at high rates of speed and likely focused on the road. For these reasons, the effects of MPWSP construction would not be expected to combine with those of cumulative projects to cause a cumulatively significant effect with respect to scenic resources (*less than significant*).

Described in Impact 4.14-2, nighttime lighting for the Source Water Pipeline, Brine Discharge Pipeline, Salinas Valley Return Pipeline, and ASR injection/extraction wells construction could

have a significant lighting or glare impact on motorists traveling on nearby Highway 1, Lapis Road, Del Monte Boulevard, Charles Benson Road, and General Jim Moore Boulevard. Residents of the Fitch Park Military Housing area may also be affected. **Mitigation Measure 4.14-2 (Site-Specific Construction Lighting Measures)** requires sources of nighttime lighting required for construction be directed downward, shielded, and focused on work areas, so as not to spillover onto adjacent properties. With mitigation, this impact would be reduced to a less-than-significant level. With the exception of the Slant Test Well Project and RUWAP projects, none of the potentially cumulative projects identified in **Table 5-1** are proposed in areas or at a time that would be affected by MPWSP nighttime construction lighting. Construction of the Slant Test Well Project is expected to be completed prior to commencement of MPWSP construction, and so related impacts could not combine to cause or contribute to a cumulative effect. The construction schedule for the RUWAP projects remains unknown, but is not expected to overlap that of the MPWSP. Even if overlap did occur, however, the combined effects would not exceed the established threshold of significance. As a result, potential cumulative impacts related to light and glare would be less than significant (*less than significant*).

Cumulative Operations Impacts

As analyzed relative to Impact 4.14-3, following the implementation of recommended mitigation measures, the MPWSP would result in a less-than-significant aesthetic resource impact associated with the Terminal Reservoir, as viewed from General Jim Moore Boulevard. None of the potentially cumulative projects identified in **Table 5-1** is proposed in a location where incremental impacts could combine with those of the MPWSP. Therefore, the MPWSP would not cause or contribute to a cumulatively significant adverse effect on aesthetic resources associated with Terminal Reservoir, as viewed from General Jim Moore Boulevard (*less than significant*).

The proposed ASR-5 and ASR-6 Wells, the Terminal Reservoir and ASR Pump Station, and Valley Greens Pump Station (Options 1 and 2) would each require nighttime security lighting. If not properly contained, light spillover and glare from the ASR injection/extraction wells site could have a significant impact on motorists traveling along General Jim Moore Boulevard and residents of the Fitch Park Military Housing. In addition, security lighting at the Valley Greens Pump Station (Option 1) site could also have a significant impact on residents of the home located approximately 100 feet south of the proposed site. Such residential impacts would not be expected for the Terminal Reservoir and ASR Pump Station or the Valley Greens Pump Station (Option 2) sites.

As described in Impact 4.14-4, **Mitigation Measure 4.14-4 (Outdoor and Security Lighting)** requires new exterior lighting proposed for the ASR-5 and ASR-6 Wells and Valley Greens Pump Station (Option 1) be designed, located, and oriented to avoid offsite lighting and glare impacts; utilize low-intensity lighting, as appropriate; and conform to applicable state and local safety and illumination requirements. With implementation of this measure, the MPWSP's operational lighting and glare impacts would be reduced to a less-than-significant level. The residual nighttime lighting effect would be negligible. No cumulative projects identified in **Table 5-1** are proposed for areas that would be affected by MPWSP nighttime security lighting. Consequently, the combined operations-related effects of the MPWSP and cumulative projects identified in

Table 5-1 would not result in a cumulatively significant effect with respect to permanent sources of light and glare (*less than significant*).

5.2.15 Cultural and Paleontological Resources

Cumulative impacts related to cultural and paleontological resources (*Less than Significant*)

The geographic scope of analysis for cumulative impacts on cultural resources includes the direct and indirect APE for the MPWSP. The geographic scope of analysis for paleontological resources includes the portion of the aforementioned underlain by the Monterey Formation geologic unit.

The timeframe during which the MPWSP could contribute to cumulative cultural resources effects is limited to the 30-month construction phase because, as analyzed in Section 4.15, operation of the MPWSP would have no impact on cultural and paleontological resources because project operations would not cause additional ground disturbance or generate strong vibrations beyond those attributable to project construction. For this reason, the proposed project could not cause or contribute to potential cumulative effects to cultural or paleontological resources during the operations period.

A cumulatively significant cultural resources impact could result during construction if the incremental effects of the MPWSP combined with those of one or more of the cumulative projects listed in **Table 5-1** to damage the same type of cultural resource within the APE.

Cumulative Construction Impacts

Architectural Resources

As discussed in Impact 4.15-1, the MPWSP would have a less-than-significant vibration impact on historic properties within the Monterey Old Town Historic District following the implementation of recommended mitigation measures. There is one cumulative project – 459 Alvarado Street redevelopment project (No. 20) – that would occur in the vicinity of a MPWSP component that could contribute to a cumulatively significant vibratory impact on historic resources. The 459 Alvarado Street project is presently under construction and expected to be completed prior to commencement of MPWSP construction. However, if the two projects' construction phases (and associated vibratory effects) were to overlap in time, the 450 feet separating the nearest components of the two projects is sufficiently large to attenuate the vibratory effects of construction such that no cumulatively significant effect would occur (*less than significant*).

Archaeological Resources and Human Remains. As analyzed in the context of Impacts 4.15-2 and 4.15-4, excavation associated with the MPWSP could result in a less than significant impact to known and previously unrecorded archaeological resources and/or human remains following the implementation of recommended mitigation measures. This analysis conservatively assumes that all of the cumulative projects have a similar potential impact to known and previously unrecorded archaeological resources and/or human remains. However, because each project's potential impacts would be site-specific, they could not overlap to combine with those of the MPWSP and no significant cumulative effect would result (*less than significant*).

Paleontological Resources. The geographic scope of analysis for cumulative impacts on paleontological resources includes the Monterey Formation, which is known to contain significant paleontological resources including vertebrate fossils. While discovery within other geologic units affected by the project (i.e., Quaternary or Pleistocene) is possible, the likelihood is considered low because vertebrate fossils have only been collected from the Monterey Formation. The MPWSP could result in a direct or indirect effect to paleontological resources located within these geologic units during excavation or other ground disturbing activities. The incremental impacts of the project could combine with those of one or more of the projects listed in **Table 5-1** to cause or contribute to a significant cumulative impact to paleontological resources if they directly or indirectly destroyed a unique paleontological resource or site or unique geologic feature.

As analyzed in the context of Impact 4.15-3, MPWSP components proposed within the Monterey Formation include two segments of the Monterey Pipeline and the Main System-Hidden Hills Interconnection Improvements. The MPWSP's incremental contribution to potential cumulative effects was determined to be less than significant. Cumulative projects that also could affect the Monterey Formation include Laguna Seca Villas (No. 3), 459 Alvarado Street (No. 20), and Rancho Canada Village and Golf Club (Nos. 27 and 28). Ground disturbance associated with the cumulative projects could result in a cumulatively significant impact due to damage or destruction of a unique paleontological resource. However, the MPWSP would not be expected to contribute considerably to such an effect because the components proposed for the Monterey Formation would occur within previously-disturbed rights-of-way. Therefore, the MPWSP's incremental contribution to potentially significant cumulative paleontological resources impacts would not be cumulatively considerable (*less than significant*).

5.2.16 Agriculture and Forestry Resources

Cumulative impacts related to agricultural and forestry resources (*Less than Significant*)

As analyzed in Section 4.16, Agriculture and Forestry Resources, there are no forest resources or timberland that could be adversely affected by the MPWSP. Because the MPWSP would result in no impact to forest land or timberland resources, the project could not cause or contribute to any potential cumulative effect to such resources.

The geographic scope for cumulative impacts on agricultural resources encompasses the geographic extent of the California Department of Conservation's Farmland Mapping & Monitoring Program. The timeframe during which the MPWSP could contribute to cumulative agricultural resources effects includes the 30-month construction phase, as well as the anticipated approximately 40-year operations phase. Cumulatively significant impacts on agricultural resources could result if incremental effects of the MPWSP combined with those of one or more cumulative projects to cause permanent conversion of large areas of designated important farmland (e.g., Prime Farmland, Unique Farmland, or Farmland of Statewide Importance) to non-agricultural use or substantial conflicts with existing agricultural zoning or Williamson Act contracts.

As analyzed in Section 4.16, Agriculture and Forestry Resources, MPWSP pipeline installation would result in a less-than-significant impact regarding disruptions to Prime Farmland and Farmland of Statewide Importance, Important Farmland, with implementation of recommended mitigation. The effect would be temporary and limited to the MPWSP construction period.

Projects identified in **Table 5-1** proposed for or that would affect agricultural lands include: RUWAP Desalination Element and Recycled Water Element (Nos. 31 and 35), Sunset Farms, LLC (No. 36), and Moss Landing Community Plan (No. 37). The RUWAP projects would involve construction of recycled water distribution pipelines in the area of the Armstrong Ranch property in unincorporated Monterey County. Specifically, a 0.75-mile-long band of Farmland of Statewide Importance, totaling approximately 4 acres, would be temporarily impacted during pipeline installation. The property would be restored to its original condition following construction and no permanent conversion of farmland would result (Denise Duffy & Associates, 2007).

The Sunset Farms project involves replacement of four agricultural support buildings with four smaller agricultural support buildings within the same general area (Monterey County Planning Department, 2012). The Moss Landing Community Plan includes two parcels with a Land Use Plan designation of Agricultural Conservation; no development or conversion is envisioned within or adjacent to these parcels (Monterey County Resource Management Agency, 2012). No permanent impacts on agricultural land uses, existing agricultural zoning, or Williamson Act contracts would occur as a result of these projects. Therefore, the MPWSP's less-than-significant project-specific impact would not combine with the incremental impacts of other projects to cause or contribute to any significant cumulative effect to agricultural resources.

Cumulative Construction Impacts

Construction of the MPWSP and RUWAP facilities and pipelines would have temporary adverse impacts with respect to conversion of agricultural lands to non-agricultural uses. As discussed in Impact 4.16-1, **Mitigation Measures 4.16-1 (Minimize Disturbance to Farmland)** and **4.16-3 (Measures to Minimize Indirect Effects on Agricultural Land)** would reduce project-specific effects of MPWSP pipeline construction by limiting the areal extent of construction near important farmland. The residual effect would be temporary, limited to areas adjacent to existing roadway rights-of-way, and no permanent conversion of important farmland would result. As a result, implementation of the MPWSP and RUWAP would not cause a cumulatively significant effect related to conversion of important farmland (*less than significant*).

The MPWSP Desalination Plant and RUWAP distribution main are each proposed for lands zoned by Monterey County for Permanent Grazing. The Permanent Grazing zoning designation is intended to facilitate the preservation, protection, and enhancement of productive grazing lands. Grazing land is considered an agricultural use. However, the Permanent Grazing district also allows for several other types of land uses. For example, public utilities (Section 21.34.050(D)) and water system facilities including wells and storage tanks serving fifteen or more service connections (Section 21.34.050(O)) are allowed by Monterey County zoning regulations with a use permit. While lands with important farmland designations exist in the vicinity of the MPWSP Desalination Plant and RUWAP distribution pipeline, construction-related impacts associated

with these facilities are expected to be limited to the project sites, avoid areas of row crop production, and not permanently affect adjacent lands with important farmland designations. For these reasons, the combined impacts from the MPWSP Desalination Plant construction and RUWAP pipelines would not be cumulatively significant with respect to local zoning conflicts (*less than significant*).

Cumulative Impacts during Project Operations

Potential cumulative impacts on agricultural resources would mainly result from construction-related activities. Once constructed, most of the MPWSP and RUWAP components in the vicinity of designated important farmlands would be buried beneath the ground and not preclude continued use of adjacent lands for agricultural uses (Denise Duffy & Associates, 2007). The MPWSP Desalination Plant would be constructed on agricultural lands, but would not substantially affect farmland because the proposed project site is fallow and does not contain prime agricultural soils. Operation of this facility would not preclude the continuation of current or the introduction of new agricultural uses on nearby farmlands. Therefore, project operations would not result in a cumulatively significant effect related to the conversion of important farmland or conversion of farmland to non-agricultural uses (*less than significant*).

As discussed in Impacts 4.16-1 through 4.16-3, MPWSP Desalination Plant notwithstanding, other above-ground MPWSP components, such as the ASR system improvements, Terminal Reservoir, and Valley Greens Pump Station, would not be located near agricultural lands and/or would have no impact on such lands. The MPWSP Desalination Plant would permanently displace 25 acres of land zoned Permanent Grazing. However, as noted previously, public utilities and water system facilities are allowed in the Permanent Grazing district with a use permit. As such, the combined impacts from MPWSP Desalination Plant operation and RUWAP would not be cumulatively significant with respect to conflicts with zoning for agricultural uses or Williamson Act contracts (*less than significant*).

5.2.17 Mineral Resources

Cumulative impacts related to mineral resources (*Less than Significant*)

As described in Section 4.17, Mineral Resources, the MPWSP would have a less-than-significant impact related to the loss of availability of sand for use as aggregate for future recovery and to interfering with active mining operations at the CEMEX sand mining facility, which is a locally important mineral resource recovery site recognized in the City of Marina General Plan.

The geographic extent of potential cumulative mineral resources impacts includes the sites of proposed MPWSP components and areas in coastal Northern Monterey County that are mapped as mineral resource zone 2 (MRZ-2). Discussed more fully in Section 4.17, Mineral Resources, the MPWSP and most of the cumulative projects identified in **Table 5-1** are located in an area mapped as MRZ-2, meaning the area contains or is thought to contain significant mineral deposits, particularly sand and gravel. In the project vicinity, this zone extends from the Salinas River in the north to Canyon Del Rey Boulevard in the south, and from the Pacific coast inland to areas east of

General Jim Moore Boulevard (CDMG, 1987). Cumulatively significant impacts on mineral resources would result if the incremental effects of the MPWSP combined with those of one or more of the cumulative projects to substantially limit the availability of mineral resources. The timeframe during which the MPWSP could contribute to mineral resources effects includes the 30-month construction phase, as well as the anticipated approximately 40-year operations phase.

Cumulative Construction Impacts

Despite the vastness of the MRZ-2 in coastal Northern Monterey County, the CEMEX sand mining facility is the only active mining operation in coastal Northern Monterey County. With the exception of the constructed Slant Test Well project (No. 47), none of the projects identified in **Table 5-1**, would occur within or otherwise disrupt the CEMEX site. The MPWSP's subsurface slant well and Source Water Pipeline construction may temporarily disrupt sand mining activities at the CEMEX site. However, CEMEX mining operations would be expected to continue throughout the MPWSP construction period. As a result, the combined effects of the MPWSP construction and cumulative projects would not be cumulatively significant (less than significant).

Cumulative Impacts during Project Operations

Discussed in Section 4.17, Mineral Resources, MPWSP components within the CEMEX site would be buried, clustered with existing development, and/or set back from active mining areas, and would not preclude continued mining activities. As noted above, with the exception of the constructed Slant Test Well project (No. 47), none of the projects identified in **Table 5-1**, would occur within or otherwise disrupt the CEMEX site, and so operation of those projects would not affect CEMEX mining operations. As noted above, if proven viable, the constructed Slant Test Well Project (No. 47) would become part of the MPWSP, but like MPWSP elements, would not preclude continued mining activities.

However, development of the MPWSP and most of the projects in **Table 5-1** would preclude the use of other lands within the MRZ-2 designation for sand, gravel, and stone mining for the duration of these cumulative projects' lifetimes. A large portion of the MRZ-2 in the project vicinity already is developed, and development of the MPWSP and cumulative projects within that zone would further limit the amount of land available for potential future mining operations within the MRZ-2. However, given the locations and extents of the cumulative projects relative to the total amount of remaining undeveloped land within the MRZ-2, the overall effect of the MPWSP and cumulative projects on mineral resource availability would not be substantial. As a result, MPWSP implementation would not contribute to a cumulatively significant mineral resources effect (*less than significant*).

5.2.18 Energy Resources

Cumulative impacts related to energy resources (*Less than Significant*)

The geographic context for the energy resources cumulative impacts analysis includes the local Pacific Gas and Electric (PG&E) power grid. A cumulatively significant energy conservation impact would result if the effects of the MPWSP combined with those of cumulative projects

identified in **Table 5-1** to cause wasteful or unnecessary use of large quantities of fuel and energy, or if they were to constrain local or regional energy supplies or capacities. The timeframe during which the MPWSP could contribute to cumulative energy conservation effects includes the 30-month construction phase, as well as the anticipated approximately 40-year operations phase.

As discussed in Section 4.18-1, MPWSP construction and operation would require large quantities of energy and fuel. **Mitigation Measures 4.18-1 (Construction Equipment Efficiency Plan)** and **14.10-1c (Idling Restrictions)** would require construction-period energy efficiency measures be identified and implemented prior to and during construction. Described more fully in Impact 4.18-2, the MPWSP Desalination Plant would incorporate efficient design elements into building support systems, electrical and treatment equipment, and process design that would reduce operational energy demand. Other projects identified in **Table 5-1** could involve wasteful or unnecessary use of large quantities of energy. However, the above-described mitigation measures and design elements would prevent wasteful or unnecessary uses of energy or fuel during MPWSP construction and operation. As such, the MPWSP's residual effect related to energy conservation would not be expected to contribute to a cumulatively significant energy conservation effect (*less than significant*).

The electrical load demands of the MPWSP can be met with the existing available capacity (PG&E, 2014). The MPWSP and related cumulative projects would create additional demands on electricity and natural gas supplies and distribution infrastructure. However, this type of load growth is part of PG&E's required planning process to ensure adequate delivery capacity is available. Most of the cumulative projects identified in **Table 5-1** are in the planning phase, and with construction dates unknown. Full build-out of the projects identified in **Table 5-1** would be expected to take several years, if not longer. This timeframe is sufficiently long to allow for PG&E to plan for and provide additional capacity and infrastructure, if necessary, to meet the additional demands of future development. For these reasons, the combined effects of the MPWSP and cumulative projects identified **Table 5-1** would not be substantial, and MPWSP operation would not be expected to contribute to a cumulatively significant energy conservation impact (*less than significant*).

5.2.19 Population and Housing

Cumulative impacts related to population and housing (*Significant and Unavoidable*)

As described in Section 4.19, Population and Housing, the MPWSP would have no impact related to displacing housing units or people, necessitating construction of replacement housing elsewhere. Therefore, it could not cause or contribute to any cumulative effect related to the construction of replacement housing (*no impact*).

The geographic context for the population and housing cumulative impacts analysis includes those areas where the effects of the MPWSP and cumulative projects could combine to cause population growth, (i.e., northern Monterey and southern Santa Cruz counties, and the cities and communities therein). A cumulatively significant impact on population and housing would occur

if the incremental effects of the MPWSP combined with those of one or more of projects identified in **Table 5-1** to cause substantial population growth. The timeframe during which the MPWSP could contribute to cumulative population and housing effects includes the 30-month construction phase, as well as the anticipated approximately 40-year operations phase.

Cumulative Impacts during Project Construction

As described in Section 4.19, Population and Housing, the MPWSP would generate a temporary increase in demand for construction workers during the 30-month construction period. Based on CalAm's preliminary estimate of construction phasing, MPWSP construction would require up to approximately 270 construction workers at any one time and, for most of the 30-month construction period, would require between 120 and 270 construction workers at any one time. This project-level impact would be less than significant. Noted previously, given the moratorium on development requiring new water connections within the general project area, the construction schedule for most of the projects listed in **Table 5-1** remains unknown. However, several projects are presently under or expected to soon be under construction and could overlap with the anticipated MPWSP construction schedule, resulting in a demand for construction workers. These projects include projects in Monterey County (Nos. 2, 4, 5, 32), Marina (Nos. 7, 8, 9, 19), Seaside (Nos. 14, 16, 41, 46), and Pacific Grove (Nos. 22, 45). Other projects identified in **Table 5-1** are in various stages of planning or entitlement processes and also could occur during the construction timeframe anticipated for the MPWSP (i.e., 2016-2019).

The construction periods for the cumulative projects identified above are expected to be limited to a few years, with peak demand lasting for a few weeks to months, depending on the project. AMBAG (2014) estimated that in 2010, there were 8,100 construction jobs in the AMBAG region. Because of the limited duration of these projects' construction periods, and given the availability of workers regionally, construction of these projects would not create employment opportunities substantially greater than would normally be available to construction workers in the area, and workers are expected to be drawn from the regional labor pool. While some workers might temporarily relocate from other areas, any associated increase in population would be negligible and temporary. As a result, the combined impacts of the MPWSP construction and cumulative projects on population and housing would not be expected to result in a cumulatively significant impact (*less than significant*).

Cumulative Impacts during Project Operations

Concurrent operation of the MPWSP and projects identified in **Table 5-1** could generate a substantial increase in demand for workers and, correspondingly, housing to accommodate those workers. However, Monterey County's unemployment rate is close to 12.5 percent (28,100 people) – more than 3 percentage points higher than the state average (EDD, 2013). The housing vacancy rate in Monterey County is greater than 9 percent (137,910 units; California Department of Finance, 2013).

Given the availability of workers and housing in the region, it is expected that a considerable amount of the potential induced demand for workers and housing from operation of the cumulative projects could be accommodated locally. However, a significant impact would occur

if the cumulative projects' operational workforce demands could not be met by the available workforce, either due to incompatible skills or sheer numbers, thereby causing substantial influx of workers from outside the region – especially if the number of non-local workers exceeded the available housing supply.

As discussed in Section 4.19, Population and Housing, the MPWSP's operational workforce demands would be nominal, and would result in a less-than-significant project-level impact with respect to directly inducing population growth. Operation and maintenance of the MPWSP Desalination Plant would require a workforce of 25 to 30 people. All other project components would be remotely operated by computer, and would be maintained by CalAm personnel. Conservatively assuming that none of these operational workforce requirements could be met by the regional labor force, the MPWSP would cause up to 30 personnel to relocate to the region. This increase represents approximately 0.01 percent of countywide employment.

Given the small number of personnel required to operate and maintain the MPWSP, and the availability of personnel and housing in the region, the effects of the MPWSP would not contribute to a cumulatively significant population and housing impact (*less than significant*).

The potential for the MPWSP to indirectly induce population growth by removing an obstacle to growth, are addressed in Chapter 8 Growth-Inducement Potential and Secondary Effects of Growth. As noted above, the MPWSP would not *directly* contribute to the creation of additional housing or jobs within the area it serves as it is limited construction and operation of water supply facilities and infrastructure. However, the proposed project would *indirectly* support growth by removing, to some extent, water supply limitations as an obstacle to growth, thereby enabling a degree of growth under the approved general plans within the area served by the MPWSP. The project-specific growth effect would be significant and unavoidable.

Several of the cumulative projects identified in **Table 5-1** would also provide new sources of water to the region (i.e., Cumulative Projects Nos. 24, 31, 33, 34, 35, 48). Given the cost and regulatory hurdles associated with such water projects, and because demand for additional water supplies is not unlimited, it is unlikely and even speculative that all such projects would be constructed. However, given that each is proposed, this analysis briefly considers the possibility that the cumulative water projects referenced above would be constructed.

Development of cumulative water projects would satisfy present and near-term future demand for water supply, further removing limitations to growth in the region. In addition, such an increase could support a level and rate of growth beyond that anticipated and planned for by local governments in their general plans. Correspondingly, such growth could implicate environmental effects in areas such as visual resources, biological resources, air quality, cultural resources, traffic and transportation, public services, and others. The types of resultant effects would be similar to and beyond those presented in **Table 8-8**, Impacts Associated with Planned Growth in the Project Area. The effect would be cumulatively significant and unavoidable. And given the size and regional significance of the MPWSP, its contribution to such growth impacts would be cumulatively considerable (*significant and unavoidable*).

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