CHAPTER 5
Alternatives Screening and Analysis

5.1 Introduction and Overview

This chapter describes the methodology used to identify and screen alternatives to the proposed project, compares the environmental impacts of the alternatives against the proposed project, and identifies the CEQA environmentally superior alternative and the NEPA environmentally preferable alternative and agency preferred alternative.

- ***Sections 5.1.1*** and ***5.1.2*** describe the guidelines for alternatives analysis under CEQA and NEPA, and the process by which the alternatives presented in this EIR/EIS will be carried forward and presented in the EIR/EIS for analysis. ***Section 5.1.2*** restates the proposed project objectives and significant impacts, and discusses their relevance in the alternatives review process.
- ***Section 5.2*** presents and discusses other water supply alternatives that were considered and may have informed the formulation of the alternatives analyzed in this EIR/EIS, but were not carried forward for detailed evaluation in this EIR/EIS.
- ***Section 5.3*** describes the process employed to develop, screen and evaluate potential alternative components and develop whole alternatives for analysis. **Section 5.3.1** describes

the regulatory considerations applicable to the successful implementation of a desalination project and **Section 5.3.2** describes the two-step screening and evaluation process for components of whole alternatives. After the individual components are described and screened to determine feasibility in step 1 (**Sections 5.3.3** through **5.3.5**), the components that are carried forward are evaluated against each other (step 2) in **Section 5.3.6.** Components that are considered to be the least environmentally damaging are then combined into "whole" alternatives in **Section 5.4**. Components that are not carried forward are described, with the reason for their dismissal, in Appendix I.

- ***Section 5.4*** describes a No Project/No Action Alternative and five action alternatives, and discusses their ability to meet project objectives.
- ***Section 5.5*** presents the impact analyses of the six whole alternatives (the No Project/No Action Alternative and the five action alternatives) that are described in Section 5.4 and compares those alternatives against the proposed project.
- ***Section 5.6*** identifies the environmentally superior/preferred alternative(s) and the NEPA agency preferred alternative.

5.1.1 Alternatives Analysis – CEQA/NEPA Requirements

One of the most important aspects of the environmental review process is the identification and assessment of the environmental impacts of reasonable alternatives. In addition to mandating consideration of the No Project/No Action Alternative, both the CEQA Guidelines (14 Cal. Code Regs. § 15126.6(d)) and the NEPA Regulations (40 CFR § 1502.14) emphasize the selection of a reasonable range of alternatives that meet the purpose and need of the proposed action, and the comparative assessment of the impacts of the alternatives to allow for public disclosure and informed decision-making.

5.1.1.1 CEQA Requirements

Section 15126.6 of the CEQA Guidelines sets forth the following criteria for selecting and evaluating alternatives:

- ***Identifying Alternatives*.** An EIR shall describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the proposed project but would avoid or substantially lessen any of the significant effects of the project. Factors that may be considered when addressing the feasibility of an alternative include site suitability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries, economic viability, and whether the proponent can reasonably acquire, control, or otherwise have access to an alternative site. An EIR need not consider an alternative whose impact cannot be reasonably ascertained and whose implementation is remote and speculative. The specific alternative of "no project" must also be evaluated. Of those alternatives presented, an EIR needs to examine in detail only ones that are determined at a preliminary level to feasibly attain most of the basic objectives of the proposed project.
- ***Range of Alternatives*.** An EIR need not consider every conceivable alternative, but must consider and discuss a reasonable range of feasible alternatives in a manner that will foster informed decision-making and public participation. The "rule of reason" governs the selection and consideration of EIR alternatives, requiring that an EIR set forth only those

alternatives necessary to permit a reasoned choice. The CEQA Guidelines require consideration of alternatives capable of eliminating or reducing significant environmental effects even though they may "impede to some degree the attainment of project objectives or would be more costly." However, alternatives must also be feasible, and feasible is defined as capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors."

- ***Evaluation of Alternatives.*** The EIR must evaluate the comparative merits of the alternatives and include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the proposed project. Matrices may be used to display the major characteristics and the environmental effects of each alternative. If an alternative would cause one or more significant effects not caused by the project as proposed, the significant effects of the alternative must be discussed, but in less detail than the significant effects of the project.

5.1.1.2 NEPA Requirements

NEPA emphasizes that the identification and assessment of alternatives is the heart of the environmental impact statement (40 CFR § 1502.14). NEPA requires the agency to consider the no action alternative, other reasonable courses of action, and mitigation measures that are not already incorporated in the proposed action or alternatives. Except for the no action alternative, alternatives should meet the purpose and need (40 CFR 1502.13), and be reasonable, i.e., practical or feasible from the technical and economic standpoint and using common sense. NEPA also requires agencies to consider reasonable alternatives not within the jurisdiction of the lead agency (40 CFR §1502.14 (c)). Agencies must rigorously explore and evaluate all reasonable alternatives, and briefly discuss the reasons for eliminating alternatives from detailed study. Agencies must provide substantial and detailed treatment to each alternative in the analysis, and impacts of the alternatives should be presented in comparative form in order to sharply define the issues and provide a clear basis for choice to the public and the decision-makers.

5.1.2 Project Objectives and Significant Impacts

As noted in Section 5.1.1.1, the CEQA Guidelines call for evaluating alternatives that would attain most of the basic objectives of the project, but would avoid or substantially lessen any identified significant effects of the project. Under the CEQ regulations for NEPA (40 CFR § 1502.13, Purpose and Need; and 40 CFR § 1502.14, Alternatives), an EIS must identify "the underlying purpose and need to which the lead agency is responding in proposing the alternatives including the proposed action" (40 CFR § 1502.13), and present the environmental impacts for the proposed action and each alternative in comparative form, thus defining the issues and providing a clear choice among alternatives for decision-makers and the public (40 CFR § 1502.14). Therefore, under the CEQA Guidelines and CEQ regulations, appropriate alternatives for the EIR/EIS analysis are those that meet most of the basic project objectives (or underlying purpose and need for the project) and the purpose and need for the federal proposed action are reasonable/feasible. Furthermore, the analysis includes alternatives that would avoid or substantially lessen any of the significant environmental effects of the proposed project. In addition, the NEPA regulations (40 CFR §1502.23) require that the merits and drawbacks of the

various alternatives need not be displayed in a monetary cost-benefit analysis and that economic concerns should not outweigh important qualitative considerations. Under both CEQA and NEPA, costs may be and are considered in the assessment of the reasonableness or feasibility of an alternative. However, the analysis in this chapter does not focus on relative economic factors of the alternatives carried through for detailed analysis. Nevertheless, the EIR/EIS indicates those considerations that may be relevant and important to decision-makers, including factors not related to environmental quality.

5.1.2.1 MPWSP Objectives, Purpose and Need

The MPWSP is needed to replace existing water supplies that have been constrained by legal decisions affecting the Carmel River and Seaside Groundwater Basin water resources. In 1995, the California State Water Resources Control Board (SWRCB) directed CalAm to reduce and eventually terminate surface water diversions from the Carmel River in excess of its legal entitlement of 3,376 acre-feet per year (afy). SWRCB Order 95-10 directed CalAm either to obtain appropriative rights to the water that was being unlawfully diverted, or to obtain water from other sources. In the meantime, to reduce diversions from the Carmel River to the greatest practicable extent, the order directed CalAm to implement conservation measures to offset demand and to maximize its use of the Seaside Groundwater Basin to serve existing customers. (See Chapter 2 for more information on Order 95-10 and the subsequent Cease and Desist Order, SWRCB Order 2009-0060).

In 2006, the Monterey County Superior Court adjudicated the rights of various entities to use groundwater resources from the Seaside Groundwater Basin. In its decision, the Court established the adjudicated water rights of all the users of the Seaside Groundwater Basin, for the purpose of avoiding long-term damage to the basin. The adjudication substantially reduced the amount of groundwater available to CalAm (from approximately 4,000 afy to 1,474 afy). (See Section 2.2.4 in Chapter 2, Water Demand, Supplies, and Water Rights for more information on the Seaside Groundwater Basin adjudication.)

The need for the proposed MPWSP is predicated on the following:

- SWRCB Order 95-10, which requires CalAm to reduce and terminate surface water diversions from the Carmel River in excess of its legal entitlement of 3,376 afy, and SWRCB Order 2009-0060, which requires CalAm to terminate the diversions in excess of its legal entitlement by December 2021; and
- The Monterey County Superior Court's adjudication of the Seaside Groundwater Basin, which effectively reduced CalAm's pumping from the Seaside Groundwater Basin from approximately 4,000 afy at the time of the adjudication to CalAm's adjudicated right of 1,474 afy.

The purpose and need is thus to comply with these legal requirements while supplying sufficient water to CalAm customers. Project alternatives were evaluated for their ability to fulfill the project purpose and need and meet the basic objectives of the proposed project. The MPWSP objectives (presented in Chapter 1, Introduction) are repeated here for ease of reference:

The primary, or fundamental, objectives of the proposed MPWSP are to:

1. Develop water supplies for the CalAm Monterey District service area to replace existing Carmel River diversions in excess of CalAm's legal entitlement of 3,376 afy, in accordance with SWRCB Orders 95-10 and 2009-0060;
2. Develop water supplies to enable CalAm to reduce pumping from the Seaside Groundwater Basin from approximately 4,000 to 1,474 afy, consistent with the adjudication of the groundwater basin, with natural yield, and with the improvement of groundwater quality;
3. Provide water supplies to allow CalAm to meet its obligation to pay back the Seaside Groundwater Basin by approximately 700 afy over 25 years as established by the Seaside Groundwater Basin Watermaster;
4. Develop a reliable water supply for the CalAm's Monterey District service area, accounting for the peak month demand of existing customers;
5. Develop a reliable water supply that meets fire flow requirements for public safety;
6. Provide sufficient water supplies to serve existing vacant legal lots of record;
7. Accommodate tourism demand under recovered economic conditions;
8. Minimize energy requirements and greenhouse gas emissions per unit of water delivered; and
9. Minimize project costs and associated water rate increases.

The secondary objectives of the MPWSP are to:

1. Locate key project facilities in areas that are protected against predicted future sea-level rise in a manner that maximizes efficiency for construction and operation and minimizes environmental impacts;
2. Provide sufficient conveyance capacity to accommodate supplemental water supplies that may be developed at some point in the future to meet build out demand in accordance with adopted General Plans; and
3. Improve the ability to convey water to the Monterey Peninsula cities by improving the existing interconnections at satellite water systems and by providing additional pressure to move water over the Segunda Grade.

The purpose of the federal proposed actions is to authorize otherwise prohibited activities to occur within MBNMS, to ensure that the State and Federal permits and the proposed project comply with MBNMS regulations, and to ensure that MBNMS resources are protected by requiring terms and conditions that may be necessary. The MBNMS proposed action was prompted by CalAm's request for NMSA authorization and permits to construct, operate, maintain and decommission subsurface seawater intake facilities under the sanctuary and to allow brine discharges through an existing ocean outfall facility within the sanctuary; both activities would be associated with CalAm's proposed desalination plant. Therefore, the need for MBNMS action is to respond to CalAm's request in accordance with NMSA regulations and to protect sanctuary resources. As part of this EIR/EIS, CalAm is also considering other project alternatives which also involve intakes from and/or discharges into MBNMS which would require

authorization from MBNMS. Therefore, CalAm's project alternatives are also considered alternatives under NEPA.

5.1.2.2 Significant Environmental Impacts

The alternatives to be considered under CEQA and NEPA include those that avoid or substantially lessen one or more of the significant environmental effects identified for the proposed project. Many of the adverse environmental impacts described in Chapter 4, Environmental Setting, Impacts, and Mitigation Measures, were determined to be less than significant. Other adverse impacts were determined to be significant, but could be reduced to a less-than-significant level through the implementation of mitigation measures. Still other impacts were found to be significant and unavoidable even with mitigation measures. The consideration of these mitigation measures also satisfies the requirements under NEPA to consider mitigation alternatives, and for MBNMS to consider imposition of additional terms and conditions to the authorizations to minimize impacts on sanctuary resources.

Based on the analysis presented in Chapter 4, mitigation measures would reduce potentially significant impacts to less-than-significant levels for most topical areas, except for: conflict with the City of Marina's Local Coastal Land Use Plan (a terrestrial biology impact), construction noise and vibration, operational greenhouse gas emissions, and indirect impacts from growth. Further, the proposed project may result in significant and unavoidable cumulative impacts on transportation and traffic, noise and vibration, air quality during construction, and GHG during operations.

While the primary focus of the alternatives analysis in this chapter is to develop a reasonable range of alternatives and analyze their impacts on the environment, this chapter also analyzes two other separately proposed water supply projects in the region (DeepWater Desal and the People's Project) for full consideration and comparison among projects currently under NEPA and CEQA review that could satisfy the project objectives.

5.2 Alternatives Not Evaluated in Detail

This section provides a brief project history, and presents alternative projects that were considered in the past and may have informed the alternatives analyzed in this EIR/EIS, but were not carried forward for detailed evaluation. Many of the alternatives presented below were considered and rejected in earlier environmental review documents because the projects were determined to be politically, legally, economically, or technically infeasible; others are concepts that were speculative or technically or economically infeasible. These projects were revisited for this EIS/EIR and were eliminated from further review because they are incapable of meeting most of the basic project objectives or purpose and need as currently defined. The earlier environmental review documents are incorporated by reference pursuant to NEPA (40 CFR 1502.21) and CEQA Guidelines (Section 15150), and discussed in **Appendix I**. Additionally, Section 5.3 and Appendix I describe individual components, such as particular intake and outfall options, that are eliminated from further detailed analysis.

5.2.1 Overview

The MPWSP is the result of a multi-year planning effort. Since 1989, various entities have proposed several options intended to meet the water supply needs of the Monterey Peninsula and address the impacts on the Carmel River underlying SWRCB Order 95-10. Several of those options generated their own environmental review documents, which in turn contained many alternatives, some of which are still relevant here. As part of the 2009 Coastal Water Project EIR (CPUC, 2009), the CPUC reviewed these previously-prepared documents, including the Monterey Peninsula Long-Term Water Supply Contingency Plan (Plan B) Component Screening Report (CPUC, 2000) and the CPUC Carmel River Dam Alternative Plan B Project Report (CPUC, 2002), to determine what projects and alternatives had already been considered and eliminated since SWRCB Order 95-10 was issued.

The following section summarizes the previous proposals and projects, and the environmental documentation prepared for them (as relevant), and discusses why each of these alternatives is not addressed in detail in this EIR/EIS. No viable alternatives have been identified that would supply water without a desalination plant being included. Therefore, each of the whole action alternatives described in Section 5.4 includes a desalination plant of one size or another at some location within Monterey County.

5.2.2 New Los Padres Dam and Reservoir/Carmel River Dam and Reservoir Project

The New Los Padres Dam and Reservoir project was originally proposed by the Monterey Peninsula Water Management District (MPWMD) in 1989. It included a 24,000- acre feet (af) dam and reservoir on the Carmel River, located about 0.5 mile downstream of the existing Los Padres Dam. The project would have had a production limit of 21,000 afy, of which 3,381 af would have been available to accommodate growth, in the form of new connections and remodels. The MPWMD prepared the required CEQA documentation in 1994-1995, obtained a

Section 404 permit under the federal Clean Water Act in 1995, and obtained a water right permit from the SWRCB in June and July 1995. However, in November 1995 voters rejected a measure authorizing funding for the project (CPUC, 2009).

In 1996, CalAm proposed to build a "no growth" dam and reservoir to comply with Order 95-10. That proposal was called the Carmel River Dam and Reservoir Project. Physically, it would have been the same as the New Los Padres Dam and Reservoir project. It would only have served existing community needs, which were estimated at 17,641 afy rather than the 21,000 afy envisioned in the New Los Padres Dam and Reservoir project. CalAm applied to the CPUC for permission to build and operate the project (A.97-03-052) in 1997. In 1998, the MPWMD, acting as Lead Agency, prepared a draft supplemental environmental impact report based on the New Los Padres Dam and Reservoir EIR. MPWMD never certified the final environmental document because, in 1998, the state legislature passed Assembly Bill 1182, which ordered the CPUC to identify alternatives to the dam (CPUC, 2009). In 1999, in response to Assembly Bill 1182, the CPUC began evaluating alternatives to the Carmel River dam project to meet the requirements of SWRCB Order 95-10 (also known as Plan B) for the Monterey Peninsula.

Subsequently, CalAm concluded that the Carmel River dam project was not feasible for a number of factors, including general public opposition, concerns over impacts to endangered and threatened species, and the findings of the evaluation of alternatives in Plan B (see Section 5.2.3). These factors still make both the New Los Padres Dam and Reservoir Project and the Carmel River dam project infeasible.

5.2.3 CPUC Water Supply Contingency Plan ("Plan B")

In 1999, in response to Assembly Bill 1182 and to meet the requirements of SWRCB Order 95-10, the CPUC began evaluating alternatives to the Carmel River dam project. In 2002 the CPUC, working with CalAm and others, completed a water supply contingency plan (also known as Plan B) for the Monterey Peninsula. Plan B ultimately concluded that a combination of desalination and aquifer storage and recovery (ASR) could produce 10,730 afy.[1] The desalination component of the project would be located next to the Moss Landing Power Plant and would produce 9,430 afy. Treated water would flow to the CalAm service area through a new pipeline. The ASR element would provide 1,300 afy by diverting surplus water from the Carmel River and storing this water in the Seaside Groundwater Basin for later use.

As part of the Plan B process, a Component Screening Report was prepared to provide the background, framework, and evaluation of potential Plan B water supply components (CPUC, 2000). Fifteen project components were evaluated in detail to assess their ability to meet 11 Plan B

[1] The Draft Plan B Project Report included a desalination plant at Sand City, Seaside Groundwater Basin ASR, a water reclamation component, and a water rights component. Further analysis, however, determined the following: that the water rights component was not currently feasible due to agency policies; that the water reclamation component was not practical due to institutional complexities and project costs; and that a desalination plant at Sand City would be more difficult to implement and less appropriate for the desired scale of production than a desalination plant at Moss Landing. The Final Plan B Report, therefore, consisted of a Seaside Groundwater Basin ASR and a desalination plant at Moss Landing.

objectives and 16 Plan B criteria. The 15 project components considered in the Plan B screening analysis, and their disposition at the time, sorted by category, are presented in **Table 5.2-1**.

TABLE 5.2-1
RESULTS OF PLAN B COMPONENT SCREENING

Component Category/Component	Carry Forward	Hold	Exclude
Groundwater Development			
1. Carmel Valley Deep Fractured Bedrock Wells		X	
2. Seaside Basin ASR	X		
3. Tularcitos Basin ASR		X	
Desalination			
4. Desalination Plant at Marina		X	
5. Desalination Plant at Moss Landing	X		
6. Desalination Plant at Sand City	X		
Importation			
7. Water Purchase from CVP		X	
8. Water Purchase from Humboldt Bay		X	
9. Water Purchase from the Salinas Valley			X
Legal Strategies			
10. Pueblo Water Rights (Carmel River)			X
11. Pueblo Water Rights (Salinas River)			X
12. Table 13 Rights (Carmel River)		X	
Reclamation			
13. CAWD/PBCSD Reclamation Expansion		X	
14. SVRP Expansion		X	
15. Local Stormwater Reclamation Projects		X	

Of the 15 components, three (water purchase from the Salinas Valley, Pueblo Water Rights for the Carmel River, and Pueblo Water Rights for the Salinas River) were excluded with fatal flaws, and they continue to be infeasible alternatives.

Three of the Plan B components were carried forward for additional evaluation; two of them, Seaside Basin ASR and Sand City Desalination, have been implemented. The Desalination at Moss Landing component was evaluated in the 2009 Coastal Water Project EIR and is re-evaluated in this EIR/EIS.

The other Plan B components were placed in a “hold” category. Components that were put on hold were not as promising as the ones carried forward, due to any number of factors that indicated that implementation of a particular component was technically challenging, did not fulfill planning goals, or conflicted with environmental resources. Water Purchase from the Central Valley is now considered to be infeasible since it relied on the construction of the Import Pipeline by the Pajaro Valley Water Management Agency, which decided not to pursue the

project. Table 13 Water Rights and Local Stormwater Reclamation Projects[2] have been or are being implemented; an expansion of the Seaside Basin ASR, Desalination at Marina, and Reclamation components[3] are discussed in this EIR/EIS.

A Final Plan B Project Report was prepared to document the refinement of the most viable components selected during the screening project. Additional engineering design and environmental analysis refined, modified, and focused the results presented in the Plan B Project Report, which provided the technical foundation and point of departure for the analysis of the Coastal Water Project. It included all of the essential features of the project: (a) a desalination project at Moss Landing using the Moss Landing Power Plant cooling water system for feedwater; (b) a water conveyance pipeline from Moss Landing to the CalAm's Monterey District; (c) ASR near Seaside; and (d) storage of Carmel River winter flows at the ASR site for recovery in the summer. At 10,730 AFY capacity, Plan B did not include a provision to replace some of the water pumped from the Seaside Basin because the over pumping problem was not recognized at that time.

In 2003, the CPUC dismissed CalAm's Carmel River dam application without prejudice, ordered CalAm to file a new application for the Coastal Water Project, and determined that the CPUC should be the Lead Agency for the Coastal Water Project EIR. CalAm responded to the CPUC's decision by filing an application for a Certificate of Public Convenience and Necessity (CPCN) (A.04-09-019) and proposing the Coastal Water Project.

5.2.4 Coastal Water Project

In 2004, CalAm filed Application A.04-09-019 seeking a CPCN from the CPUC for the Coastal Water Project. The Coastal Water Project (also referred to as the Moss Landing Project) was sized, like the "no growth" New Los Padres Dam and Reservoir Project, to meet existing water demand, and did not include supplemental supplies to accommodate growth. On January 30, 2009, the CPUC published a Draft EIR analyzing the environmental impacts of the Coastal Water Project, as well as the environmental impacts of two project alternatives: the North Marina Project[4] and the Regional Project.[5] The CPUC published the Coastal Water Project Final EIR (SCH No. 2006101004) in October 2009 and certified the EIR in December 2009 (Decision D.09-12-017). A year later, in Decision D.10-12-016, the CPUC approved the Regional Project alternative.

---

2 This Plan B component included several small scale stormwater reclamation projects that could be implemented within small drainage basins in Carmel, Pebble Beach and Pacific Grove, Monterey and Seaside.

3 This Plan B component included an incremental of the CAWD/PBCSD Recycled Water Project and the incremental expansion of the Salinas Valley Reclamation Project.

4 The North Marina Project alternative included most of the same facilities as the previously proposed Coastal Water Project and, like the previously proposed Coastal Water Project, would only provide replacement supplies to meet existing demand. The key differences between this alternative and the previously proposed Coastal Water Project were that the slant wells and desalination plant would be constructed at different locations (Marina State Beach and North Marina, respectively), and the desalination plant would have a slightly greater production capacity (11 mgd versus 10 mgd).

5 The Regional Project would have been implemented jointly by CalAm, Marina Coast Water District (MCWD) and Monterey County Water Resources Agency (MCWRA).The Regional Project was to be implemented in phases and included vertical seawater intake wells on coastal dunes located south of the Salinas River and north of Reservation Road; a 10-mgd desalination plant in North Marina (Armstrong Ranch); product water storage and conveyance facilities; and expansions to the existing Seaside Groundwater Basin ASR system.

In January 2012, after the CPUC approved the Regional Project, CalAm withdrew its support for that project because of potential conflicts among the regional partners, and in April 2012, CalAm submitted Application A.12-04-019 (CalAm, 2012) seeking a CPCN from the CPUC for the MPWSP to build, own, and operate a desalination facility for water supply. The CPUC closed the Coastal Water Project proceeding A.04-09-019 in July 12, 2012, with Decision D.12-07-008. However, certain elements of the three projects evaluated in the Coastal Water Project EIR (e.g., intake, plant location and brine discharge components) have been carried into the alternatives analysis presented in this EIR/EIS.

5.2.5 MCWRA Interlake Tunnel and Spillway Modification Project

The Interlake Tunnel has been under consideration since the late 1970s and was included in the Monterey County Water Resources Agency (MCWRA) July 1991 Water Facilities Capital Plan as an approach to better manage flood and conservation flows in the Salinas River watershed. Since the early 1990s, the MCWRA has focused its groundwater management efforts on completing the Salinas Valley Water Project, which entails the Salinas River Diversion Facility and a modification to the Nacimiento Dam Spillway. More recently, the Interlake Tunnel project was included in the 2013 Greater Monterey County Integrated Regional Water Management Plan. With the current drought, MCWRA has a renewed interest in the Interlake Tunnel and Spillway Modification Project (Interlake Tunnel Project).

The Interlake Tunnel Project is being considered by the MCWRA, and would involve the construction of 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, so capturing high Nacimiento River flows and diverting those flows to San Antonio Reservoir would increase the overall storage capacity of the system (MCWRA, 2014). The spillway of the San Antonio Reservoir would be raised an additional 10 feet to provide a total storage capacity of 59,000 af.

In July 2014, the Monterey County Board of Supervisors approved funding that allowed the MCWRA to prepare for and commence environmental review of the project. Starting in August, 2014, the MCWRA's Board of Directors has held several public workshops to provide background information about the Interlake Tunnel and to provide updates on project activities and accomplishments. On April 28, 2016, MCWRA published a Notice of Preparation to prepare an EIR on the Interlake Tunnel Project and held scoping meetings in May 2016. MWCRA anticipates construction of the Interlake Tunnel Project could begin late in the second half of 2018.

The Interlake Tunnel project is intended to provide additional flood control and water supply benefits to the existing users and beneficiaries of the MCWRA's benefit assessment Zone 2C. The project will be funded in part by property owners in Zone 2C through a Proposition 218 assessment. CalAm's Monterey District is not included in Zone 2C. Even if CalAm could

overcome the legal and economic challenges of the assessments, the water created by the Interlake Tunnel Project would need to be conveyed to a new Surface Water Treatment Facility (e.g., it could flow down the Salinas River for extraction at the Salinas Valley Water Project's Rubber Dam, and be conveyed to CalAm's Charles Benson Road site) in order to comply with the Surface Water Treatment Rule, before being delivered to CalAm customers.

Demands for water from the Salinas River watershed come from numerous sources, including the Salinas Valley growers, Nacimiento Lake property owners, saltwater intrusion prevention efforts, and environmental protection measures. Given the uncertainty of this resource, the tremendous demand for water to serve a number of different purposes and the Monterey County Agency Act prohibition on out- of-basin transfers, it is extremely unlikely CalAm could secure the appropriative surface water rights for this supply (CPUC, 2000). Therefore, this alternative was not further evaluated in this EIR/EIS.

5.2.6 Pure Water Monterey Groundwater Replenishment Project

The Pure Water Monterey Groundwater Replenishment (GWR) Project is jointly sponsored by the Monterey Regional Water Pollution Control Agency and the Monterey Peninsula Water Management District; the City of Salinas, the Marina Coast Water District, and the Monterey County Water Resources Agency are also participating. The GWR Project would serve northern Monterey County by providing purified water to recharge the Seaside Groundwater Basin (CalAm may later extract and distribute up to 3,500 afy) and 4,750 afy of additional recycled water to augment the existing Castroville Seawater Intrusion Project's agricultural irrigation supply.

The GWR Project is not considered in this EIR/EIS as a stand-alone alternative to the MPWSP because it would not provide enough water to meet the basic project objectives of the MPWSP; it would be about 6,250 afy short. The GWR Project sponsors prepared a separate EIR on the GWR Project; the Final EIR for the GWR Project was certified in October 2015 and a consolidated Final EIR was published in January 2016.

On September 15, 2016, in Decision 16-09-021, the CPUC authorized CalAm to enter into a Water Purchase Agreement, which provides that the MRWPCA will sell purified water from its advanced treated Pure Water Monterey Groundwater Replenishment Project to the Monterey Peninsula Water Management District, which in turn will sell it to CalAm for distribution to ratepayers in the Monterey District service area. The decision also authorized CalAm to build the new Monterey pipeline and Monterey pump station. This decision met the first milestone in the SWRCB's Cease and Desist Order (SWRCB Order 2009-0060), and the GWR Project is included in the No Project/No Action alternative described in Section 5.4. The GWR Project is, therefore, considered in this EIR/EIS as a project in the cumulative scenario as described in Section 4.1, Overview. However, the GWR Project would not be relevant in the context of the proposed project or any alternative that includes a 9.6 mgd desalination plant built and operated by CalAm (i.e., Alternatives 1 and 2) because, if the GWR project is implemented, CalAm would not need

to construct a 9.6 mgd desalination plant (the proposed project); instead, it would construct the 6.4 mgd plant as described in Alternatives 5a and 5b.

CPUC Decision 16-09-021 authorized CalAm to construct the new Monterey Pipeline and Pump Station. For all alternatives (including the proposed project), the approved new Monterey Pipeline and Pump Station are included in the cumulative impact analysis since those facilities will be built with or without the remainder of the GWR Project elements.

This page intentionally left blank

5.3 Alternatives Development, Screening and Evaluation Process

The following section describes the alternatives' development, screening and evaluation process, and focuses on the basic components of any desalination project: intakes, desalination plants and outfalls. Section 5.3.1 describes the regulatory considerations applicable to the successful implementation of a desalination project and section 5.3.2 describes the two-step screening and evaluation process for alternative components. After the individual components are described and screened to determine feasibility in step-1 (sections 5.3.3 through 5.3.5), the components that are carried forward are evaluated against each other in step-2 (section 5.3.6). Components that are considered to be the least environmentally damaging[6] are then combined into "whole" alternatives in section 5.4. Components that are not carried forward are described, with the reason for their dismissal, in Appendix I.

5.3.1 Regulatory Considerations

In order to be viable, alternatives must be capable of complying with regulations governing desalination plants in order to receive the required regulatory approvals. A complete list of applicable regulations was provided in Chapter 3, Table 3-8.

In addition, regulators require the design and operation of intakes and outfalls to avoid or minimize adverse environmental impacts. Key guidance that relates to evaluation of alternatives is outlined in SWRCB's policies and the *California Ocean Plan*, California Coastal Commission policies, and NOAA policy guidelines for desalination facilities in MBNMS, described below.

5.3.1.1 State Water Resources Control Board and the California Ocean Plan

The SWRCB is responsible for regulating water resources under the California Water Code and is the state agency authorized to implement the federal Clean Water Act National Pollutant Discharge Elimination System (NPDES) program in California. The SWRCB and its nine Regional Water Quality Control Boards regulate the discharge of pollutants to State waters through the issuance and administration of NPDES permits, which may be combined with state-level permits, called waste discharge requirements that regulate discharges to state waters under the California Water Code.

6 As discussed above, under NEPA, alternatives selection criteria does not require identification of only those alternatives considered to be the less environmentally damaging than the preferred alternative, but analysis should include alternatives (including mitigation alternatives) that are designed to minimize impacts. NEPA requires alternatives to be reasonable, or feasible, which could include consideration of whether the alternative is capable of complying with regulations governing desalination plants in order to receive the required regulatory approval. Furthermore, the purpose and need for the Federal proposed action includes a requirement to ensure that NMSA regulatory requirements are met and that MBNMS resources are protected. Therefore, this criterion for eliminating alternatives from further study that are least environmentally damaging also eliminates alternatives that are infeasible because they are likely to be incapable of complying with the regulatory requirements and do not meet the Federal purpose and need to protect sanctuary resources.

Section 13142.5 of the California Water Code requires new or expanded coastal industrial facilities, including desalination plants, to use the "best available site, design, technology, and mitigation measures feasible" to minimize the intake and mortality of marine life. The SWRCB prefers subsurface intakes, but allows surface water intakes where subsurface intakes are not feasible or economically viable. (SWRCB, 2016)

Effective January 2016, the *Water Quality Control Plan for Ocean Waters of California* (or Ocean Plan; SWRCB, 2016) establishes water quality objectives and beneficial uses for waters of the Pacific Ocean adjacent to the California Coast outside of estuaries, coastal lagoons, and enclosed bays. The Ocean Plan establishes effluent quality requirements and management principles for specific waste discharges such as brine discharge from desalination plants. This is discussed in detail in Chapter 4, Section 4.3, Surface Water Hydrology and Water Quality. Concerning brine discharge from a desalination plant, the Ocean Plan requires an owner or operator to first evaluate the availability and feasibility of diluting brine by commingling with wastewater. If wastewater is unavailable, then multiport diffusers are the next preferred method of brine disposal (SWRCB, 2016). These requirements protect beneficial uses by establishing a consistent statewide analytic framework for new desalination facilities for the best available site, design, technology, mixing requirements, and feasible mitigation measures, to minimize intake and mortality of marine life.

As described in the Ocean Plan:

> *The [Ocean Plan] contains four primary components intended to control potential adverse impacts on marine life associated with the construction and operation of desalination facilities as described below. (SWRCB, 2016):*
>
> - *Clarify SWRCB's authority over desalination facility intakes and discharges;*
> - *Provide guidance to the regional water boards regarding the determination required by Water Code section 13142.5, subdivision (b) for the evaluations of the best available site, design, technology, and mitigation measures to minimize the intake and mortality of marine life at new or expanded desalination facilities;*
> - *[Provide] A narrative receiving water limitation for salinity applicable to all desalination facilities to ensure that brine discharges to marine waters meet the biological characteristics' narrative water quality objective*[7] *and do not cause adverse effects on aquatic life beneficial uses.*
> - *Monitoring and reporting requirements that include effluent monitoring, as well as monitoring of water column bottom sediments and benthic community health to ensure that the effluent plume is not harming aquatic life beyond the brine mixing zone.*
> - *California Coastal Com*mission Guidance and Policies

The California Coastal Commission (CCC) is involved in nearly all coastal desalination proposals through planning, permitting, permit appeals, or other reviews. The CCC report entitled *Seawater*

[7] The 2016 Ocean Plan Section II. E (biological characteristics water quality objective) requires that, "marine communities, including vertebrate, invertebrate, and plant species, shall not be degraded."

Desalination and the California Coastal Act (CCC, 2004) addresses issues related to desalination along the California coast and potential effects on coastal resources and uses; identifies and discusses California Coastal Act policies that are applicable to desalination facilities; and provides information likely to be required during the coastal development permit review process.

Chapter 5 of the *Seawater Desalination and the California Coastal Act* report (CCC, 2004) outlines Coastal Act environmental policies related to desalination facilities and processes, focusing on marine biology and water quality policies.[8] Applicable coastal policies include the need to protect and enhance marine resources and to protect the biological productivity of coastal waters.

The report identifies a desalination plant's seawater intake and discharge as the two components with the most potential to cause direct adverse impacts on marine life and water quality: desalination facilities that draw water directly from the open ocean can kill many small marine organisms. Subsurface intakes have the advantage of eliminating or minimizing impingement and entrainment, and the CCC encourages applicants to use subsurface intakes whenever feasible if they would not cause significant adverse impacts on beach topography or potable groundwater supplies. Where subsurface intakes would not be feasible, the use of an open-water intake would require mitigation measures to reduce adverse effects or compensatory measures to offset impacts. The CCC recommends that the feasibility of subsurface intakes be considered during the conceptual design stage of a proposal and during environmental review of desalination projects (CCC, 2004). Before the CCC will consider permitting an open-water intake, the proponent must show that a subsurface intake is infeasible. For those projects proposing open-water intakes, up-to-date studies of entrainment and impingement impacts are necessary (Lester, 2006). To address marine biological impacts, the CCC requires design measures, such as a low intake velocity rate of 0.5 feet per second in accordance with the Clean Water Act, velocity limits, and screens. The CCC requires feasibility studies to evaluate the economic, social, and environmental impacts expected from open-water intake operations (CCC, 2004).

5.3.1.2 MBNMS Guidelines for Desalination Plants

MBNMS and NOAA Fisheries, in collaboration with the California Coastal Commission and the Central Coast RWQCB, developed guidelines for discretionary approvals of new desalination facilities in the document entitled *Guidelines for Desalination Plants in the Monterey Bay National Marine Sanctuary* (NOAA, 2010). This document provides non-regulatory guidelines to ensure that future desalination plants in the sanctuary are properly sited and designed, and are operated in a manner that results in minimal impacts on the marine environment. The guidelines address several issues associated with desalination, including site selection, impacts from construction and operations, plant discharges, and intake systems. Failure to meet these guidelines makes it very difficult for the project to meet the purpose and need for the federal action. Key relevant guidelines include:

[8] The report cautions that this focus should not be construed as treating other coastal resources as less important; rather it assumes that effects on other resources, and conformity review of a desalination facility with other Coastal Act policies, would likely be similar to many other coastal development projects.

- Desalination plant proponents should pursue collaborations with other water suppliers and agencies currently considering water supply options in the area to evaluate the potential for an integrated regional water supply project. This should include an evaluation of other potential desalination locations and alternatives, as well as other forms of water supply.
- All desalination plants in MBNMS should be designed and sited to avoid and minimize impingement and entrainment to the extent feasible. The feasibility of using subsurface intakes as an alternative to open-water intake methods should be investigated. Other options for consideration should include: vertical wells and Ranney wells, horizontal directionally drilled and slant-drilled wells, seabed filtration systems, and other sub-seafloor structures. Where feasible and beneficial, subsurface intakes should be used. The implementation of subsurface intakes should not cause saltwater intrusion to aquifers or adversely affect coastal wetlands that may be connected to the same aquifer being used by the intake, and the intake proposal must address the likelihood of increased coastal erosion in the future. Subsurface intakes have the potential to minimize or eliminate impingement and entrainment impacts and improve the performance and efficiency of a desalination project by providing a certain level of pretreatment.
- Where subsurface intakes are not feasible, open-ocean intakes should be sited with existing pipelines of acceptable structural integrity. If new pipelines are necessary, sub-seafloor placement should be evaluated to minimize disturbances to biological resources and to recreational and commercial activities.
- Methods of minimizing impingement and entrainment impacts should be evaluated for open-ocean intakes. These should include design alternatives such as placing the intake structure to avoid sensitive habitat or highly productive areas, screening the intake ports, increasing the number of intake ports, or decreasing the intake velocity. Use of open-ocean intakes should be evaluated to determine expected entrainment and impingement impacts associated with various intake velocities and screen mesh sizes based on long-term monitoring data from the area, including diurnal and seasonal variations in planktonic abundance and location.
- Desalination plant intakes should be sited to avoid sensitive habitats. For open-water intakes, areas of high biological productivity (such as upwelling centers or kelp forests or other dense beds of submerged aquatic vegetation) should be avoided.
- The feasibility of diluting brine effluent by blending it with other existing discharges should be investigated. The proponent should evaluate the use of measures to minimize the impacts from desalination plant discharges, including discharging to an area with greater circulation or at a greater depth, increasing in the number of diffusers, increasing the velocity while minimizing the volume at each outlet, diluting the brine with seawater or another discharge, or use of a subsurface discharge structure.

5.3.2 Component Development and Screening Process

This alternatives analysis begins by describing and screening the key components of the desalination project. To maximize the range of components considered, this EIR/EIS separately considered seawater intake options, desalination plant locations and brine discharge options. The various options include different facility locations and technologies, and in some cases, also consider opportunities for co-locating project facilities with existing infrastructure. All options in the screening process are sized for a 9.6 mgd desalination plant, but could be adjusted for a

6.4 mgd plant; in either event, the comparison addresses like elements. Each component option is defined and screened; those with fatal flaws were eliminated (see Appendix I) and options carried forward were evaluated.

In eliminating component options, this EIR/EIS considered whether the intake options could provide a sufficient and reliable source of seawater, or whether the outfall options could provide a reliable method of discharge. This EIR/EIS also considered site conditions, the availability of the site, the existing infrastructure, subsurface conditions derived from borehole data (for subsurface intakes), and input from resource agencies. Finally, component options must meet regulatory requirements – for example, if a component would cause a permanent and significant decline in marine species, it would not likely receive regulatory approval. The component options presented below came primarily from the following sources:

- *Application of California-American Water Company (U210W) for Approval of the Monterey Peninsula Water Supply Project and Authorization to Recover All Present and Future Costs in Rates,* A.12-04-019, Before the Public Utilities Commission of the State of California, April 23, 2012, as revised by subsequent CalAm testimony concerning A.12-04-019.
- *Memorandum: Contingency Planning for the MPWSP (Update of November 1, 2012 TM),* Prepared by RBF Consulting, January 9, 2013.
- *Proposal Submitted by the Moss Landing Commercial Business Park, LLC, to Design and Build the People's Moss Landing Desal Project* (MLBP 2013a), February 15, 2013, provided in response to CPUC Information Request, and Project Details, Project Title: The People's Moss Landing Water Desal, Project Sponsor: Moss Landing Business Park, LLC (MLBP, 2013b), provided in response to CalAm request for information, April 25, 2013.
- *Monterey Bay Regional Water Project, Project Narrative: Supplement to California State Lands Lease Application*, Prepared by DeepWater Desal LLC, Revised February 3, 2016, downloaded from the DeepWater Desal website, www.deepwaterdesal.com/reports-and-publications.htm.
- *Horizontal Well Technology Application In Alluvial Marine Aquifers For Ocean Feedwater Supply And Pretreatment, Section 2, Research And Development For Horizontal/Angle Well Technology*, Prepared by Geoscience Support Services, Inc., September 30, 2008, submitted to California Department of Water Resources.
- Input from regulatory agencies provided during an interagency meeting in Pacific Grove on June 10, 2013.
- Project Descriptions of DeepWater Desal and People's Project, provided by MBNMS, June 2016

The component screening results for intake options (Section 5.3.3), outfall options (Section 5.3.4) and desalination plant sites (Section 5.3.5) are presented below.

5.3.3 Intake Options Screening Results

There are two general types of desalination intake systems: open-water and subsurface. Open-water intakes collect seawater directly from the ocean using a screened inlet structure. An intake pipeline then conveys the water from the offshore inlet structure to an inland location. Subsurface intakes – like the one described for the proposed project – would draw water from beneath the ocean floor. These two intake technologies have different site requirements, design features, and construction techniques, and are described in **Appendix I1**.

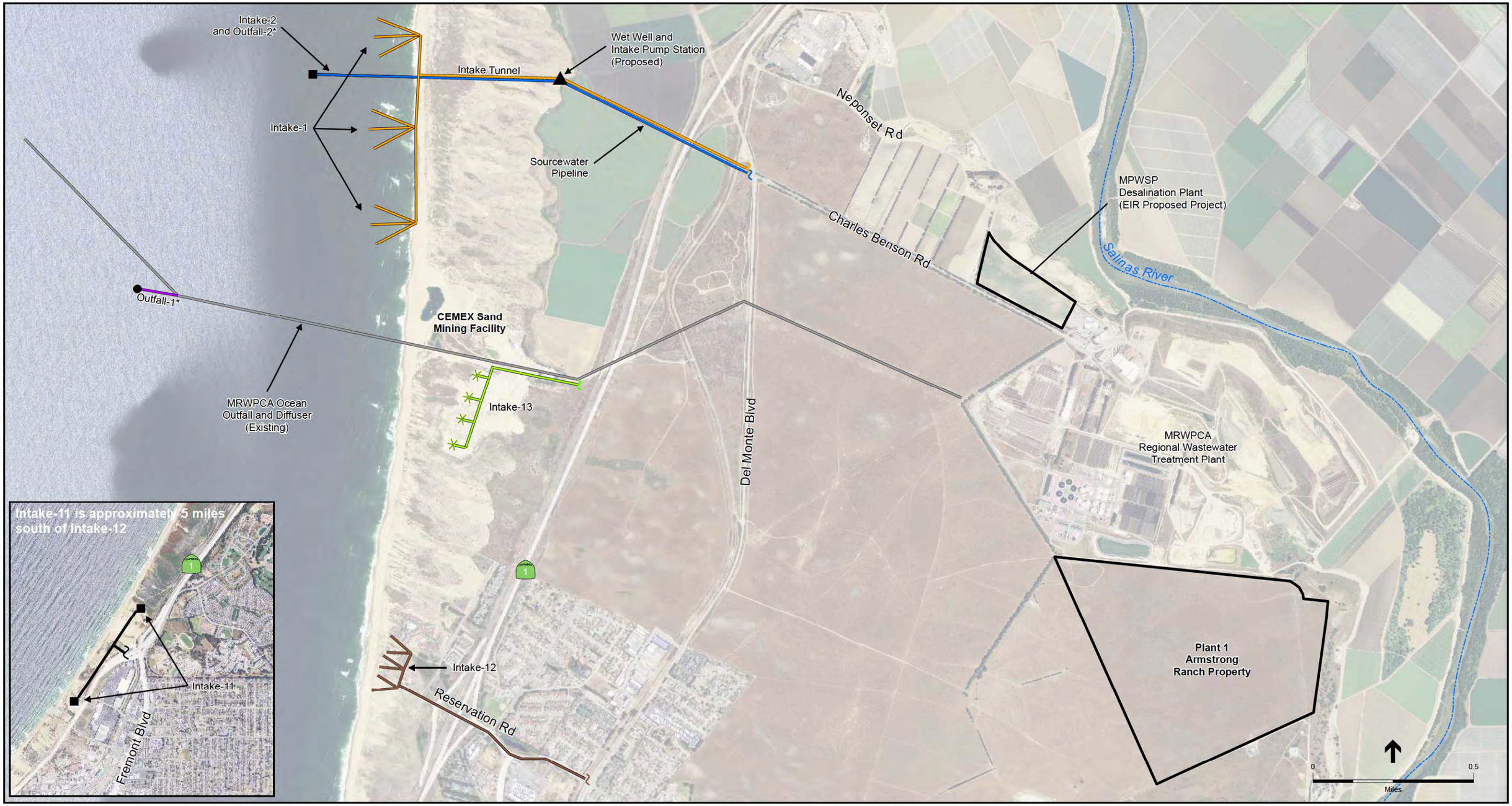
Thirteen intake options were identified and screened for fatal flaws and are shown on **Figures 5.3-1** and **5.3-2**. Six of the thirteen were not carried forward for further analysis, and they are described in **Appendix I2**, along with an explanation for their elimination. Options that were retained are described in this section, and they are evaluated against the proposed project's slant wells at the CEMEX active mining area in Section 5.3.6. **Table 5.3-1** presents the intake options, and summarizes the results of the screening process.

5.3.3.1 Intake Option 1 – Subsurface Slant Wells at North CEMEX

This intake option, which includes 10 slant wells penetrating the submerged lands of MBNMS in an area north of the CEMEX active mining area, was not carried forward into the alternatives evaluation. Construction activities would temporarily disturb approximately 10 acres of critical habitat for sensitive biological resources (California western snowy plover and Smith's blue butterfly, coast buckwheat, Yadon's wallflower, Monterey spineflower, and sand gilia) 2 in the active beach area and 0.25 acre of prime farmland on the inland side of the dunes. In addition, the footprint of the intake pump station would permanently disturb approximately 3,000 square feet of prime farmland. As described in **Appendix I2**, Intake Option 1 was determined to be fatally flawed due to permitting issues regarding impacts on biological resources.

5.3.3.2 Intake Option 2 – New Open-Water Intake at North CEMEX Site

This option would locate a new open-water intake on the seafloor within MBNMS at the northern end of the CEMEX mining facility, about 0.8 mile north of the CEMEX active mining area. A 5,000-foot-long, 36-inch-diameter intake pipeline would extend from the inland side of the dunes to approximately 2,400 feet offshore. The intake pipeline would be installed using trenchless construction techniques under the beach and dune areas and would daylight on the ocean floor at a depth of approximately 40 feet below the water surface. A passive wedge-wire intake screen would be mounted on a vertical shaft connected to the western terminus of the intake pipeline. This open-water intake would be gravity-driven and would deliver seawater to a 3,000 square-foot intake pump station and wet well located on the inland side of the dunes. The intake pump station would pump the seawater to the Desalination Plant. As with other open-water intake options, this option would require a membrane or media pretreatment filtration system to remove algae and suspended and colloidal solids as well as pathogens from the source water prior to conveying it through the reverse-osmosis system.



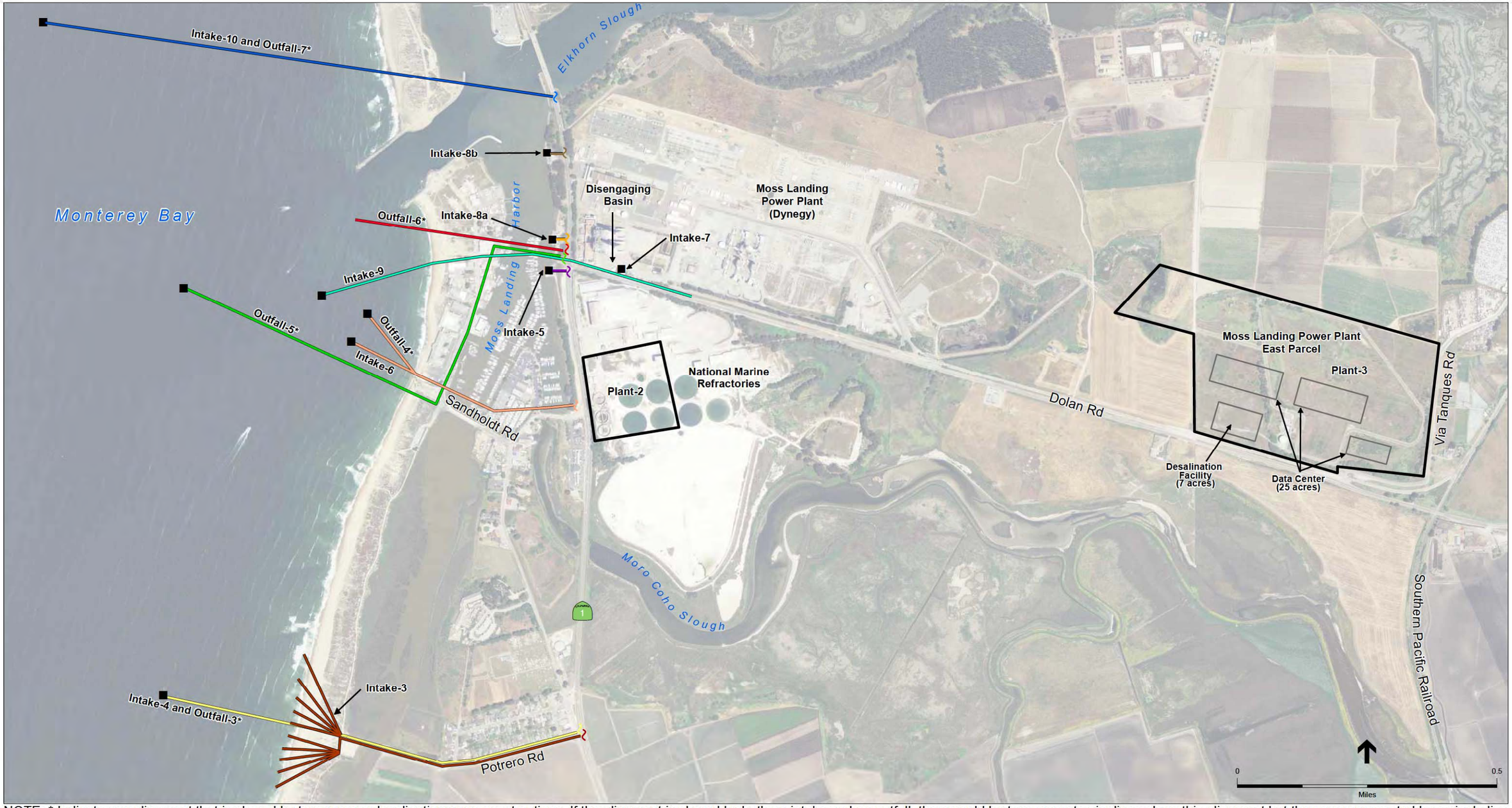
NOTE: * Indicates an alignment that is shared by two or more desalination component options. If the alignment is shared by both an intake and an outfall, there could be two separate pipelines along this alignment but they are represented by a single line. Similarly, if the same existing pipeline could either be converted into an intake or an outfall, the same line represents both options.

SOURCE: ESA, 2013

205335.01 Monterey Peninsula Water Supply Project

Figure 5.3-1

Alternative Component Options - Marina and Seaside



NOTE: * Indicates an alignment that is shared by two or more desalination component options. If the alignment is shared by both an intake and an outfall, there could be two separate pipelines along this alignment but they are represented by a single line. Similarly, if the same existing pipeline could either be converted into an intake or an outfall, the same line represents both options.

SOURCE: ESA, 2014

205335.01 Monterey Peninsula Water Supply Project

Figure 5.3-2

Alternative Component Options - Moss Landing

TABLE 5.3-1
INTAKE OPTIONS SCREENING RESULTS

Figure ID	Name	Feedwater Source	Description	Screening Results
Intake-1	Subsurface Slant Wells at North CEMEX[a] (new construction)	Predominantly seawater, with some portion coming from the Salinas Valley Groundwater Basin[b]	• This option would be located approximately 0.8 mile north of the CEMEX active mining area. • Up to ten slant wells would be buried in the beach "swash" zone. • Gravity-fed intake system would drain to a new pump station located on the inland side of the dunes.	*Not carried forward based on input from resource agencies regarding impacts on sensitive biological resources*[c]
Intake-2	Open-Water Intake at North CEMEX (new construction)	Open ocean	• This option would be located about 0.8 mile north of the CEMEX dredging pond. • A 5,000-foot-long, 36-inch-diameter intake pipeline would extend 2,400 feet offshore. • The intake pipeline would be installed using trenchless construction technology beneath the dunes, beach, and ocean floor. • A passive wedge-wire intake screen would be mounted on a 3-foot vertical riser at the western end of the intake pipeline, approximately 40 feet below the water surface. • Gravity-fed intake system would drain to a new pump station located on the inland side of the dunes.	*Retained for further analysis*
Intake-3	Subsurface Slant Wells at Potrero Road (new construction)	Predominantly seawater, with some portion coming from the Salinas Valley Groundwater Basin[b]	• This option would be located at the west end of Potrero Road. • A total of 10 subsurface slant wells would be constructed in the beach parking lot at the end of Potrero Road. • Wellheads would be buried in the parking lot. • Each well would be equipped with an electric submersible pump. • An enclosed electrical control building would be located at the edge of the parking lot.	*Retained for further analysis*
Intake-4	Open-Water Intake at Potrero Road (new construction)	Open ocean	• This option is located at the west end of Potrero Road. • A 3,100-foot-long, 36-inch-diameter intake pipeline would extend 2,400 feet offshore. • The intake pipeline would be installed using trenchless construction technology beneath the beach and ocean floor. • A passive wedge-wire intake screen would be mounted on a 3-foot vertical riser at the western end of the intake pipeline approximately 40 feet below the water surface. • A new pump station would be located at the eastern end of the intake pipeline in the beach parking lot.	*Retained for further analysis.*

NOTES:

[a] Presented in CalAm's January 2013 Supplemental Testimony as the proposed project
[b] Subsurface intakes will extract mostly seawater for feedwater, but a portion of the feedwater may originate from inland sources.
[c] March 26, 2013 meeting called by Congressman Sam Farr at California State Park's office in Monterey, CA. Attendees included the CPUC, CalAm, National Marine Fisheries Service, Monterey Bay National Marine Sanctuary, United States Fish and Wildlife Service, and U.S. Army Corps of Engineers.
[d] Based on the results of six exploratory boreholes in the Moss Landing area (Geoscience, 2014).

TABLE 5.3-1 (Continued)
INTAKE OPTION SCREENING RESULTS

Figure ID	Name	Feedwater Source	Description	Screening Results
Intake-5	Ranney Wells at Moss Landing Harbor (modify an existing intake system)	Moss Landing Harbor	● This option is located in Moss Landing Harbor, immediately west of the National Refractories site. ● This option would convert the existing intake system into a Ranney well intake system located in Moss Landing Harbor. ● The existing intake for the National Refractories site consists of a screened open-water intake (currently sitting in the mud), an intake pump station in Moss Landing Harbor, and two 36-inch-diameter source water conveyance pipelines extending from the harbor to the former National Refractories site.	*Not carried forward because of the unsuitable hydrogeologic conditions.*[d]
Intake-6	Open-Water Intake near Moss Landing Harbor (modify & extend existing intake)	Open ocean	● This option is located in Monterey Bay near Moss Landing Harbor. (Peoples' Moss Landing Desalination Project proposed intake) ● Open ocean/bay intake system that would rehabilitate the existing caisson intake structure to include a new 40-inch intake pipe that would extend out from the existing caisson approximately 1,400 feet in the open ocean/bay. Two wedge wire passive screens (one active and one standby) would be attached at the end of this new pipeline extension and would be located approximately 120 feet below mean sea level. Each passive screen structure would be 96 inches in diameter and would be used to draw seawater into the existing caisson. The screens would be designed for a maximum through-screen velocity of 0.5 feet per second and with 1.0 mm wedge wire slots to minimize impingement and entrainment.	*Retained for further analysis.*
Intake-7	Disengaging Basin at Moss Landing Power Plant (new diversion from spent cooling system)	Spent once-through cooling water	● This option is located at the Moss Landing Power Plant. ● This option would divert seawater from the power plant's cooling system for use as source water for the MPWSP Desalination Plant. ● Currently, the seawater used for this option is drawn through the power plant's existing northern intake in Moss Landing Harbor, routed through power-generating Units 1 and 2 for cooling and discharged to a disengaging basin from which it is conveyed to the power plant's outfall and discharged into Monterey Bay. ● Under this option, the spent cooling water would be diverted at the disengaging basin and conveyed to the MPWSP Desalination Plant.	*Not carried forward because of the potential future changes in the power plant's operation to meet settlement agreement with SWRCB resulting in additional construction in the future, substantial reduction in intake water volume, and disruption of the intake.*
Intake-8a and 8b	Open-Water Intakes at Moss Landing Power Plant (new connections to two existing intakes)	Moss Landing Harbor	● This option is located in Moss Landing Harbor. ● MLPP has two existing cooling system intakes in Moss Landing Harbor just west of the power plant site. The northern intake serves Units 1 and 2; the southern intake serves Units 6 and 7. The existing intakes use pumps to draw water and bar racks and traveling screens to reduce entrainment. ● Under this option, a new pump station would be installed behind or near the southern intake screen to divert an additional 24 mgd of feedwater to the MPWSP Desalination Plant. ● While the southern intake would be the primary connection point, a pipeline connection to the northern intake would allow CalAm to receive flow from either intake.	*Retained for further analysis.*

TABLE 5.3-1 (Continued)
INTAKE OPTION SCREENING RESULTS

Figure ID	Name	Feedwater Source	Description	Screening Results
Intake-8a and 8b (cont.)			● The pump station would deliver seawater through a new, 36-inch diameter underground pipeline under Highway 1 to Dolan Road, where it would meet a new source water pipeline to the MPWSP Desalination Plant. ● Apart from use of the intake screen, the diversion of feedwater from the harbor for the desalination plant would be independent of the power plant's cooling system operations.	
Intake-9	Open-Water Intake at Moss Landing (new construction)	Screened deep-water ocean intake system	● One subsurface intake pipeline would be installed below the seafloor using HDD from the pipeline's eastern end, on Dolan Road near the Moss Landing Power Plant, to the western end, where it "daylights" on the upper slope of the Monterey submarine canyon. ● Passive, low velocity, wedge-wire screens on 6-foot risers would be attached to the western end of the intake pipeline close to where it emerges from the subsurface and anchored to the seafloor. ● The screened intake would be located about 1,300 feet offshore, on the seafloor, 156 feet below the water surface, and below the euphotic zone (the upper zone of the water column where photosynthesis can occur). ● From the screened intakes, raw seawater would flow by gravity through the intake pipeline to an onshore wet well and pump station. ● The pump station would be located at the end of the railspur (near the corner of Dolan Road and SR 1). ● DeepWater Desal proposed intake location.	*Retained for further analysis.*
Intake-10	Open-Water Intake in former fuel oil gas pipeline at Moss Landing (modify existing pipeline)	Open ocean	● This option would retrofit a pipeline formerly used to offload fuel oil for the Moss Landing Power Plant from an offshore terminal. The pipeline consists of a 24-inch diameter segment under Moss Landing Harbor to Moss Landing Beach and an 18-inch diameter section that extends from the beach approximately 3,000 feet into Monterey Bay.	*Not carried forward because the size of the pipeline would be too small to provide the quantity of source water needed.*
Intake-11	Ranney Wells in Seaside/Sand City (new construction)	Upper dune sands aquifers (Salinas and Seaside Groundwater Basins	● This option proposes 3 Ranney wells at two sites in the former Fort Ord coastal area in Seaside/Sand City: − Fort Ord Bunker Site – 2 Ranney wells − Fort Ord MW-1 site (west of the Highway 1/California Avenue intersection) – 1 Ranney well	*Not carried forward because its location offers no advantages to the CEMEX location, it would not avoid or eliminate any potential impacts of the proposed project and would add substantial length of pipeline to feed any plant location being considered.*
Intake-12	Subsurface Slant Wells at Reservation Road (new construction)	Predominantly seawater, with some portion coming from the Salinas Valley Groundwater Basin[a]	● This option is located at the west end of Reservation Road near the Marina Coast Water District desalination facility. ● 9 slant wells would be constructed in the parking lot. ● Wellheads would be buried in the parking lots. ● Each well would be equipped with an electric submersible pump.	*Not carried forward because this location would be in direct conflict with MCWD's existing (non-operating) desalination plant or any plans MCWD may have in the future for building a desalination project in its service area.*

TABLE 5.3-1 (Continued)
INTAKE OPTION SCREENING RESULTS

Figure ID	Name	Feedwater Source	Description	Screening Results
Intake-13	Ranney Wells at CEMEX Active Mining Area (new construction)	Predominantly seawater, with some portion coming from the Salinas Valley Groundwater Basin[a]	● This design option would be located in the CEMEX active mining area (same location as the subsurface slant wells described under the proposed project). ● 4 Ranney wells (approximately 5.75 mgd each) would be constructed on the south side of the CEMEX settling ponds and access road ● Each Ranney well would consist of a 12-foot-diameter buried caisson extending to a depth of 50 feet below the ground surface, with five 500-foot-long screened laterals extending radially from the caisson. ● A 1,475-foot-long collector pipeline would convey seawater from the Ranney wells to the Source Water Pipeline. ● The construction disturbance area would be the same as the proposed project.	*Retained for further analysis. – This design option could be used at any location where slant wells are being considered.*

The site is within unincorporated Monterey County. Construction of this intake option would temporarily disturb approximately 0.25 acre of prime farmland on the inland side of the dunes and 2,000 square feet on the ocean floor. The intake pump station would be housed in a 3,000 square-foot building on the inland side of the dunes and would permanently disturb approximately 3,000 square feet of prime farmland; the intake pipeline would have a permanent footprint of about 200 square feet on the ocean floor. However, because the intake pipeline would be installed via tunneling technologies from the inland side of the dunes, construction of Intake Option 2 would not disturb sensitive habitat in the active beach area. **Appendix I1** provides additional information regarding general construction methods and maintenance of open-water intakes. No entrainment/impingement studies or pilot testing have been completed to determine the volume of organic marine material that would be affected by the intake, but an analysis by the CCC suggests that the effects of an open-water intake for the MPWSP, expressed as area of production foregone (APF, see Section 5.5, Marine Biological Resources for further explanation), would be something less than 20 acres (Luster, 2016).

5.3.3.3 Intake Option 3 – Subsurface Slant Wells at Potrero Road

This option would involve the installation of a total of 10 subsurface slant wells penetrating the submerged lands of MBNMS in the beach parking lot at the west end of Potrero Road in northern Monterey County, near the southern border of the unincorporated community of Moss Landing.

The slant wells would be drilled from the parking lot, and the wellheads would be buried in the parking area, below the hardened sand surface of the lot. The slant wells would be designed as pumping wells -- that is, each well would be equipped with an electric submersible pump. The slant wells would be grouped into two clusters, with five wells in each cluster. A short, 36-inch-diameter collector pipeline would convey the seawater from the slant well clusters to a Source Water Pipeline that would be built within Potrero Road. The Source Water Pipeline would be located within existing rights-of-way, and would convey seawater to the desalination plant. All other aspects of construction and maintenance of the slant wells under Intake Option 3 would generally be consistent with those of the slant wells under the proposed project (see Chapter 3, Description of the Proposed Project.

The electrical controls for the slant wells would be located at the edge of the parking lot. The electrical control building, the only above-ground structure following construction, would be approximately 4 feet wide, 12 feet long, and 6 feet high. Overhead electrical lines would extend from the electrical control building to Potrero Road and east along the north side of Potrero Road to connect with the existing Pacific Gas and Electric (PG&E) power line on Potrero Road. The California Department of Parks and Recreation (California State Parks) owns and operates the beach parking lot at Potrero Road. Implementation of subsurface slant wells at this location would require easements from California State Parks. Slant well construction would require temporary closure of the beach parking lot.

The Potrero Road beach parking lot lies within the coastal zone; the *North County Land Use Plan* of the *Monterey County General Plan* designates this land for public/quasi-public and scenic and natural resources and recreational uses (Monterey County, 1982).

5.3.3.4 Intake Option 4 – Open-Water Intake at Potrero Road

This option would locate a new open-water intake pipeline at the beach parking lot at the west end of Potrero Road. A 0.6-mile-long (3,100-feet), 36-inch-diameter open-water intake pipeline would extend from the beach parking lot to approximately 2,400 feet offshore into MBNMS. The intake pipeline would be installed using trenchless construction technology under the beach and ocean floor, and would emerge on the ocean floor at a depth of about 40 feet below the water surface. A passive wedge-wire screen would be mounted on the seafloor on a vertical shaft connected to the western end of the intake pipeline. The intake pipeline would convey raw seawater to a new intake pump station. This above-ground pump station would be housed in a 3,000 square foot building located in the northeast corner of the beach parking lot. As with other open-water intake options, this option would require a membrane or media pretreatment filtration system to remove algae, suspended and colloidal solids, and pathogens from the source water before conveying it through the reverse-osmosis system.

Construction of this intake option would temporarily disturb approximately 2,000 square feet of the seafloor in MBNMS, and the footprint of the screened riser would permanently disturb about 200 square feet of ocean floor. It is assumed that land-based construction activities for an open-water intake at the Potrero Road site would occur entirely in the beach parking lot. General construction methods and considerations for open-water intakes, as well as operation and maintenance assumptions, are described in **Appendix I1**. Refer to the description of this site under Intake Option 3, above, for information regarding existing land uses and the General Plan land use designations at this site.

5.3.3.5 Intake Option 5 – Ranney Wells at Moss Landing Harbor (Modify Existing Intake System at National Refractories site)

This intake option was originally proposed for the People's Moss Landing Water Desal Project by the Moss Landing Business Park, LLC and would involve the conversion of an existing open-water intake system of the former National Refractories and Minerals Corporation (National Refractories) in Moss Landing Harbor into a Ranney well subsurface intake system, and was not carried forward into the alternatives evaluation. As described in **Appendix I2**, Intake Option 5 was determined to be fatally flawed because borehole data indicated that individual sand and sand and gravel lenses in the Moss Landing area are not vertically or laterally extensive and that the permeable deposits were not thick enough for a subsurface intake system in this area to be capable of providing a reliable source of seawater for the MPWSP Desalination Plant.

5.3.3.6 Intake Option 6 – Open-Water Intake at Moss Landing

This option would consist of an open-water intake system that would draw seawater from Monterey Bay, as proposed by the People's Project. The intake would use an existing 20-foot diameter intake pump caisson structure that is located on the beach, next to the Monterey Bay Aquarium Research Institute on Sandholdt Road in Moss Landing. The existing open-water intake structure would include a new 40-inch diameter intake pipe that would extend out from the existing caisson approximately 1,400 feet into the open bay and ocean. Two wedge wire passive

screens, one active and one stand by, would be attached at the end of this new pipeline extension and would be located approximately 120 feet below mean sea level. Each passive screen structure would be 96-inches in diameter and would be used to draw seawater into the existing caisson. The screens would be designed for a maximum through-screen velocity of 0.5 feet per second, and would contain 1.0 mm wedge wire slots to minimize impingement and entrainment.

A new 10-foot high pump and pump house structure would be built on top of the existing caisson with a first-floor elevation height of approximately 17 feet above mean sea level so that the pumps would be outside of the tsunami zone of inundation. Vertical turbine pumps would be used, with the pumps submerged in the intake structure and the motors in the pump house above. From the pump house, a new 40-inch diameter pipeline would convey the seawater beneath the Moss Landing Harbor and State Route 1 to the desalination plant following existing rights-of-way.

5.3.3.7 Intake Option 7 – Disengaging Basin at Moss Landing Power Plant (Water from Spent Cooling System)

This intake option would divert spent cooling water from the disengaging basin at the Moss Landing Power Plant (MLPP) for use as source water at the MPWSP Desalination Plant and was not carried forward into the alternatives evaluation. As described in **Appendix I2**, Intake Option 7 was eliminated from further consideration due to uncertainties regarding the reliability, quality, and quantity of the potential source water supply.

5.3.3.8 Intake Option 8 – Open-Water Intake at Moss Landing Harbor (Either of Two Existing Intakes for Moss Landing Power Plant Cooling System)

This option would use the power plant's existing cooling system intake screens to screen source water for the MPWSP Desalination Plant, and would be independent of the power plant's cooling system operations (RBF Consulting, 2013).

The power plant has two cooling water intakes, both located along the eastern edge of Moss Landing Harbor. The northern intake ("Intake 8b") is used to draw cooling water for power generating Units 1 and 2, and the southern intake ("Intake 8a") is used to draw cooling water for power generating Units 6 and 7. The intakes use vertical traveling screens fitted with woven wire mesh panels mounted on a continuous belt; the northern intake has a total of six traveling screens (three for each power generating unit) and the southern intake has a total of eight traveling screens (four for each generating unit). The screens include a drive mechanism and spray cleaning system. As the screens rotate vertically through the water, debris on the screens is lifted out of the water to the top of the screen belt, where it is sprayed off the screen by the screen wash system. The screens at the northern intake are normally rotated every four hours, or they may activate automatically based on the pressure differential on the upstream and downstream faces of the screen. They can also run continuously. Because power generating Units 6 and 7 operate less frequently, the traveling screens at the southern intake are currently rotated and cleaned on an as-needed basis (Tenera, 2007). The northern intake structure was modified in conjunction with the

approval of new Units 1 and 2 in 2000;[9] the traveling screens at the northern intake are inclined about 35 degrees from vertical and have 5/16-inch woven wire mesh panels. The traveling screens at the southern intake structure are vertical in the water column and have traveling screens with 3/8-inch wire mesh panels. Both intakes also include initial bar racks; the traveling screens are located 20 and 25 feet behind the bar racks at the northern and southern intakes, respectively. The bar racks at the northern intake have 3 1/2-inch openings between the bars and the bar racks at the southern intake have 3 5/8-inch openings (Tenera, 2007; Dynegy, 2011). Nine pumps operate the northern intake. The six pumps that draw cooling water for Units 1 and 2 are located about 300 feet behind the intake; the remaining three pumps are used for the screen wash system. Seven pumps operate the southern intake. The four pumps that draw water for Units 6 and 7 are located about 30 feet behind the intake. Like the northern intake, another three pumps are used for the screen wash system (Tenera, 2007).

Under this option, new diversion pumps and a pipeline to connect to a new source water pipeline would be installed behind the power plant's existing intake screens to pump seawater to the desalination plant. While the southern intake would be the primary connection point, a secondary pipeline connection to the power plant's northern intake would enable CalAm to draw water from either intake. A new source water pump station would be installed near the southern intake to deliver the seawater via a new connecting pipeline to a new 36-inch-diameter source water pipeline. Trenchless construction would be used to install the pipeline under Highway 1. As with other open-water intake options, this option would require a membrane or media pretreatment filtration system to remove algae, suspended and colloidal solids, and pathogens from the source water before conveying it through the reverse-osmosis system.

This intake option would modify an existing MLPP facility (in this case, the existing intakes in Moss Landing Harbor). Physical space is available at the existing intakes for these modifications; access to the intakes would be via Highway 1.

5.3.3.9 Intake Option 9 – Screened Deep-water Ocean Intake at Moss Landing

This intake option has been proposed by DeepWater Desal, LLC, as part of the Monterey Bay Regional Water Project. This analysis assumes a version that has been scaled down to meet the needs of the 9.6 mgd project proposed by CalAm. The intake option would consist of an intake structure in the Monterey Submarine Canyon that would draw in raw seawater, intake piping that would deliver the seawater to the shore, and an onshore pump station that would pump the seawater to the desalination facility. The offshore intake structure location is very close to the intake location described in Option 6. The difference between these two options is the method of installing pipelines to connect onshore facilities to the offshore intake structure.

The intake structure would be located on the seafloor, within a ravine near the head of the Monterey Submarine Canyon, southwest of the Moss Landing Harbor entrance. It would be installed at the end of the subsurface intake pipeline at the point where it emerges from below the seafloor,

[9] The new Units 1 and 2 replaced the plant's original Units 1 through 5 which were retired in 1995.

approximately 1,300 feet offshore from the mean high water line at a depth of approximately 156 feet below mean low water.

Seawater would be conveyed from the intake structure to an onshore pump station via a 42-inch-diameter subsurface intake pipeline. The pipeline would be constructed subsurface using horizontal directional drilling (HDD) from the pump station site located near the end of the railspur at the corner of Dolan Road and SR-1. The pipeline would extend approximately 3,600 feet to the offshore seawater intake structure location. The HDD pit would be within the pump station footprint.

As with other open-water intake options, this option would require a membrane or media pretreatment filtration system to remove algae, suspended and colloidal solids, and pathogens from the source water before conveying it through the reverse-osmosis system.

5.3.3.10 Intake Option 10 – Open Deepwater Intake in PG&E Fuel Oil Pipeline at Moss Landing

This intake option would use the existing carbon-steel pipeline previously used by PG&E for offloading fuel oil for the Moss Landing Power Plan and was not carried forward into the alternatives evaluation. As described in **Appendix I2**, Intake Option 10 is fatally flawed because the existing fuel line likely contains a substantial amount of fuel residue which could present a public health issue, and the 18-inch-diameter of the offshore section of the pipeline would be too small to support a 9.6 mgd facility.

5.3.3.11 Intake Option 11 – Ranney Wells in Seaside/Sand City

This intake option emerged from earlier investigations conducted by the MPWMD and would involve the installation of three Ranney wells at two sites in the former Fort Ord coastal area in Seaside and Sand City and was not carried forward into the alternatives evaluation. As described in **Appendix I2**, Intake Option 11 would involve the installation of three Ranney wells at two sites in the former Fort Ord coastal area in Seaside and Sand City. However, the former Fort Ord Wastewater Treatment Plant site and former Stillwell Hall sites faced political challenges, and the Bunker site faced siting constraints and relatively low-permeability sands that would limit the potential amount of feedwater that could be developed from a subsurface intake.

5.3.3.12 Intake Option 12 – Subsurface Slant Wells at Reservation Road

This intake option would locate at least nine subsurface slant wells at the western terminus of Reservation Road on the inland side of the Marina State Beach parking lot and was not carried forward into the alternatives evaluation. As described in **Appendix I2**, a potential constraint to Intake Option 12 is Marina Coast Water District's existing 300 afy desalination plant and associated intake well, as well as their plans for developing a future desalination facility that could include development of a subsurface seawater intake system, which would result in well

interference. Additionally, the location of Intake Option 12 is not favorable for slant well installation due to the shallow depth of the aquifers.

5.3.3.13 Intake Option 13 – Ranney Wells at CEMEX Active Mining Area

Intake Option 13 would substitute the proposed subsurface slant wells at the CEMEX active mining area with four Ranney wells, each spaced approximately 350 feet apart (CalAm, 2014). A Ranney well is comprised of a vertical caisson (a large diameter shaft where the water is collected from each well and then pumped) extending below the water table, from which horizontally placed perforated screens (laterals) are extended. Like the slant wells under the proposed project, the Ranney wells would be set back approximately 900 feet inland from the shoreline. Each caisson would be 12 feet in diameter, and would be buried approximately 50 feet into the sand, with the top of the caisson flush with the beach surface. Each of the four Ranney wells would be equipped with five screened laterals that would draw groundwater from the shallow Dune Sands Aquifer. A pipeline that is about 1,475 feet long and 42 inches in diameter would collect seawater from the Ranney wells and convey it to the Source Water Pipeline located beneath the CEMEX access road. The electrical controls for the Ranney wells would be housed in an aboveground electrical control panel located just south of the CEMEX settling ponds and existing access road, and an electrical control building would be located at the eastern entrance of the CEMEX property. The footprint required for the Ranney wells, the source water pipeline, electrical control panel, and electrical control building would be identical to the proposed project (CalAm, 2014). See **Appendix I1** for a general discussion of construction and maintenance assumptions associated with Ranney Wells.

5.3.3.14 Intake Screening Summary

Seven intake options were determined to be feasible and were carried forward for evaluation. The next step compares the impacts of each intake option against the proposed slant wells at CEMEX to determine if adverse impacts would be reduced. This step is described in Section 5.3.6.

5.3.4 Outfall Options Screening Results

For a 9.6 mgd desalination plant, a brine stream ranging between approximately 12 and 14 mgd would be discharged via an ocean outfall in accordance with Ocean Plan requirements. See Section 3.4.1 in Chapter 3, Description of the Proposed Project, for a description of brine discharges under the proposed project.

This analysis considers several potential outfall options for brine discharge, all retained for evaluation in the second step of the process. They are summarized in **Table 5.3-2**, shown in **Figures 5.3-1** and **5.3-2** and described in sections 5.3.4.1 through 5.3.4.7. All outfall options, except for Outfall Option 1, would discharge into the waters of the MBNMS.

TABLE 5.3-2
OUTFALL OPTIONS SCREENING RESULTS

ID	Name	Description	Screening Results
Outfall-1	Modified MRWPCA Outfall and New Diffuser (modifications to existing outfall facility)	• This option would use the existing MRWPCA outfall pipeline in MBNMS, which ends at a 1,100-foot-long diffuser. This gravity-driven facility discharges treated wastewater from the MRWPCA Regional Wastewater Treatment Plant. • A 2.6-mile-long, 20-inch-diameter brine discharge pipeline would be suspended inside the existing MRWPCA outfall pipeline. • A new 500-foot-long brine diffuser would connect to the existing outfall pipeline. • A new pump station would be built near the headworks of the existing MRWPCA outfall, on the MRWPCA parcel. • The annular space between the outer wall of the inserted pipeline and the inner wall of the outfall would continue to be gravity-driven and would be used for wastewater effluent flow during all flow conditions. • The new brine discharge pipeline and diffuser would be used for pressurized brine discharges during wet-weather flows only; under all other flow conditions, the existing outfall and diffuser would be used.	*Retained for Further Analysis*
Outfall-2	New Outfall at North CEMEX Site (new construction)	• A 24-inch diameter outfall pipeline would be built approximately 0.8 mile north of the CEMEX active mining area in MBNMS. • An outfall pipeline would extend approximately 2,500 feet offshore and end at a new diffuser designed to meet Ocean Plan requirements. • An outfall pipeline would tunnel under the dunes, beach, and ocean floor. • A pump station would be built at the desalination plant site to pump brine through the new outfall and diffusers.	*Retained for Further Analysis*
Outfall-3	New Outfall at Potrero Road (new construction)	• A 24-inch-diameter outfall pipeline would be built east to west along Potrero Road into MBNMS. • From the western end of Potrero Road, the outfall pipeline would extend approximately 3,000 feet offshore and end at a new diffuser designed to meet Ocean Plan requirements. • The outfall pipeline would be constructed under the beach and ocean floor using tunneling technologies.	*Retained for Further Analysis*
Outfall-4	Modified National Refractories Outfall (modifications to existing outfall facility)	• The existing 2,750-foot-long, 51-inch-diameter outfall extends underground from the western boundary of the former National Refractories site in Moss Landing, under the marina, the commercial harbor, and the harbor "island," and daylights near its end, approximately 620 feet offshore in the Monterey Bay in MBNMS at a depth of approximately 43 feet beneath the water surface. (Same outfall as proposed by the Peoples' Project) • The existing outfall would be repaired to address joint decoupling and minor cracks, and new diffusers would be attached. The pipe is buried with approximately 25 feet of cover over the entire length • Operation of this outfall would require repair of the outfall pipeline and diffuser, and would require modifications to meet the State Ocean Plan requirements. Due to the age and condition of the existing 51-inch pipeline, a new 36-inch-diameter pipeline would be slip-lined within the existing 51-inch outfall facility and then extended approximately 700 feet further to a depth of approximately 120 feet in the Monterey Bay on the edge of the submarine canyon. The 700-foot-long pipeline extension would be laid and anchored on the ocean floor and covered in riprap. This segment of pipeline would contain a diffuser system with 32 nozzles.	*Retained for Further Analysis*

TABLE 5.3-2 (Continued)
OUTFALL OPTIONS SCREENING RESULTS

ID	Name	Description	Screening Results
Outfall-5	New Outfall at Sandholdt Road (new construction)	• A new 24-inch-diameter outfall pipeline would be aligned east to west from Sandholdt Road. The outfall pipeline would extend approximately 1,000 feet offshore into MBNMS and end at a new diffuser designed to meet Ocean Plan requirements.	*Retained for Further Analysis*
Outfall-6	Existing Outfall for Moss Landing Power Plant Spent Cooling System (new connections to existing facilities)	• The Moss Landing Power Plant has two existing 144-inch-diameter outfall pipelines that end approximately 1,000 feet offshore from the Moss Landing Harbor inlet approximately 20 feet above the ocean floor and 20 feet below the water surface. This outfall is used during power plant cooling system operations. • Under this option, brine concentrate would be conveyed to the disengaging basin at the power plant via a new pipeline connection. Brine would discharge to Monterey Bay via the two existing outfall pipelines.	*Retained for Further Analysis*
Outfall-7	New Outfall at Moss Landing	• Brine would discharge from the desalination facility to the offshore discharge diffuser structure via one proposed subsurface 36-inch-diameter discharge pipeline. The discharge diffuser structure would be located in Monterey Bay approximately 3,400 feet offshore in MBNMS. (Same outfall location as proposed by Deepwater Desal Project) • Operation of the outfall would include a multi-jet linear diffuser that would be located on the seafloor, and that would consist of five separate standing pipe risers emerging from a single 36-inch pipe manifold. Each riser would be fitted with a duckbill diffuser nozzle. The diffuser structure would be buried in riprap protective cover and ballast stone that would be placed up to the level of the diffuser, extend out a few feet in either direction, then descend down to the seafloor at a 4:1 horizontal to vertical slope. Only the duckbill diffuser nozzles would extend above the protective cover.	*Retained for Further Analysis*

5.3.4.1 Outfall Option 1 – Modified MRWPCA Outfall and New Diffuser

This option would involve inserting a smaller-diameter pipeline inside the existing Monterey Regional Water Pollution Control Agency's (MRWPCA) outfall pipeline, installing a new diffuser to the end of the smaller pipe, which would exit the existing outfall pipe where the existing outfall turns to the northwest, and building a new pump station at the MRWPCA Regional Wastewater Treatment Plant site. This outfall option was originally intended to address what were thought to be potential water quality and outfall capacity impacts associated with using the existing outfall for brine discharge. However, it is possible to meet the Ocean Plan limits for the proposed project with mitigation, as presented in Section 4.3.3.5 (Surface Water Hydrology and Water Quality). At the MRWPCA outfall headworks under Outfall Option 1, approximately 2.6 miles of 20-inch diameter pipe would be pushed inside the existing MRWPCA outfall pipe. The 20-inch diameter pipe would extend to the first offshore bend in the outfall pipe. A new connection would be built as an exit structure at the bend of the existing pipe, and a barge would be used to transport, sink, attach, and secure a new 500-foot-long diffuser to the existing pipe and to the ocean floor for discharging and dispersing the brine (see **Figure 5-1**). It is estimated that construction activities associated with this outfall option would result in approximately 0.5 acre of disturbance on the ocean floor.

The modified outfall would be configured with a new pump station to be built on or near the MRWPCA property, in the vicinity of the existing MRWPCA outfall headworks. During wet-weather periods, when effluent flows are high, the brine stream would be pumped through the inserted pipe and the new diffuser, and MRWPCA's wastewater effluent would be pumped through the annular space between the outer wall of the inserted pipeline and the inner wall of the outfall and the existing diffuser. Pumping would provide MRWPCA the same effective capacity as the existing outfall.

It is assumed that the MRWPCA would continue to maintain and operate the modified outfall. Maintenance activities would involve, as they do now: annual integrity test, air tests to identify leaks, video surveillance, and periodic flushing of the outfall line to unclog the diffuser ports. The MRWPCA conducts these maintenance activities at regular intervals. Other maintenance activities could include hand scraping of the diffuser section of the outfall line.

5.3.4.2 Outfall Option 2 – New Outfall at North CEMEX Site

This option would involve building a new ocean outfall pipeline and diffuser at the north CEMEX site (i.e., the same location as Intake Options 1 and 2), and building a brine discharge pump station at the desalination plant site.

As with the other outfall options, the length of the outfall pipeline would vary depending on whether the desalination plant was built at the proposed Charles Benson Road site or at one of the two site options presented in Section 5.3.5. For the purposes of this screening step, only the 5,500-foot-long segment of the outfall pipeline that would extend between the inland side of the dunes to the east and the diffuser in the open ocean at the western end is considered. This

segment would be identical regardless of the location of the desalination plant. The outfall pipeline would be 24 inches in diameter. The eastern 2,500-foot-long segment would extend from the inland side of the dunes to the shoreline. The outfall pipe would tunnel under the dunes and beach and would daylight on the ocean floor approximately 2,500 feet offshore (see **Figure 5-1**). A 500-foot-long diffuser, designed to meet the 2012 Ocean Plan requirements, would be built on the ocean floor at the western end of the pipe.

The diffuser would be delivered via barge, lowered, attached to the pipeline, and anchored to the ocean floor. A 50-foot-wide construction corridor would be needed to anchor the diffuser to the ocean floor. Segments of the outfall pipeline located east of the dunes would be installed using open-trench construction methods except that, as with the proposed project pipelines, jack and bore methods would be used for the segment crossing under Highway 1 and any drainages along the alignment. The brine discharge pump station at the desalination plant site would be used to pump the brine stream through the outfall and diffuser and disperse the discharge.

The City of Marina has jurisdiction over much of this land, which is subject to the *City of Marina General Plan* and *Local Coastal Land Use Plan*. This land is designated for Habitat Preserve and Other Open Space land uses and zoned Coastal Conservation and Development (City of Marina, 2000; City of Marina, 1982). The north CEMEX intake pump station site would be located in unincorporated Monterey County and, therefore, would be subject to provisions of the *North County Land Use Plan* of the *Monterey County General Plan*. The site is designated as prime farmland. There appears to be sufficient physical space to accommodate an outfall pipe, pending approval of the appropriate easements. Maintenance activities would involve annual integrity tests, air tests to identify leaks, video surveillance, and periodic flushing of the outfall line to unclog the diffuser ports. Other maintenance activities could include hand scraping of the diffuser section of the outfall line. Implementation of this outfall option would require coordination and access agreements with CEMEX.

5.3.4.3 Outfall Option 3 – New Outfall at Potrero Road

This outfall option is similar to Outfall Option 2, except that it would be located approximately 4.5 miles to the north. This option proposes construction of a new outfall pipeline and diffuser extending offshore from the beach parking lot at the west end of Potrero Road, and building a new brine discharge pump station.

From the beach parking lot, approximately 3,000 linear feet of 24-inch diameter pipe would be installed using trenchless technologies beneath the beach and ocean floor. The outfall pipeline would daylight on the ocean floor, and a 500-foot-long diffuser, designed to meet proposed 2014 Ocean Plan requirements, would be attached to the western end of the pipe (RBF Consulting, 2013) and anchored to the ocean floor. Construction activities on and disturbance of the ocean floor are assumed to be similar to those described above for Outfall Option 2. It is assumed that the portion of the outfall pipeline located east of the Potrero Road beach parking lot would be built using open-trench construction methods except when crossing major roads, such as Highway 1, or when crossing drainages, when jack and bore methods would be used. The brine

discharge pump station would be located in the existing parking lot, would pump the brine stream through the outfall and diffuser, and would disperse the discharge.

The description of Intake Option 3 in Section 5.3.3.2, above, provides information regarding land use and zoning at the Potrero Road site. There appears to be sufficient physical space to accommodate the outfall pipe, pending approval of the appropriate easements. Maintenance activities would involve annual integrity tests, air tests to identify leaks, video surveillance, and periodic flushing of the outfall line to unclog the diffuser ports. Other maintenance activities could include hand scraping of the diffuser section of the outfall line. This outfall option would require CalAm to obtain an easement from California State Parks for any portions of the outfall pipeline that traverse parkland at the end of Potrero Road.

5.3.4.4 Outfall Option 4 – Modified National Refractories Outfall

Outfall Option 4 would involve modifications to the existing outfall at the former National Refractories site, now called the Moss Landing Business Park or Moss Landing Commercial Park and is also the proposed outfall for the People's Project (described as Alternative 4, in Section 5.4).

The existing outfall is a 2,750-foot-long, 51-inch-diameter[10] concrete pipe that terminates approximately 800 feet offshore in Monterey Bay, at a depth of 43 feet below the water surface (SPI and Helm, 2013; Mickley, 2012; MLBP LLC, 2013b). From a point near the western boundary of the former National Refractories site, the outfall pipeline is routed beneath the marina, the commercial harbor, and "Moss Landing Island,"[11] to the point at which it emerges from the surface near its terminus in the bay (Landmark Realty, 2011). The pipe is buried with approximately 25 feet of cover over the entire length. A structural evaluation identified cracks that could be repaired with epoxy resin and indicated that, after the repair, the concrete pipe would be structurally adequate to function as an outfall. Operation of this outfall would require repair of the outfall pipeline and diffuser, and would require modifications to meet the State Ocean Plan requirements. Due to the age and condition of the existing 51-inch pipeline, a new 36-inch-diameter pipeline would be slip-lined within the existing 51-inch outfall pipeline and then extended approximately 700 feet further to a depth of approximately 120 feet in the Monterey Bay on the edge of the submarine canyon. The discharge would include one new 16-inch diffuser port.

The outfall is not currently used for discharges from the former National Refractories site; however, the outfall pipeline currently has within it two 8-inch polypropylene intake pipelines. These intake lines access open water through ports in the existing outfall diffuser; intake screens are attached to the lines about 100 feet from the end of the diffuser and serve the MLML, Phil's Fish Market, sea lion facilities, and the Monterey Bay Aquarium Research Institute (MLBP LLC,

[10] Mickley (2012) reports the outfall has an inside diameter of 51 inches and an outside diameter of 56 inches. The *Final Report of Evaluation of Seawater Desalination Projects* prepared for the Monterey Peninsula Regional Water Authority (SPI and Helm, 2013) describes the existing outfall pipeline as 51 inches, as does the Peoples' Moss Landing Water Desal Project (PML Desal, 2014) and a RWQCB permit (Order No. R3-2009-0002). Other sources describe the outfall as 52 inches (Miller, 2012) or 54 inches (Landmark Realty, 2011).

[11] Moss Landing Island refers to the area between the harbor and the bay north of Sandholdt Bridge.

2013c, RWQCB, 2009). The People's Project sponsors have indicated their interest in continuing to accommodate this use of the outfall pipeline along with modifications to use the pipeline as an outfall to serve a new desalination plant (MLBP LLC, 2013c).

The construction activities associated with the necessary repairs to the existing outfall are not known. However, it is assumed the offshore portion of the outfall would be accessed by barge and that a new diffuser would replace the existing one.

5.3.4.5 Outfall Option 5 – New Outfall at Sandholdt Road

This outfall option is similar to Outfall Option 2 (New Outfall at North CEMEX Site) and Option 3 (New Outfall at Potrero Road), but would be located at Moss Landing. This outfall option would involve construction of a new ocean outfall and diffuser extending offshore from a point on Sandholdt Road, and a new brine discharge pump station at the desalination plant site that is ultimately selected.

Although the MPWSP Contingency Plan did not identify a specific site on Sandholdt Road for this option, this analysis assumes that the site for this outfall option is on the west side of Sandholdt Road directly west of Sandholdt Bridge, where the road turns north. The July 2014 Revised Draft Moss Landing Community Plan identified several sites in this area as having "development potential," and the location appears suitable for accommodating the construction of a subsurface outfall. The Community Plan identifies one of the three development potential sites in this immediate location as "pier" (where the Sandholdt Pier formerly existed), another as "aquaculture slab," and the third as "MLML" (one of several sites on Sandholdt Road identified as being associated with MLML). Construction of a subsurface desalination outfall from this area would not preclude future construction of a new pier development of an aquaculture facility in the vicinity, or many other potential future land uses. From the site on Sandholdt Road, the outfall pipeline would tunnel beneath the seafloor and emerge from the surface about 1,000 feet offshore; a 500-foot long diffuser would be attached to the outfall pipeline. Construction activities at this site and disturbance on the ocean floor are assumed to be similar to those described above for Outfall Option 2.

The site and areas to the north along Sandholdt Road are designated Industrial-Coastal Dependent – Light in the current Monterey County Land Use Plan: Moss Landing (1982) and Waterfront Industry in the July 2014 Revised Draft Moss Landing Community Plan; the site is zoned LI (CZ) (Light Industrial-Coastal Zone). The Salinas River State Beach borders the site to the south. There appears to be sufficient physical space to accommodate the outfall pipe, subject to obtaining the appropriate easements. Maintenance activities would involve annual integrity tests, air tests to identify leaks, video surveillance, and periodic flushing of the outfall line to unclog the diffuser ports. Other maintenance activities could include hand scraping of the diffuser section of the outfall line. Implementation of this outfall option would require that CalAm coordinate with and obtain appropriate access agreements and easements from landowners, including California State Parks if any portion of the outfall pipeline traverses parkland.

5.3.4.6 Outfall Option 6 – Modify Existing Outfall for Moss Landing Power Plant Cooling Water

This outfall option would involve the construction of a new pipeline connection to the existing disengaging basin at the Moss Landing Power Plant to discharge brine via the power plant's existing cooling water system outfall, and a new brine discharge pump station located at the desalination plant site.

The Moss Landing Power Plant and existing outfall pipelines are owned by Dynegy Moss Landing, LLC. The outfall facility consists of two 144-inch diameter outfall pipelines that end approximately 1,000 feet offshore in Monterey Bay at approximately 20 feet above the seabed and 20 feet beneath the water surface (CPUC, 2009). Spent cooling water from the power plant's power generating Units 1 and 2 discharges to the disengaging basin, from which the water flows to the power plant's outfall pipelines; cooling water from power generating Units 6 and 7 discharges to the outfall pipelines downstream from the disengaging basin. The brine stream from the desalination plant would thus mix with spent cooling water from Units 1 and 2 in the disengaging basin and would mix with the spent cooling water from all four generating units in the outfall pipelines before being discharged to Monterey Bay, assuming current power plant operations.

In response to the requirements of section 316(b) of the federal Clean Water Act, in 2010 the SWRCB adopted a policy regulating coastal power plants that use once-through cooling systems[12] (SWRCB, 2014). Under the SWRCB's once-through cooling policy, starting in 2016, the power plant must reduce its intake of cooling water by 83.7 percent to reduce entrainment and impingement. Alternatively, if the power plant cannot or chooses not to reduce its intake, it must achieve a greater reduction in mortality from entrainment and impingement in some other way, and must fully comply with the reduction by December 31, 2020. Dynegy has indicated its intention to retrofit the power plant's four generating units to reduce entrainment and impingement impacts under the once-through cooling policy. Complying with the policy would dramatically reduce the amount of cooling water discharged through the power plant's outfall, and the cooling water that is discharged is expected to have much higher concentrations of minerals compared to current discharges from the power plant. This is because, once the generating units are retrofitted, evaporation during the cooling process will concentrate the minerals in the original seawater. Therefore, once the power plant complies with the once-through cooling policy, the plant's cooling water system would provide little, if any, dilution of the desalination plant's brine discharge. Through a 2014 settlement agreement between the SWRCB and Dynegy, these reductions would be met by new technology, screening, and other methods. When the power plant meets its required reductions, CalAm would need to insert a smaller pipeline within one of the existing outfall pipelines and the existing riser, and to attach an appropriate diffuser to achieve the pressure required for brine discharge rates at the outfall diffuser.

Under existing conditions, all construction activities would occur in previously disturbed areas, and no construction would be required in the open waters of the Monterey Bay or Moss Landing Harbor. When the power plant complies with the once-through cooling policy after 2020, or when

[12] Once-through cooling systems circulate water through pipes to absorb heat from power plants or data centers for example, and discharge the now warmer water to the ocean.

the power plant shuts down, construction associated with slip-lining one of the MLPP outfall pipelines would occur primarily at the power plant site. Underwater work in Monterey Bay would consist of attaching a new brine diffuser to the end of the slip-lined pipe and anchoring the diffuser to the ocean floor. Building this outfall would require CalAm to coordinate and enter into appropriate agreements with Dynegy.

5.3.4.7 Outfall Option 7 – New Outfall at Moss Landing

This outfall option uses the same outfall location as the proposed DeepWater Desal, LLC Monterey Bay Regional Water Project. However, compared to the DeepWater Desal Project this analysis assumes that the size of the outfall and the associated pipeline has been scaled down to meet the needs of the 9.6 mgd project proposed by CalAm. The option would include the following three components:

- A discharge diffuser structure;
- A brine pump station; and
- Discharge pipelines.

The discharge diffuser structure would be located in Monterey Bay, approximately 3,400 feet offshore from the Mean High Water Level in the waters of MBNMS and would be secured to the seafloor. The planned elevation of the discharge diffuser structure is approximately 76 feet below Mean Lower Low Water.

The multi-jet diffuser structure would be located on the seafloor and would consist of standing pipe risers emerging from a single 36-inch pipe manifold that would be connected to the end of the discharge pipeline. Each riser would be fitted with a duckbill diffuser nozzle. The diffuser structure would be buried in riprap protective cover and ballast stone. Only the duckbill diffuser nozzles would extend above the protective cover.

5.3.4.8 Outfall Screening Summary

All seven outfall options considered were determined to be feasible and were carried forward for evaluation. The evaluation step compares the impacts of each outfall option against the proposed use by the MPWSP of the existing MRWPCA outfall to determine if adverse impacts would be reduced. This step is described in Section 5.3.6.

5.3.5 Desalination Plant Site Options Screening Results

This analysis considers three alternative locations for the MPWSP Desalination Plant. The desalination plant site options are summarized in **Table 5.3-3** below, and shown on **Figures 5.3-1** and **5.3-2**. The option that was not carried forward into this analysis is described in **Appendix I2**, while the options that were retained for further evaluation are described below (Sections 5.3.5.1 and 5.3.5.2). The primary considerations for the desalination plant site options are the suitability, availability, and proximity of the sites to the possible locations of intake and outfall facilities. For this analysis, it is assumed that the desalination facilities described in Chapter 3, Description of

the Proposed Project, for the Charles Benson Road site would be required at all of the desalination plant site options, and that a minimum of 10 acres is needed to accommodate these facilities. As such, this section focuses on the physical footprint of the desalination facilities and does not evaluate different treatment processes. Although the pre-treatment requirements could vary depending on the quality of the source water (open-water vs. subsurface intake), it is assumed that any modifications to the desalination processes could be accommodated within the same footprint.[13]

TABLE 5.3-3
DESALINATION PLANT SITE OPTIONS SCREENING RESULTS

Figure ID	Site	Description	Screening Results
Plant-1	North Marina Armstrong Ranch Property	This 320-acre site, a portion of which is owned by the Marina Coast Water District, is located south of the MRWPCA Regional Wastewater Treatment Plant and the Monterey Regional Environmental Park. The site is used for agriculture and grazing. The desalination plant would be built on 10 acres of land.	*Not Carried Forward because this site, while previously-approved by the CPUC as part of the Regional Project, is owned by MCWD and is no longer available to CalAm.*
Plant-2	Moss Landing National Marine Refractories Site	This site, owned by Moss Landing - Business Park, LLC, is located on Highway 1, southeast of the Dolan Road/ Highway 1 intersection, across Dolan Road from the Moss Landing Power Plant. This is the former Kaiser Refractories Moss Landing Magnesia Plant site. The desalination plant would be built on 25 acres of the 183-acre site.	*Retained for Further Analysis*
Plant-3	Moss Landing Power Plant East Tank Farm Parcel	This 110-acre site, owned by Dynegy, is located on Dolan Road, approximately 1,500 feet east of the Moss Landing Power Plant.	*Retained for Further Analysis*

5.3.5.1 Desalination Plant Site Option 1 – Armstrong Ranch at North Marina

This desalination plant option would be located on approximately 10 acres of the 320-acre Armstrong Ranch parcel, which is situated south of and adjacent to the MRWPCA Regional Wastewater Treatment Plant and the Monterey Regional Environmental Park. The Marina Coast Water District currently owns this site, which was evaluated in the Coastal Water Project EIR as the location for the desalination plant for the North Marina and Regional Project alternatives, and it was not carried forward into the alternatives evaluation. See **Appendix I2**. Given that Marina Coast Water District currently owns the property, and that CalAm already owns the 46-acre Charles Benson Road site, which is located approximately 0.75 mile to the north, and since Site Option 1 does not provide any advantage over the Charles Benson Road site, it was not carried forward.

[13] For example, the pretreatment requirements are determined by the quality of the source water. The conceptual design for the MPWSP Desalination Plant at the Charles Benson Road site is based on the pretreatment requirements for a subsurface intake system. If an open-water intake were used, adjustments to the pretreatment system could be required.

5.3.5.2 Desalination Plant Site Option 2 – Moss Landing National Refractories Site

Site Option 2 is the National Refractories site owned by Moss Landing Business Park, LLC. It is located at 7697 Highway 1 in Moss Landing, southeast of the intersection of Dolan Road and Highway 1, across from the Moss Landing Power Plant. The desalination plant would be built on approximately 25 acres of the 183-acre parcel.[14] This site option is also proposed by Moss Landing Business Park, LLC as the location of a desalination plant for the Peoples' Moss Landing Desalination Project.

This is the site of the former Kaiser Refractories Moss Landing Magnesia Plant, which used to extract magnesium from seawater, but which closed in February 1999 (Landmark Realty, 2011). The site is located in unincorporated Monterey County. The *Moss Landing Community Plan* zones this site as HI (CZ) – Heavy Industrial (Coastal Zone) (Monterey County, 1982).

Approximately 25 acres of the parcel are available for purchase or lease. Some existing structures at the site could be incorporated into the desalination plant design, including buildings, access roads, and parking lots.

5.3.5.3 Desalination Plant Site Option 3 – Moss Landing Power Plant East Tank Farm Parcel

This parcel, which is also called the East Tank Farm Parcel, is located on the north side of Dolan Road, approximately 1.5 miles east of State Route 1 (SR-1), just east of the unincorporated community of Moss Landing, in the unincorporated area of Monterey County. The 110-acre site is bordered by Dolan Road on the south, by the Moss Landing Power Plant on the west, and by predominantly agricultural lands and the Elkhorn Slough to the north and east. Only 25 acres of the site would be required for the desalination plant. The site contains some remnants of equipment used at the tank farm, such as pipelines and empty electrical cabinets. Many of the earthen berms that surrounded the fuel oil tanks remain in place.

The *Monterey County General Plan* designates the East Tank Farm Parcel for Heavy Industrial Coast Dependent use. Building a desalination plant at this site would require that CalAm purchase or lease the land from Dynegy.

5.3.5.4 Desalination Plant Site Screening Summary

Two desalination site options were determined to be feasible and were carried forward for evaluation. The next step compares each desalination plant site against the proposed project plant site to determine if adverse impacts would be reduced. This evaluation step is described in Section 5.3.6.

[14] The gross acreage of APN No. 133-172-013, National Refractories is 183 acres; however, a portion of the land consists of wetlands and Moro-Cojo Slough as well as areas affected by flooding. Therefore, the net usable area of the parcel is estimated to be 165 acres.

5.3.6 Evaluation of Intake, Outfall, and Desalination Plant Options

This section evaluates the relative environmental effects of the intakes, outfalls and desalination plant sites that were carried forward from the prior screening step, compared against the components of the proposed MPWSP. For each environmental topic presented in Chapter 4, a comparison of impacts is presented in **Tables 5.3-4**, **5.3-5**, and **5.3-6** for intakes, outfalls and desalination plant sites respectively. The components that are determined through the evaluation to avoid or reduce potential environmental impacts are used to compile whole alternatives in Section 5.4 that are evaluated against the proposed project in Section 5.5.

Tables 5.3-4 through 5.3-6 present summary descriptions of the potential environmental impacts associated with the implementation of a particular component of the proposed project, as described in Chapter 4. The impacts of the component options are described comparatively using the following descriptors:

- **Similar** – impacts would be identical or would be of the same general magnitude as the MPWSP proposed component
- **Increased** – impacts would be notably greater than the proposed MPWSP component
- **Decreased** – impacts would be notably less than the proposed MPWSP component

5.3.6.1 Evaluation Results for Intake, Outfall and Desalination Plant Options

Intake Options

Three types of intake options were compared against the proposed slant wells in **Table 5.3-4**:

- Alternative subsurface slant well location (Intake Option 3) – comparison showed a mix of increased, similar, and decreased environmental effects.
- Alternative subsurface well technology (Intake Option 13) – comparison showed similar environmental effects as the proposed slant wells for all environmental topic areas.
- Open water intake facilities and locations (Intake Options 2, 4, 6, 8, and 9) – comparison showed a mix of increased, similar, and decreased environmental effects.

Alternative Subsurface Well Location

Intake Option 3, Slant Wells at Potrero Road, would provide an optional location for slant wells behind (east of) the dunes, in the parking lot at the end of Potrero Road. This location would avoid impacts associated with coastal erosion and would reduce potential impacts on sensitive biological resources at the proposed CEMEX site, but would be located in a 100-year flood plain. During construction, this option would require the temporary closure of the parking lot for the state park and would have increased noise and access impacts on nearby residences. Because Intake Option 3 would decrease some environmental effects (while increasing others) compared

with the proposed project, it is carried forward for development into "whole" alternatives (Alternative 1 in Section 5.4).

Alternative Subsurface Well Technology

Ranney wells (Intake Option 13) were shown to result in similar environmental effects compared to the proposed slant wells, resulting in neither increased or decreased impacts. Ranney wells do offer an opportunity to replace slant well technology at either the CEMEX or the Potrero Road site if necessary. However, because no difference in environmental effects was demonstrated, it is unnecessary to carry it forward for analysis.

Open-water Intake Facilities and Locations

As discussed previously in Section 5.3.1, the CCC, MBNMS, SWRCB, and other resource agencies will not consider permitting an open-water intake unless a subsurface intake is proven to be infeasible or would result in greater environmental impacts. Although not anticipated, a subsurface intake could be deemed infeasible. If it were not possible to implement a subsurface intake for the proposed MPWSP, CalAm would need to consider an open-water intake (presented as Intake Options 2, 4, 6, 8, and 9). However, it is unnecessary to analyze every possible open water intake facility and location. Therefore, the comparison presented in Table 5.3-4 was used to identify the open water intake option capable of reducing environmental effects to the greatest degree possible, as described below.

Open-water options at Moss Landing (Options 6, 8 and 9) would avoid the noise and construction impacts at North of CEMEX (Option 2) and Potrero Road (Option 4) because of the existing industrial land uses in the Moss Landing area; however, no entrainment or impingement studies have been performed at either of these locations. Of the Moss Landing open-water options evaluated, Intake Option 8 (MLPP) would have fewer construction-related impacts because it would involve a modification to an existing facility. Intake Option 6 would have the greatest potential for construction-related impacts of the open-water options evaluated, due to the need to remove the existing diffuser and replace it with a new riser and wedgewire screens; due to structural modifications that would be required on the land side; and due to the impacts associated with installing and securing a length of new pipeline and riprap armoring on the seafloor.

Intake Option 9 (DeepWater Desal) would have fewer operational impacts than the other open water intakes because of its proposed location and design: studies conducted by DeepWater Desal suggest the abundance of marine species is reduced at this deep water location. When compared to the other open-water intakes evaluated, Intake Option 9 could have fewer impacts from impingement and entrainment than the other open water intakes considered but increased construction impacts when compared to Option 8. Construction impacts are more easily mitigated than the operational impacts from impingement and entrainment; therefore, Intake Option 9 was carried forward into the development of whole alternatives (Alternative 2 in Section 5.4).

TABLE 5.3-4
INTAKE OPTIONS EVALUATION – PRELIMINARY ENVIRONMENTAL IMPACTS COMPARISON

Proposed Project: Subsurface Slant Wells in CEMEX Active Mining Area [includes associated facilities as far as Highway 1] *(new construction)*	**Intake Option 2: Open-Water Intake at North CEMEX** *(new construction)*	**Intake Option 3: Subsurface Slant Wells at Potrero Road** *(new construction)*	**Intake Option 4: Open-Water Intake at Potrero Road** *(new construction)*	***Intake Option 6: Open-Water Intake at Moss Landing*** *(new construction; use of existing caisson)*	***Intake Option 8: Open-Water Intakes at Moss Landing Power Plant*** *(new connections to existing intake screens)*	***Intake Option 9: Open-Water Intake at Moss Landing*** *(new construction)*	**Intake Option 13: Ranney Wells at CEMEX Active Mining Area** (new construction)
4.2 GEOLOGY, SOILS, AND SEISMICITY							
Construction Activities: Construction would have an LSM impact related to potential increased soil and sand erosion.	**Similar.**	**Similar.**	**Similar.**	**Similar.**	**Similar.**	**Similar.**	**Similar.**
Operations and Facility Siting: LS impact related to exposure of people or structures to seismically-induced ground-shaking, or liquefaction and lateral spreading. LSM impact related to exposure of structures to coastal erosion and bluff retreat caused by sea level rise.	**Decreased.** No coastal erosion or bluff retreat impact. All other impacts would be similar to those of the proposed project.	**Decreased.** No coastal erosion or bluff retreat impact. All other impacts would be similar to those of the proposed project.	**Decreased.** No coastal erosion or bluff retreat impact. All other impacts would be similar to those of the proposed project.	**Increased.** Coastal erosion and scour from the caisson would be exacerbated by sea level rise. All other impacts would be similar to those of the proposed project.	**Decreased.** No coastal erosion or bluff retreat impact. All other impacts would be similar to those of the proposed project.	**Decreased.** No coastal erosion or bluff retreat impact. All other impacts would be similar to those of the proposed project.	**Similar.**
4.3 SURFACE WATER HYDROLOGY AND WATER QUALITY							
Construction Activities LS impact related to degradation of water quality due to soil erosion or toxic chemical releases and discharge of water produced during well drilling and development. No water quality impact from discharges of treated water and disinfectant from well drilling and development, however, LSM water quality impacts from discharges of treated water and disinfectant during Source Water Pipeline construction.	**Increased.** Greater impacts on water quality in Monterey Bay due to in-water construction activities.	**Similar.**	**Increased.** Greater impacts on water quality in Monterey Bay due to in-water construction activities.	**Increased.** Greater impacts on water quality in Monterey Bay due to in-water construction activities.	**Similar.**	**Increased.** Greater impacts on water quality in Monterey Bay due to in-water construction activities.	**Similar.**
Operations and Facility Siting: No alteration in drainage patterns such that on or offsite flooding would increase or the capacity of the stormwater drainage system would be exceeded. LS water quality impact due to slant well maintenance; increased erosion, siltation, and surface runoff due to alteration of drainage patterns; impedance or redirection of flood flows due to siting facilities in a 100-year flood hazard area; and exposure of people or structures to risk of loss, injury or death from flooding due to tsunamis or sea level rise.	**Similar.**	**Increased.** The parking lot at Potrero Road is within the 100-year flood zone. All other impacts would be similar to that of the proposed slant wells.	**Similar.**	**Similar.**	**Similar.**	**Decreased.** No impacts associated with siting facilities in a 100-year flood hazard area. Less impact related to tsunamis and sea level rise flooding because above ground facilities are outside the respective flood area.	**Similar.**
4.4 GROUNDWATER RESOURCES							
Construction Activities: LS impact related to interference with groundwater recharge, violation of any water quality standard, or degradation of groundwater quality.	**Decreased.** No impact.	**Similar.**	**Decreased.** No impact.	**Decreased.** No impact.	**Decreased.** No impact.	**Decreased.** Construction would have no impact related to interference of groundwater recharge, depletion of supplies, or water quality.	**Similar.** Construction would be similar to those of the proposed project. The same APMM identified for the proposed project would be implemented for this option.
Operations and Facility Siting: LSM impact related to depletion of groundwater supplies or interference with groundwater recharge and LSM impact related to violating water quality standards.	**Decreased**. Open-water intakes would not affect groundwater.	**Increased.** Operation and siting would be greater than the proposed project due to a greater percentage of feedwater coming from the groundwater basin. The APMM identified under the proposed project would also be applied for this option.	**Decreased**. Operational impacts would be decreased because the open-water intakes would not affect groundwater.	**Decreased**. Operational impacts would be decreased because the open-water intakes would not affect groundwater.	**Decreased**. Operational impacts would be decreased because the open-water intakes would not affect groundwater.	**Decreased**. Operational impacts would be decreased because the open-water intakes would not affect groundwater.	**Similar.** Operational impacts would be similar to those of the proposed project. The same APMM identified for the proposed project would be implemented for this option.

TABLE 5.3-4 (Continued)
INTAKE OPTIONS EVALUATION – PRELIMINARY ENVIRONMENTAL IMPACTS COMPARISON

Proposed Project: Subsurface Slant Wells in CEMEX Active Mining Area [includes associated facilities as far as Highway 1] *(new construction)*	**Intake Option 2: Open-Water Intake at North CEMEX** *(new construction)*	**Intake Option 3: Subsurface Slant Wells at Potrero Road** *(new construction)*	**Intake Option 4: Open-Water Intake at Potrero Road** *(new construction)*	***Intake Option 6: Open-Water Intake at Moss Landing*** *(new construction; use of existing caisson)*	***Intake Option 8: Open-Water Intakes at Moss Landing Power Plant*** *(new connections to existing intake screens)*	***Intake Option 9: Open-Water Intake at Moss Landing*** *(new construction)*	**Intake Option 13: Ranney Wells at CEMEX Active Mining Area** (new construction)
4.5 MARINE BIOLOGICAL RESOURCES							
Construction Activities: LS impact on candidate, sensitive, or special status species; and no impact related to interference with the movement of native resident or migratory fish or wildlife species. *Operations and Facility Siting:* LS impacts on candidate, sensitive, or special status species; potential conflict with provisions of an adopted habitat conservation plan (or similar plan); and interference with the movement of any native resident or migratory fish or wildlife species.	**Increased.** Impacts would be increased, except for the impact on the movement of fish or wildlife species during. New mitigation measures would be required to reduce the impacts resulting from entrainment and impingement to less than significant. Operational impacts associated with impingement and entrainment would be greater and could be substantial if feasible mitigation is not available.	**Similar.** Impacts would be similar to and potentially less than those of the proposed project because the slant wells would be located farther back from the high tide line.	**Increased.** Impacts would be increased, except for the impact on the movement of fish or wildlife species during construction. New mitigation measures would be required to reduce the impacts resulting from entrainment and impingement to less than significant. Operational impacts associated with impingement and entrainment would be greater and could be substantial if feasible mitigation were not available.	**Increased.** Impacts would be increased, except for the impact on the movement of fish or wildlife species during construction. New mitigation measures would be required to reduce the impacts resulting from entrainment and impingement to less than significant. Operational impacts associated with impingement and entrainment would be greater and could be substantial if feasible mitigation were not available.	**Increased.** Construction impacts would be decreased because connection with existing screen would be inland. Impacts from operation would be increased and new mitigation measures would be required to reduce the impacts resulting from entrainment and impingement to less than significant. Operational impacts associated with impingement and entrainment would be greater and could be substantial if feasible mitigation were not available.	**Increased.** Impacts would be increased, except for the impact on the movement of fish or wildlife species during construction. New mitigation measures would be required to reduce the impacts resulting from entrainment and impingement to less than significant. Operational impacts associated with impingement and entrainment would be greater and could be substantial if feasible mitigation were not available.	**Similar.**
4.6 TERRESTRIAL BIOLOGICAL RESOURCES							
Construction Activities: LSM impact on candidate, sensitive, or special-status species; riparian habitat, critical habitat or other sensitive natural communities; and federal wetlands, federal other waters, and/or waters of the State. Construction would not conflict with local tree ordinances.	**Decreased.** The impact of intake construction would be reduced since the construction area would be located within agricultural land behind the sand dunes. The construction area does not support federal wetlands, federal other waters, and /or waters of the State riparian areas, critical habitat, or sensitive natural communities so would not impact these resources. The intake would have similar impacts on candidate, sensitive, or special-status species. The intake would not conflict with local tree ordinances as there are no trees within the impact area.	**Decreased.** The intake construction would be located in a parking lot behind the sand dunes and would not directly impact sensitive natural communities or wetlands. However, wetlands, central dune scrub and other sensitive natural communities are located adjacent to the work area and could be impacted during construction. This intake would have a similar level of impacts on candidate, sensitive, or special-status species; riparian habitat, critical habitat, or other sensitive natural communities; and federal wetlands, federal other waters, and/or waters of the State. The intake would not conflict with local tree ordinances as there are no trees within the impact area.	**Decreased.** The intake construction would be located in a parking lot behind the sand dunes and would not directly impact sensitive natural communities or wetlands. However, wetlands, central dune scrub and other sensitive natural communities are located adjacent to the work area and could be impacted during construction. This intake would have a similar level of impacts on candidate, sensitive, or special-status species; riparian habitat, critical habitat, or other sensitive natural communities; and federal wetlands, federal other waters, and/or waters of the State. The intake would not conflict with local tree ordinances as there are no trees within the impact area.	**Decreased.** Construction of this intake includes construction of a new pump station onshore in ruderal or non-native grassland areas. No riparian habitat, critical habitat, or sensitive natural communities occur at the pump station site, so there would be a decreased level of impact on these resources This area could support special-status species and would have a similar level of impact on candidate, sensitive, or special-status species. The pump station would be located adjacent to Moss Landing Harbor, a potential federal and State other water and construction of the pump station could impact this feature. This intake would have a similar level of impact on federal wetlands, federal other waters, and/or waters of the State. No riparian habitat, critical habitat, or sensitive natural communities occur at the pump station site. There are trees located at the pump station site. Impacts on these trees could conflict with local tree ordinances and the impact would be similar.	**Decreased.** Construction/modification of this intake includes construction of a new pump station onshore in currently developed or ruderal areas with non-native trees. No riparian habitat, critical habitat, or sensitive natural communities occur at the pump station site, so there would be a decreased level of impacts on these resources. This area could support special-status species and therefore, similar to the proposed project, this impact would have a similar level of impact on candidate, sensitive, or special-status species. The pump station would be located adjacent to Moss Landing Harbor, and construction of the pump station could impact a similar level of federal wetlands, federal other waters, and/or waters of the State. There are trees located at the pump station site. Impacts on these trees could conflict with local tree ordinances and the impact would be similar.	**Increased.** Construction of the intake would occur within ruderal and agricultural areas dominated by non-native grassland and non-native trees and would not directly impact sensitive natural communities or wetlands. However, the construction area would be located adjacent to wetlands, riparian areas, and sensitive natural communities associated with Elkhorn Slough and these areas could be impacted by construction. This intake would have a similar level of impacts on candidate, sensitive, or special-status species; riparian habitat, critical habitat, or other sensitive natural communities; and federal wetlands, federal other waters, and/or waters of the State. There are trees located at the pump station site. Impacts on these trees could conflict with local tree ordinances and the impact would be similar.	**Similar.** The impact of the intake construction would be similar to the MPWSP project intake as construction would occur at the same location and have the same construction disturbance area as the proposed project.

TABLE 5.3-4 (Continued)
INTAKE OPTIONS EVALUATION – PRELIMINARY ENVIRONMENTAL IMPACTS COMPARISON

Proposed Project: Subsurface Slant Wells in CEMEX Active Mining Area [includes associated facilities as far as Highway 1] *(new construction)*	**Intake Option 2: Open-Water Intake at North CEMEX** *(new construction)*	**Intake Option 3: Subsurface Slant Wells at Potrero Road** *(new construction)*	**Intake Option 4: Open-Water Intake at Potrero Road** *(new construction)*	***Intake Option 6: Open-Water Intake at Moss Landing*** *(new construction; use of existing caisson)*	***Intake Option 8: Open-Water Intakes at Moss Landing Power Plant*** *(new connections to existing intake screens)*	***Intake Option 9: Open-Water Intake at Moss Landing*** *(new construction)*	**Intake Option 13: Ranney Wells at CEMEX Active Mining Area** (new construction)
4.6 TERRESTRIAL BIOLOGICAL RESOURCES (cont.)							
Operations and Facility Siting: LSM impact on candidate, sensitive, or special-status species; riparian habitat, critical habitat, or other sensitive natural communities; and federal wetlands, federal other waters, and/or waters of the State. No conflict with adopted Habitat Conservation Plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan since it is not located within any of these plan areas, therefore NI.	**Decreased.** Operational activities would not impact federal wetlands, other federal waters, or waters of the State, riparian areas, critical habitat, or sensitive natural communities. Similar to the proposed project, the intake would not conflict with the provisions of an adopted Habitat Conservation Plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan since it is not located within any of these plan areas.	**Similar.** Operational impacts would be similar since periodic maintenance cleaning would occur in the parking lot adjacent to sensitive biological resources and would have a similar level of impact related to the adverse effects on species identified as candidate, sensitive, or special-status; riparian habitat, critical habitat, or other sensitive natural communities; and federal wetlands, federal other waters, and/or waters of the State. Similar to the proposed project, the intake would not conflict with the provisions of an adopted Habitat Conservation Plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan since it is not located within any of these plan areas.	**Decreased.** Operational activities would not impact federal wetlands, other federal waters, or waters of the State, riparian areas, critical habitat, or sensitive natural communities. Similar to the proposed project, the intake would not conflict with the provisions of an adopted Habitat Conservation Plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan since it is not located within any of these plan areas.	**Decreased.** Operational activities would not impact federal wetlands, other federal waters, or waters of the State, riparian areas, critical habitat, or sensitive natural communities. Similar to the proposed project, the intake would not conflict with the provisions of an adopted Habitat Conservation Plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan since it is not located within any of these plan areas.	**Decreased.** Operational activities would not impact federal wetlands, other federal waters, or waters of the State, riparian areas, critical habitat, or sensitive natural communities. Similar to the proposed project, the intake would not conflict with the provisions of an adopted Habitat Conservation Plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan since it is not located within any of these plan areas.	**Decreased.** Operational activities would not impact federal wetlands, other federal waters, or waters of the State, riparian areas, critical habitat, or sensitive natural communities. Similar to the proposed project, the intake would not conflict with the provisions of an adopted Habitat Conservation Plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan since it is not located within any of these plan areas.	**Similar.**
4.7 HAZARDS AND HAZARDOUS MATERIALS							
Construction Activities: LS impacts related to transport, use and disposal of hazardous materials and the risk of fire during construction; LSM impact related to potential release of hazardous materials; and NI associated with siting the slant wells on a known hazardous materials site or with hazardous materials handling or emissions within 0.25 mile of a school.	**Similar.**	**Similar.**	**Similar.**	**Similar.**	**Similar.**	**Similar.**	**Similar.**
Operations and Facility Siting: Operation would have LS impacts related to the transport, use, and disposal of hazardous materials; and NI related to hazardous materials handling or emissions within 0.25 mile of a school or airport hazards.	**Similar.**	**Similar.**	**Similar.**	**Similar.**	**Similar.**	**Similar.**	**Similar.**
4.8. LAND USE, LAND USE PLANNING, AND RECREATION							
Construction, Operations, and/or Facility Siting Operation would have LS impacts related to consistency with applicable land use plans, policies, and regulations.	**Similar.**	**Increased.** Construction would have an increased but mitigable impact associated with disruption of established recreational land uses or closure of a recreational facility because it would require the temporary closure of the state beach parking. Operations would have an increased but	**Increased.** Construction would have an increased but mitigable impact associated with disruption of established recreational land uses because it would require the temporary closure of the state beach parking lot. Operational impacts would also be increased but mitigable	**Similar.**	**Increased.** Impacts would be increased because in-water work at the intakes screens result in an increased impact on recreational and commercial uses at the harbor. This temporary impact could be mitigated.	**Increased.** The impact associated with construction of this intake would be similar to that of the proposed project. The impacts associated with operation of the above-ground intake facilities would be increased compared to those of the proposed slant wells because the impacts	**Similar.**

TABLE 5.3-4 (Continued)
INTAKE OPTIONS EVALUATION – PRELIMINARY ENVIRONMENTAL IMPACTS COMPARISON

Proposed Project: Subsurface Slant Wells in CEMEX Active Mining Area [includes associated facilities as far as Highway 1] *(new construction)*	**Intake Option 2: Open-Water Intake at North CEMEX** *(new construction)*	**Intake Option 3: Subsurface Slant Wells at Potrero Road** *(new construction)*	**Intake Option 4: Open-Water Intake at Potrero Road** *(new construction)*	***Intake Option 6: Open-Water Intake at Moss Landing*** *(new construction; use of existing caisson)*	***Intake Option 8: Open-Water Intakes at Moss Landing Power Plant*** *(new connections to existing intake screens)*	***Intake Option 9: Open-Water Intake at Moss Landing*** *(new construction)*	**Intake Option 13: Ranney Wells at CEMEX Active Mining Area** (new construction)
4.8. LAND USE, LAND USE PLANNING, AND RECREATION (cont.)							
		mitigable impact related to land use compatibility because, it is assumed, the parking lot would have to be closed about every 5 years for slant well maintenance.	because of the permanent displacement of a portion of the parking lot for the intake pump station and because operation of the pump station would increase ambient noise levels.			associated with consistency with land use plans, policies, and regulations and with land use compatibility would be increased compared to the proposed project, due to the location of the preferred wet well and pump station in an area designated for agricultural use. New mitigation would need to be developed to reduce the impact.	
4.9 TRAFFIC AND TRANSPORTATION							
Construction Activities: LSM impacts from Source Water Pipeline construction-related increase in traffic safety hazards due to potential conflicts between large construction vehicles and other vehicles, bicyclists, and pedestrians; wear and tear on smaller haul-route roadways caused by heavy trucks transporting equipment and material to and from construction work areas; reduction in roadway capacity; emergency access impairment and the potential to impede vehicular, bicycle, or pedestrian traffic flow or disrupt public transportation.	**Similar.**	**Increased.** Impacts would be increased compared to those of the proposed project slant wells because the impact related to parking conditions would require partial or complete closure of the parking lot during construction. This impact could be reduced through mitigation.	**Increased.** Impacts would be increased compared to those of the proposed project slant wells because the impact related to parking conditions would require partial or complete closure of the parking lot during construction. This impact could be reduced through mitigation.	**Decreased.** Impacts associated with increased traffic safety hazards; and wear and tear on smaller haul routes would be somewhat less than those of the proposed project because this intake would involve less overall construction, and therefore fewer construction	**Decreased.** Impacts associated with, increased traffic safety hazards; and wear and tear on smaller haul routes would be somewhat less than those of the proposed project because this intake would involve less overall construction, and therefore fewer construction	**Decreased.** Impacts associated with increased traffic safety hazards; and wear and tear on smaller haul routes would be somewhat less than those of the proposed project because this intake would involve less overall construction, and therefore fewer construction	**Similar.**
The proposed project would have LS impacts related to temporary increase in traffic and parking conditions in public areas.		All other impacts would be similar to those of the proposed project.	All other impacts would be similar to those of the proposed project.	related trips and a shorter construction period; however the impact determination would remain the same as the proposed project.	related trips and a shorter construction period; however the impact determination would remain the same as the proposed project.	related trips and a shorter construction period; however the impact determination would remain the same as the proposed project.	
4.10 AIR QUALITY							
Construction Activities: In conjunction with other project components, LSM impact related to the generation of criteria air pollutants that could exceed ambient air quality standards. LS impact related to the exposure of sensitive receptors to pollutant concentrations and objectionable odors.	**Decreased.** Emissions over the duration of the construction period would be somewhat less because of less construction activity.	**Similar.** Emissions over the duration of the construction period would be somewhat less because of less construction activity. Somewhat greater exposure of sensitive receptors to construction-related pollutants due to closer proximity of slant well drill sites (within 1,000 feet) and Source Water Pipeline (within 50 feet) to a residential area. Net impacts would be similar.	**Similar.** Emissions over the duration of the construction period would be somewhat less because of less construction activity. Somewhat greater exposure of sensitive receptors to construction-related pollutants due to closer proximity of slant well drill sites (within 1,000 feet) and Source Water Pipeline (within 50 feet) to a residential area. Net impacts would be similar.	**Similar.** Emissions over the duration of the construction period would be somewhat less because of less construction activity. Somewhat greater exposure of sensitive receptors to construction-related pollutant concentrations would be similar; although a residence and RV park on Moss Landing Road would be within 500 feet the construction activities associated with the pump station, the amount of emissions and overall construction period would be expected to be less. Net impacts would be similar.	**Similar.** Although daily construction-related emissions would be similar, emissions over the duration of the construction period would be somewhat less because of less construction activity. The applicable MMs identified for the proposed project would apply and impacts would be LSM. Although an RV park on Moss Landing Road would be within 1,350 feet the construction activities associated with the pump station; exposure of sensitive receptors to construction-related pollutant concentrations would be less due to the reduced amount of emissions that would be emitted. The impact classification would be the same, LS.	**Decreased.** Emissions over the duration of the construction period would be somewhat less because of less construction activity.	**Similar.**

TABLE 5.3-4 (Continued)
INTAKE OPTIONS EVALUATION – PRELIMINARY ENVIRONMENTAL IMPACTS COMPARISON

Proposed Project: Subsurface Slant Wells in CEMEX Active Mining Area [includes associated facilities as far as Highway 1] *(new construction)*	**Intake Option 2: Open-Water Intake at North CEMEX** *(new construction)*	**Intake Option 3: Subsurface Slant Wells at Potrero Road** *(new construction)*	**Intake Option 4: Open-Water Intake at Potrero Road** *(new construction)*	***Intake Option 6: Open-Water Intake at Moss Landing*** *(new construction; use of existing caisson)*	***Intake Option 8: Open-Water Intakes at Moss Landing Power Plant*** *(new connections to existing intake screens)*	***Intake Option 9: Open-Water Intake at Moss Landing*** *(new construction)*	**Intake Option 13: Ranney Wells at CEMEX Active Mining Area** (new construction)
4.10 AIR QUALITY (cont.)							
Operations and Facility Siting: Operation of the proposed slant wells and associated intake facilities would have no impact related to the generation of emissions of criteria pollutants that could contribute to an exceedance of an ambient air quality standard; and would have NI related to the exposure of sensitive receptors to substantial pollutant concentrations.	**Similar.**	**Similar.**	**Similar.**	**Similar.**	**Similar.**	**Similar.**	**Similar.**
4.11 GREENHOUSE GASES							
Construction, Operations, and/or Facility Siting: Construction and operation amortized over 40 years would have SUM impacts related to GHG emissions and potential conflicts with Executive Order S-3-05 and AB 32.	**Similar.**	**Similar.**	**Similar.**	**Similar.**	**Similar.**	**Similar.**	**Similar.**
4.12 NOISE AND VIBRATION							
Construction Activities: LS impact from increase in ambient noise levels; exposure of people to, or generation of, noise levels in excess of established standards; and exposure of people to, or generation of, excessive groundborne vibration. However, Source Water Pipeline construction would have an LSM impact related to excessive groundborne vibration. Construction would conflict with construction time limits of the City of Marina. *Operations and Facility Siting:* LS impact related to permanent increase in ambient noise levels and exposure of people to, or generation of, operational noise levels in excess of established standards.	**Similar.**	**Increased.** Nighttime construction would result in sleep interference due to increased proximity of sensitive receptors compared with the proposed project and require mitigation. Vibration impacts would be decreased because construction would not occur adjacent to historic structures. All other noise impacts associated with construction and operation would be similar to the proposed project.	**Increased.** Nighttime construction would result in sleep interference due to increased proximity of sensitive receptors, and because operation of the intake pump station, could increase the ambient noise level by 5 or more dBA and require mitigation. Vibration impacts would be decreased because construction would not occur adjacent to historic structures. All other noise impacts associated with construction and operation would be similar to the proposed project.	**Decreased.** Construction activity would be further from sensitive land uses. Vibration impacts would be decreased because construction would not occur adjacent to historic structures. All other noise impacts associated with construction and operation would be similar to the proposed project.	**Decreased.** Use of the existing intakes would require substantially less construction activity and would occur further from sensitive land uses. Vibration impacts would be decreased because construction would not occur adjacent to historic structures. All other noise impacts associated with construction and operation would be similar to the proposed project.	**Decreased.** Construction activity would be further from sensitive land uses. Vibration impacts would be decreased because construction would not occur adjacent to historic structures. All other noise impacts associated with construction and operation would be similar to the proposed project.	**Similar.**
4.13 PUBLIC SERVICES AND UTILITIES							
Construction, Operations, and/or Facility Siting: LSM impact related to subsurface utilities disruption or relocation. No impact on landfill capacity but LSM impact on State or local recycling goals and waste diversion rates. LS impact on landfill capacity and state or local recycling goals; no impact related to the need for additional wastewater treatment or conveyance capacity.	**Similar.**	**Similar.**	**Similar.**	**Decreased.** Would result in less impact related to disruption or relocation of existing subsurface utilities. Other impacts would be similar.	**Similar.**	**Similar.**	**Similar.**

TABLE 5.3-4 (Continued)
INTAKE OPTIONS EVALUATION – PRELIMINARY ENVIRONMENTAL IMPACTS COMPARISON

Proposed Project: Subsurface Slant Wells in CEMEX Active Mining Area [includes associated facilities as far as Highway 1] *(new construction)*	**Intake Option 2: Open-Water Intake at North CEMEX** *(new construction)*	**Intake Option 3: Subsurface Slant Wells at Potrero Road** *(new construction)*	**Intake Option 4: Open-Water Intake at Potrero Road** *(new construction)*	***Intake Option 6: Open-Water Intake at Moss Landing*** *(new construction; use of existing caisson)*	***Intake Option 8: Open-Water Intakes at Moss Landing Power Plant*** *(new connections to existing intake screens)*	***Intake Option 9: Open-Water Intake at Moss Landing*** *(new construction)*	**Intake Option 13: Ranney Wells at CEMEX Active Mining Area** (new construction)
4.14 AESTHETICS							
Construction, Operations and/or Facility Siting: LS construction impact on scenic resources and visual character of the area; LSM impact due to light and glare during nighttime construction. LS operation impact on scenic resources and visual character; no impact related to permanent new sources of light and glare.	**Increased.** Adverse effects on scenic resources and visual character during construction and operations would be somewhat greater at this more primitive, pristine shoreline location. Impacts associated with operation would be similar to those of the proposed project.	**Similar.**	**Similar.**	**Increased.** This option would result in impacts related to effects on scenic resources or the visual character of the area during construction and operation at the pump station on the beach. All other impacts would be similar to the proposed project.	**Similar.**	**Similar.**	**Similar.**
4.15 CULTURAL RESOURCES							
Construction Activities: LSM impact related to a historical resource or historic properties; LSM impacts related to the potential to cause a substantial adverse change in the significance of an archaeological resource and related to the potential inadvertent discovery of human remains; and LS impact related to the destruction of a unique paleontological resource.	**Decreased.** No impact on historical resources or historic properties would occur. Similar impacts for archaeological resources, paleontological resources, and human remains.	**Decreased** No impact on historical resources or historic properties would occur. Similar impacts for archaeological resources, paleontological resources, and human remains.	**Decreased.** No impact on historical resources or historic properties would occur. Similar impacts for archaeological resources, paleontological resources, and human remains.	**Decreased.** No impact on historical resources or historic properties would occur. Similar impacts for archaeological resources, paleontological resources, and human remains.	**Decreased.** No impact on historical resources or historic properties would occur. Similar impacts for archaeological resources, paleontological resources, and human remains.	**Decreased.** No impact on historical resources or historic properties would occur. Similar impacts for archaeological resources, paleontological resources, and human remains.	**Similar.**
4.16 AGRICULTURE AND FOREST RESOURCES							
Construction, Operations, and/or Facility Siting: NI related to the conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use; conflict with agricultural zoning or Williamson Act contracts; or otherwise resulting in the conversion of farmland to non-agricultural use. However, those impacts for the Source Water Pipeline would be LSM.	**Similar.**	**Similar.**	**Similar.**	**Similar.**	**Similar.**	**Increased.** Intake location would conflict with agricultural zoning and the potential to otherwise result in the conversion of farmland to non-agricultural use. New mitigation measure(s) would be required The impact related to the conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use would be similar to the proposed project.	**Similar.**
4.17 MINERAL RESOURCES							
Construction, Operations, and/or Facility Siting: LS impact on future recovery of mineral resources and temporary interference with active mining operations at the CEMEX facility.	**Decreased.** This option would not temporarily interfere with active mining operations at the CEMEX sand mining facility.	**Decreased.** This option would not temporarily interfere with active mining operations at the CEMEX sand mining facility.	**Decreased.** This option would not temporarily interfere with active mining operations at the CEMEX sand mining facility.	**Decreased.** This option would not temporarily interfere with active mining operations at the CEMEX sand mining facility.	**Decreased.** This option would not temporarily interfere with active mining operations at the CEMEX sand mining facility.	**Decreased.** This option would not temporarily interfere with active mining operations at the CEMEX sand mining facility.	**Similar.**
4.18 ENERGY RESOURCES							
Construction, Operations, and/or Facility Siting: LSM construction impact associated with the potential wasteful or inefficient use of energy. LS operation impacts due to use of electricity or fuel in an unnecessary, wasteful or inefficient manner and potential to impact, in conjunction with other project components, local or regional energy supplies.	**Similar.**	**Similar.**	**Similar.**	**Similar.**	**Similar.**	**Similar.**	**Similar.**

TABLE 5.3-4 (Continued)
INTAKE OPTIONS EVALUATION – PRELIMINARY ENVIRONMENTAL IMPACTS COMPARISON

Proposed Project: Subsurface Slant Wells in CEMEX Active Mining Area [includes associated facilities as far as Highway 1] *(new construction)*	**Intake Option 2: Open-Water Intake at North CEMEX** *(new construction)*	**Intake Option 3: Subsurface Slant Wells at Potrero Road** *(new construction)*	**Intake Option 4: Open-Water Intake at Potrero Road** *(new construction)*	***Intake Option 6: Open-Water Intake at Moss Landing*** *(new construction; use of existing caisson)*	***Intake Option 8: Open-Water Intakes at Moss Landing Power Plant*** *(new connections to existing intake screens)*	***Intake Option 9: Open-Water Intake at Moss Landing*** *(new construction)*	**Intake Option 13: Ranney Wells at CEMEX Active Mining Area** (new construction)
4.19 POPULATION AND HOUSING							
Construction, Operations, and/or Facility Siting: Construction and operation would have an LS impact related to direct growth inducement.	**Similar.**	**Similar.**	**Similar.**	**Similar.**	**Similar.**	**Similar.**	**Similar.**

TABLE 5.3-5
OUTFALL OPTIONS EVALUATION – PRELIMINARY ENVIRONMENTAL IMPACTS COMPARISON

Proposed Project: Existing MRWPCA Outfall Pipeline *(existing outfall)*	**Outfall Option 1: Modified MRWPCA Outfall and New Diffuser** *(modification of existing outfall pipe plus a new diffuser)*	**Outfall Option 2: New Outfall at North CEMEX** *(new construction)*	**Outfall Option 3: New Outfall at Potrero Road** *(new construction)*	***Outfall Option 4: Modified National Refractories Outfall*** *(modifications to existing outfall, including repairs and new diffuser)*	**Outfall Option 5: New Outfall at Sandholdt Road** *(new construction)*	***Outfall Option 6: New Connection to Existing MLPP Cooling System Outfall CalAm #3***	***Outfall Option 7: New Outfall at Moss Landing [DeepWater Desal Outfall]*** *(new construction)*
4.2 GEOLOGY, SOILS, AND SEISMICITY							
Construction, Operations, and Facility Siting: The proposed project outfall would have no construction or operational impacts on geology, soils, or seismicity.	**Similar.** Impacts would be similar to those of the proposed project because this option would modify an existing facility.	**Increased.** There would be an increased potential for soil erosion or loss of topsoil during construction. Impacts from operations and facility siting would be increased because there would be a greater potential for liquefaction.	**Increased**. There would be an increased potential for soil erosion or loss of topsoil during construction. Impacts from operations and facility siting would be increased because there would be a greater potential for liquefaction.	**Increased.** Construction impacts would be similar to those of the proposed project because this is option would modify an existing facility. Impacts from operations and facility siting would be increased because there would be a greater potential for liquefaction. Assuming the outfall facilities would be located in an area of the former National Refractories site that would not be subject to flooding related to sea level rise, all other impacts also would be similar to those of the proposed project outfall.	**Increased**. There would be an increased potential for soil erosion or loss of topsoil during construction. Impacts of operation and siting would be increased due to the potential for the site to be subject to coastal retreat due to sea level rise, and potential for the new pipeline to encounter corrosive soils,. There would also be a greater potential for liquefaction.	**Increased.** Impacts would be similar to those of the proposed project because this is option would modify an existing facility. Impacts from operations and facility siting would be increased because there would be a greater potential for liquefaction.	**Increased.** There would be an increased potential for soil erosion or loss of topsoil during construction. There would be an increased potential for the new pipeline to encounter corrosive soils (proposed project had no impact related to corrosive soils). There would also be a greater potential for liquefaction.
4.3 SURFACE WATER HYDROLOGY AND WATER QUALITY							
Construction Activities: No construction- related impacts on surface water hydrology or water quality.	**Increased.** Water quality impacts would increase due to dewatering effluent discharges; as well as from increased soil erosion, inadvertent toxic chemical releases, and treated water and disinfectant discharges from existing and new pipelines.	**Increased**. Water quality impacts would increase due to discharges of dewatering effluent, as well as from increased soil erosion, inadvertent toxic chemical releases and treated water and disinfectant discharges from existing and new pipelines.	**Increased.** Water quality impacts would increase due to discharges of dewatering effluent, as well as from increased soil erosion, inadvertent toxic chemical releases and treated water and disinfectant discharges from existing and new pipelines	**Increased.** Water quality impacts would increase due to discharges of dewatering effluent, as well as from increased soil erosion, inadvertent toxic chemical releases and treated water and disinfectant discharges from existing and new pipelines.	**Increased.** Water quality impacts would increase due to discharges of dewatering effluent, as well as from increased soil erosion, inadvertent toxic chemical releases and treated water and disinfectant discharges from existing and new pipelines.	**Similar.** Impacts would be similar to those of the proposed project because this is an existing facility.	**Increased.** Water quality impacts would increase due to discharges of dewatering effluent, as well as from increased soil erosion, inadvertent toxic chemical releases and treated water and disinfectant discharges from existing and new pipelines
Operations and Facility Siting: LS impact related to violation of water quality standards or waste discharge requirements: no plume modeling was conducted and impacts from the brine were not considered for this, or any option. No other impacts related to surface water hydrology or water quality.	**Similar.**	**Increased.** Flooding risk would increase because the eastern end of the outfall (on the east side of the dunes) is in an identified tsunami inundation area, an area at risk of flooding due to sea level rise, and a dam inundation area; the outfall and connecting discharge pipeline would be underground in this area. Other impacts similar to those of the proposed project.	**Increased.** Flooding risk would increase because the eastern end of the outfall (on the east side of the dunes) is in an identified tsunami inundation area, an area at risk of flooding due to sea level rise, and a dam inundation area; the outfall and connecting discharge pipeline would be underground in this area. Other impacts similar to those of the proposed project.	**Increased.** Flooding risk would increase because the eastern end of the outfall (on the east side of the dunes) is in an identified tsunami inundation area, an area at risk of flooding due to sea level rise. The impact would be greater than for Options 2, 3, and 5), because the above-ground facilities associated with this outfall (such as a pump station) are assumed to also be located here. Mitigation would be required. Other impacts would be similar to those of the proposed project.	**Increased**. Flooding risk would increase because the eastern terminus of the outfall (on Sandholdt Road) is in an identified tsunami inundation area, an area at risk of flooding due to sea level rise, and a dam inundation area; the outfall would be underground although the connecting discharge pipeline may be above-ground a short distance away, and therefore vulnerable, if attached to the underside of the Sandholdt Bridge. Other impacts would be similar to those of the proposed project.	**Increased.** Impacts would be increased to an LS impact because the MLPP disengaging basin is in an area at risk of flooding due to sea level rise. All other impacts are similar to the proposed project.	**Increased**. Impacts would be increased to an LS due to risk of flooding due to sea level rise, because the above-ground facilities associated with the outfall (such as the pump station) were located at the former tank farm on Dolan Road (which is where the DeepWater Desal Project proposes to locate a desalination plant and other facilities and is in an area at risk of flooding due to sea level rise). Other impacts would be similar to the proposed project.
4.4 GROUNDWATER RESOURCES							
Construction Activities: There would be no construction-related impacts on groundwater resources.	**Similar.**	**Similar.**	**Similar.**	**Similar.**	**Similar.**	**Similar.**	**Similar.**
Operations and Facility Siting: There would be no impacts related to operations on groundwater resources.	**Similar.**	**Similar.**	**Similar.**	**Similar.**	**Similar.**	**Similar.**	**Similar.**

TABLE 5.3-5 (Continued)
OUTFALL OPTIONS EVALUATION – PRELIMINARY ENVIRONMENTAL IMPACTS COMPARISON

Proposed Project: Existing MRWPCA Outfall Pipeline *(existing outfall)*	**Outfall Option 1: Modified MRWPCA Outfall and New Diffuser** *(new construction to MRWPCA plus modification of existing outfall)*	**Outfall Option 2: New Outfall at North CEMEX** *(new construction)*	**Outfall Option 3: New Outfall at Potrero Road** *(new construction)*	***Outfall Option 4: Modified National Refractories Outfall*** *(modifications to existing outfall, including repairs and new diffuser)*	**Outfall Option 5: New Outfall at Sandholdt Road** *(new construction)*	***Outfall Option 6: New Connection to Existing MLPP Cooling System Outfall CalAm #3***	***Outfall Option 7: New Outfall at Moss Landing [DeepWater Desal Outfall]*** *(new construction)*
4.5 MARINE BIOLOGICAL RESOURCES							
Construction Activities: There would be no construction-related impacts on marine resources.	**Increased.** Marine biological impacts would be greater because attaching and anchoring the diffuser would involve in-water work and disturbance of the sea floor within MBNMS. Impacts include: physical disruption of sediments and mortality of resident epifauna and infauna; increased turbidity from sediment resuspension; and disruption of foraging by bottom-feeding fishes. New mitigation would be required to ensure appropriate procedures and/or timing to reduce potential impacts.	**Increased.** Marine biological impacts would be greater because the new outfall pipeline would be located in the MBNMS and entail disturbance of the seafloor and in-water work where the outfall pipeline emerges from subsurface and the diffuser was attached and anchored. Impacts on marine resources would be due to the physical disruption of the sediments and mortality of resident epifauna and infauna, increased turbidity from sediment resuspension and disruption of foraging by bottom-feeding fishes. The construction zone runs through sensitive habitat within approximately 0.5 mile of shore used by numerous surf perches, grunion, seabass, smelt and squid for spawning, mostly in the spring and summer months. New mitigation would be required to ensure appropriate procedures and/or timing to reduce potential impacts.	**Increased.** Marine biological impacts would be greater because the new outfall pipeline would be located in the MBNMS and entail disturbance of the seafloor and in-water work where the outfall pipeline emerges from subsurface and the diffuser was attached and anchored. Impacts on marine resources would be due to the physical disruption of the sediments and mortality of resident epifauna and infauna, increased turbidity from sediment resuspension and disruption of foraging by bottom-feeding fishes. The construction zone runs through sensitive habitat within approximately 0.5 mile of shore used by numerous surf perches, grunion, seabass, smelt and squid for spawning, mostly in the spring and summer months. New mitigation would be required to ensure appropriate procedures and/or timing to reduce potential impacts.	**Increased.** Marine biological impacts would be greater because of in-water work and disturbance of the seafloor needed to repair the existing outfall pipeline and to attach and anchor a new diffuser within the MBNMS. Impacts on marine resources would be due to the physical disruption of the sediments and mortality of resident epifauna and infauna, increased turbidity associated with sediment resuspension, and disruption of foraging by bottom-feeding fishes. The construction zone runs through sensitive habitat within approximately 0.5 mile of shore used by numerous surf perches, grunion seabass, smelt and squid for spawning, mostly in the spring and summer months. New mitigation would be required to ensure appropriate procedures and/or timing to reduce potential impacts.	**Increased.** Marine biological impacts would be greater because the new outfall pipeline would be located in the MBNMS and entail disturbance of the seafloor and in-water work where the outfall pipeline emerges from subsurface and the diffuser was attached and anchored. Impacts on marine resources would be due to the physical disruption of the sediments and mortality of resident epifauna and infauna, increased turbidity associated with sediment resuspension, and disruption of foraging by bottom-feeding fishes. The construction zone runs through sensitive habitat within approximately 0.5 mile of shore used by numerous surf perches, grunion, seabass, smelt and squid for spawning, mostly in the spring and summer months. New mitigation would be required to ensure appropriate procedures and/or timing to reduce potential impacts.	**Increased.** Marine biological impacts would be greater because of in-water work and disturbance of the ocean floor associated with attaching and anchoring a new diffuser within the MBNMS. It is assumed a new diffuser would be required for brine discharge under this option due to anticipated reductions in the MLPP cooling water discharges. Impacts on marine resources would be due to the physical disruption of the sediments and mortality of resident epifauna and infauna, although turbidity would not be increased as much as for the other options because the outfall's nearshore location is very sandy without much fine material. Foraging by bottom-feeding fishes and sea otters could be disrupted in the disturbed area until biological communities recovered. The construction zone is within sensitive habitat within approximately 0.5 mile of shore used by numerous surf perches, grunion, seabass, smelt and squid for spawning, mostly in the spring and summer months. Being very near the mouth of Elkhorn Slough, construction activity at this site also has the potential of affecting the large group of sea otters that frequent the area west of the Highway 1 bridge. Controls on construction activities would be needed to avoid injuries to otters.	**Increased.** Marine biological impacts would be greater because the new outfall pipeline would be located in the MBNMS and entail disturbance of the seafloor and in-water work where the outfall pipeline emerges from subsurface and the diffuser was attached and anchored. Impacts on marine resources would be due to the physical disruption of the sediments and mortality of resident epifauna and infauna, increased turbidity associated with sediment resuspension, and disruption of foraging by bottom-feeding fishes. New mitigation would be required to ensure appropriate procedures and/or timing to reduce potential impacts.
Operations and Facility Siting: Operation would have LSM impacts related to potential effects of candidate, sensitive, or special-status species; interference with the movement of any native resident or migratory fish or wildlife species; and conflict with adopted plans.	**Similar.** Impacts would be similar to the impacts of the proposed project, assuming a diffuser and operational controls are adequate to meet Ocean Plan Water Quality Objectives.	**Similar.** Impacts would be similar to the impacts of the proposed project, assuming a diffuser and operational controls are adequate to meet Ocean Plan Water Quality Objectives.	**Similar.** Impacts would be similar to the impacts of the proposed project, assuming a diffuser and operational controls are adequate to meet Ocean Plan Water Quality Objectives.	**Similar.** Impacts would be similar to the impacts of the proposed project, assuming a diffuser and operational controls are adequate to meet Ocean Plan Water Quality Objectives.	**Similar.** Impacts would be similar to the impacts of the proposed project, assuming a diffuser and operational controls are adequate to meet Ocean Plan Water Quality Objectives.	**Similar.** Impacts would be similar to the impacts of the proposed project, assuming a diffuser and operational controls are adequate to meet Ocean Plan Water Quality Objectives.	**Similar.** Impacts would be similar to the impacts of the proposed project, assuming a diffuser and operational controls are adequate to meet Ocean Plan Water Quality Objectives.

TABLE 5.3-5 (Continued)
OUTFALL OPTIONS EVALUATION – PRELIMINARY ENVIRONMENTAL IMPACTS COMPARISON

Proposed Project: Existing MRWPCA Outfall Pipeline *(existing outfall)*	**Outfall Option 1: Modified MRWPCA Outfall and New Diffuser** *(new construction to MRWPCA plus modification of existing outfall)*	**Outfall Option 2: New Outfall at North CEMEX** *(new construction)*	**Outfall Option 3: New Outfall at Potrero Road** *(new construction)*	***Outfall Option 4: Modified National Refractories Outfall*** *(modifications to existing outfall, including repairs and new diffuser)*	**Outfall Option 5: New Outfall at Sandholdt Road** *(new construction)*	***Outfall Option 6: New Connection to Existing MLPP Cooling System Outfall CalAm #3***	***Outfall Option 7: New Outfall at Moss Landing [DeepWater Desal Outfall]*** *(new construction)*
4.6 TERRESTRIAL BIOLOGICAL RESOURCES							
Construction Activities: There would be NI on terrestrial biological resources.	**Similar.** Modification of the existing outfall would occur in the marine environment and would not be expected to impact terrestrial biological resources, which is similar to the proposed project.	**Increased.** Construction of a new outfall would occur within agricultural land behind the sand dunes. The construction area does not support federal wetlands, federal other waters, and /or waters of the State, riparian areas, critical habitat, or sensitive natural communities, so would have no impacts to these resources, which is similar to the proposed project. The outfall would have increased impacts on special-status species such as birds protected by the federal Migratory Bird Treaty Act. Similar to the proposed project, the intake would not conflict with local tree ordinances as there are no trees within the impact area, therefore NI.	**Increased.** Construction activities would avoid sensitive natural resources (by using jack and bore techniques under the slough), but construction would still occur adjacent to wetlands and sensitive natural communities associated with the slough and sand dunes and would have impacts on these biological resources as well as special-status species, such as western snowy plover, that could occur in this area. Similar to the proposed project, the outfall would not conflict with local tree ordinances as there are no trees within the impact area,	**Similar.** Modification of the existing outfall would occur in the marine environment and would not be expected to impact terrestrial biological resources, which is similar to the proposed project.	**Increased.** Impacts from all construction activities would occur in previously disturbed areas. Therefore, it is anticipated that there would not be direct impacts on wetlands or natural communities. However, construction would occur adjacent to central dune scrub and wetlands associated with the slough could be impacted by construction. Construction of the outfall would have impacts on candidate, sensitive, or special-status species; riparian habitat, critical habitat, or other sensitive natural communities; and federal wetlands, other federal waters, or waters of the State. Similar to the proposed project, the outfall would not conflict with local tree ordinances as there are no trees within the impact area,.	**Increased.** Impacts from all construction activities would occur in previously disturbed areas away from wetlands and sensitive natural communities. Therefore, it would not impact sensitive natural communities or wetlands. Few special-status species have potential to be impacted by this alternative, but there is potential for construction activities to impact special-status species such as birds protected by the federal Migratory Bird Treaty Act. Similar to the proposed project, the outfall would not conflict with local tree ordinances as there are no trees within the impact area,.	**Increased.** Impacts from all construction activities would occur in previously disturbed areas away from wetlands and sensitive natural communities. Therefore, it would not impact sensitive natural communities or wetlands. Few special-status species have potential to be impacted by this alternative, but there is potential for construction activities to impact special-status species such as birds protected by the federal Migratory Bird Treaty Act. Similar to the proposed project, the outfall would not conflict with local tree ordinances as there are no trees within the impact area.
Operations and Facility Siting: Use of the existing outfall structure would have NI on terrestrial biological resources.	**Similar.**	**Similar.**	**Similar.**	**Similar.**	**Similar.**	**Similar.**	**Similar.**
4.7 HAZARDS AND HAZARDOUS MATERIALS							
Construction Activities: There would be NI related to hazards or hazardous materials during construction.	**Increased.** Impacts would be increased because the construction could include the transport, use, and disposal of hazardous materials. All other impacts would be similar to those of the proposed project outfall.	**Increased.** Impacts would be increased because construction could include the transport, use, and disposal of hazardous materials. The potential for the release of hazardous materials into the environment would be greater. The risk of wildland fires would increase. All other impacts would be similar to those of the proposed project.	**Increased.** Impacts would be increased because construction could include the transport, use, and disposal of hazardous materials. The potential for the release of hazardous materials into the environment would be greater. The risk of wildland fires would be increase. All other impacts would be similar to those of the proposed project.	**Increased.** Impacts would be increased because repairs could include the transport, use, and disposal of hazardous materials. The potential for the release of hazardous materials into the environment would be greater. The risk of wildland fires would be increase. All other impacts would be similar to those of the proposed project.	**Increased.** Impacts would be increased because construction could include the transport, use, and disposal of hazardous materials. The potential for the release of hazardous materials into the environment would be greater. The risk of wildland fires would increase. All other impacts would be similar to those of the proposed project.	**Increased.** Impacts would be increased because construction could include the transport, use, and disposal of hazardous materials. The potential for the release of hazardous materials into the environment would be greater. The risk of wildland fires would increase. All other impacts would be similar to those of the proposed project.	**Increase.** Impacts would be increased because construction could include the transport, use, and disposal of hazardous materials. The potential for the release of hazardous materials into the environment would be greater. The risk of wildland fires would increase. All other impacts would be similar to those of the proposed project.
Operations and Facility Siting: There would be an LS impact associated with locating project facilities within an airport land use plan area and no other operational or siting impacts related to hazards or hazardous materials during construction.	**Similar.**	**Decreased.** This option would not be located in an airport land use plan area, therefore no impact would occur.	**Decreased**. This option would not be located in an airport land use plan area, therefore no impact would occur.	**Decreased**. This option would not be located in an airport land use plan area, therefore no impact would occur.	**Decreased** This option would not be located in an airport land use plan area, therefore no impact would occur.	**Decreased.** This option would not be located in an airport land use plan area, therefore no impact would occur.	**Decreased**. This option would not be located in an airport land use plan area, therefore no impact would occur.

TABLE 5.3-5 (Continued)
OUTFALL OPTIONS EVALUATION – PRELIMINARY ENVIRONMENTAL IMPACTS COMPARISON

Proposed Project: Existing MRWPCA Outfall Pipeline *(existing outfall)*	**Outfall Option 1: Modified MRWPCA Outfall and New Diffuser** *(new construction to MRWPCA plus modification of existing outfall)*	**Outfall Option 2: New Outfall at North CEMEX** *(new construction)*	**Outfall Option 3: New Outfall at Potrero Road** *(new construction)*	***Outfall Option 4: Modified National Refractories Outfall*** *(modifications to existing outfall, including repairs and new diffuser)*	**Outfall Option 5: New Outfall at Sandholdt Road** *(new construction)*	***Outfall Option 6: New Connection to Existing MLPP Cooling System Outfall CalAm #3***	***Outfall Option 7: New Outfall at Moss Landing [DeepWater Desal Outfall]*** *(new construction)*
4.8 LAND USE, LAND USE PLANNING, AND RECREATION							
<u>Construction Activities:</u> There would be NI on land use, land use planning, and recreation.	**Similar.**	**Similar.**	**Increased.** Impacts would be increased because construction would require temporary closure of the beach parking lot, requiring mitigation measures.	**Similar.**	**Increased.** Impacts would be increased due to potential disruption at the State Beach which borders or is close to the southern border of the site.	**Similar.**	**Similar.**
<u>Operations and Facility Siting:</u> Operation would have NI related to consistency with applicable land use plans, policies, and regulations and compatibility with adjacent land uses.	**Similar.**	**Similar.**	**Increased**. Impacts would be increased because periodic maintenance could require access to the outfall from the construction area, which would temporarily displace some beach parking.	**Similar.**	**Similar.**	**Similar.**	**Similar.**
4.9 TRAFFIC AND TRANSPORTATION							
<u>Construction Activities:</u> Construction activities would have NI on traffic and transportation.	**Increased**. Impacts would be increased because this option would involve construction; therefore, there would be an increase in construction related vehicles and traffic. The increase of construction related vehicles could increase traffic delays; cause hazards or disruptions to vehicles, bicyclists or pedestrians; increase wear-and-tear on roadways; and, impaired emergency access. Implementation mitigation measures would be required.	**Increased.** Impacts would be increased because this option would involve construction; therefore, there would be an increase in construction related vehicles and traffic. The increase of construction related vehicles could increase traffic delays; cause hazards or disruptions to vehicles, bicyclists or pedestrians; increase wear-and-tear on roadways; and, impaired emergency access. Implementation mitigation measures would be required	**Increased.** Impacts would be increased because this option would involve construction; therefore, there would be an increase in construction related vehicles and traffic. The increase of construction related vehicles could increase traffic delays; cause hazards or disruptions to vehicles, bicyclists or pedestrians; increase wear-and-tear on roadways; and, impaired emergency access. Implementation of the mitigation measures would be required.	**Increased.** Impacts would be increased because this option would involve construction; therefore, there would be an increase in construction related vehicles and traffic. The increase of construction related vehicles could increase traffic delays; cause hazards or disruptions to vehicles, bicyclists or pedestrians; increase wear-and-tear on roadways; and, impaired emergency access. Implementation of mitigation measures would be required.	**Increased.** Impacts would be increased because this option would involve construction; therefore, there would be an increase in construction related vehicles and traffic. The increase of construction related vehicles could increase traffic delays; cause hazards or disruptions to vehicles, bicyclists or pedestrians; increase wear-and-tear on roadways; and, impaired emergency access. Implementation of mitigation measures would be required.	**Increased.** Impacts would be increased because this option would involve construction; therefore, there would be an increase in construction related vehicles and traffic. The increase of construction related vehicles could increase traffic delays; cause hazards or disruptions to vehicles, bicyclists or pedestrians; increase wear-and-tear on roadways; and, impaired emergency access. Implementation of mitigation measures would be required.	**Increased.** Impacts would be increased because this option would involve construction; therefore, there would be an increase in construction related vehicles and traffic. The increase of construction related vehicles could increase traffic delays; cause hazards or disruptions to vehicles, bicyclists or pedestrians; increase wear-and-tear on roadways; and, impaired emergency access. Implementation of mitigation measures would be required.
<u>Operations and Facility Siting:</u> Operation and maintenance would have an LS impact related to long-term traffic increases on regional and local roadways.	**Similar.**	**Similar.**	**Similar.**	**Similar.**	**Similar.**	**Similar.**	**Similar.**
4.10 AIR QUALITY							
<u>Construction Activities:</u> There would be no construction and NI on air quality.	**Increased**. Impacts would be increased because there would be construction associated emissions of criteria air pollutants greater than the proposed project. The impact related to the exposure of sensitive receptors to substantial pollutant concentrations or create objectionable odors would also be greater.	**Increased**. Impacts would be increased because there would be construction associated emissions of criteria air pollutants greater than the proposed project. The impact related to the exposure of sensitive receptors to substantial pollutant concentrations or create objectionable odors would also be greater.	**Increased**. Impacts would be increased because there would be construction associated emissions of criteria air pollutants greater than the proposed project. The impact related to the exposure of sensitive receptors to substantial pollutant concentrations or create objectionable odors would also be greater.	**Increased**. Impacts would be increased because there would be construction associated emissions of criteria air pollutants greater than the proposed project. The impact related to the exposure of sensitive receptors to substantial pollutant concentrations or create objectionable odors would also be greater.	**Increased**. Impacts would be increased to there would be construction associated emissions of criteria air pollutants greater than the proposed project. The impact related to the exposure of sensitive receptors to substantial pollutant concentrations or create objectionable odors would also be greater	**Increased**. Impacts would be increased because there would be construction associated emissions of criteria air pollutants greater than the proposed project. The impact related to the exposure of sensitive receptors to substantial pollutant concentrations or create objectionable odors would also be greater.	**Increased**. Impacts would be increased because there would be construction associated emissions of criteria air pollutants greater than the proposed project. The impact related to the exposure of sensitive receptors to substantial pollutant concentrations or create objectionable odors would also be greater.
<u>Operations and Facility Siting:</u> Operation would have NI related to increased emissions of criteria air pollutants and exposure of sensitive receptors to substantial pollutant concentrations.	**Similar.**	**Similar.**	**Similar.**	**Similar.**	**Similar.**	**Similar.**	**Similar.**

TABLE 5.3-5 (Continued)
OUTFALL OPTIONS EVALUATION – PRELIMINARY ENVIRONMENTAL IMPACTS COMPARISON

Proposed Project: Existing MRWPCA Outfall Pipeline *(existing outfall)*	**Outfall Option 1: Modified MRWPCA Outfall and New Diffuser** *(new construction to MRWPCA plus modification of existing outfall)*	**Outfall Option 2: New Outfall at North CEMEX** *(new construction)*	**Outfall Option 3: New Outfall at Potrero Road** *(new construction)*	***Outfall Option 4: Modified National Refractories Outfall*** *(modifications to existing outfall, including repairs and new diffuser)*	**Outfall Option 5: New Outfall at Sandholdt Road** *(new construction)*	***Outfall Option 6: New Connection to Existing MLPP Cooling System Outfall CalAm #3***	***Outfall Option 7: New Outfall at Moss Landing [DeepWater Desal Outfall]*** *(new construction)*
4.11 GREENHOUSE GASES							
Construction and Operations: There would be no construction- or operational-related impacts on GHG emissions; NI.	**Similar.**	**Similar.**	**Similar.**	**Similar.**	**Similar.**	**Similar.**	**Similar.**
4.12 NOISE AND VIBRATION							
Construction Activities: There would be NI related to noise and groundborne vibration.	**Increased.** Impacts would be greater due to the potential for construction to generate noise and groundborne vibration.	**Increased.** Impacts would be greater due to the potential for construction to generate noise and groundborne vibration.	**Increased.** Impacts would be greater due to the potential for construction to generate noise and groundborne vibration.	**Increased.** Impacts would be greater due to the potential for construction to generate noise and groundborne vibration.	**Increased.** Impacts would be greater due to the potential for construction to generate noise and groundborne vibration.	**Increased.** Impacts would be greater due to the potential for construction to generate noise and groundborne vibration.	**Increased.** Impacts would be greater due to the potential for construction to generate noise and groundborne vibration.
Operations and Facility Siting: Operation would have LS impacts related to a permanent increase in ambient noise levels and exposure of people to or generation of excessive operational noise levels.	**Similar.**	**Similar.**	**Similar.**	**Similar.**	**Similar.**	**Similar.**	**Similar.**
4.13 PUBLIC SERVICES AND UTILITIES							
Construction Activities: There would be NI related to disruption of or need to relocate local utilities during construction.	**Increased.** Impacts would be greater because inserting the interior pipeline could disrupt use of the outfall and would require mitigation measures.	**Increased.** Impacts would be greater because construction could result in the disruption or relocation existing subsurface utilities. This option could also adversely impact landfill capacity.	**Increased.** Impacts would be increased to greater construction could result in the disruption or relocation existing subsurface utilities. This option could also adversely impact landfill capacity.	**Increased.** Impacts would be greater because construction could result in the disruption or relocation existing subsurface utilities. This option could also adversely impact landfill capacity.	**Increased.** Impacts would be greater because construction could result in the disruption or relocation existing subsurface utilities. This option could also adversely impact landfill capacity.	**Increased.** Impacts would be greater because construction could result in the disruption or relocation existing subsurface utilities. This option could also adversely impact landfill capacity.	**Increased.** Impacts would be greater because construction could result in the disruption or relocation existing subsurface utilities. This option could also adversely impact landfill capacity.
Operations and Facility Siting: There would be NI related to the need for new or physically altered government facilities, LS impacts related to effects on landfill capacity or the need for new wastewater facilities, and an LSM impact related to increased corrosion of the outfall and diffuser.	**Increased.** This option could have greater impacts related to the capacity of the MRWPCA outfall because the interior pipeline might restrict wastewater flows. All other operational impacts would be similar to those of the proposed project outfall.	**Decreased.** This option would not impact the MRWPCA outfall and diffuser. All other operational impacts would be similar to those of the proposed project outfall.	**Decreased.** This option would not impact the MRWPCA outfall and diffuser. All other operational impacts would be similar to those of the proposed project outfall.	**Decreased.** This option would not impact the MRWPCA outfall and diffuser. All other operational impacts would be similar to those of the proposed project outfall.	**Decreased.** This option would not impact the MRWPCA outfall and diffuser. All other operational impacts would be similar to those of the proposed project outfall.	**Similar**. There would not impact the MRWPCA outfall and diffuser, but the brine would have similar impact related to increase corrosion in the existing outfall pipeline. All other operational impacts would be similar to those of the proposed project outfall.	**Decreased**. This option would not impact the MRWPCA outfall and diffuser. All other operational impacts would be similar to those of the proposed project outfall.
4.14 AESTHETICS							
Construction Activities: There would be NI from construction on aesthetics resources.	**Similar.**	**Increased.** Construction of the outfall would result in greater impacts on scenic resources and temporary sources of light and glare.	**Increased.** Construction of the outfall would result in greater impacts on scenic resources and temporary sources of light and glare.	**Similar.**	**Increased.** Construction of the outfall would result in greater impacts on scenic resources and temporary sources of light and glare.	**Increased.** Construction of the outfall would result in greater impacts on scenic resources and temporary sources of light and glare.	**Increased.** Construction of the outfall would result in greater impacts on scenic resources and temporary sources of light and glare.
Operations and Facility Siting: Operation would have NI on scenic resources.	**Similar.**	**Similar.**	**Similar.**	**Similar.**	**Similar.**	**Similar.**	**Similar.**

TABLE 5.3-5 (Continued)
OUTFALL OPTIONS EVALUATION – PRELIMINARY ENVIRONMENTAL IMPACTS COMPARISON

Proposed Project: Existing MRWPCA Outfall Pipeline *(existing outfall)*	**Outfall Option 1: Modified MRWPCA Outfall and New Diffuser** *(new construction to MRWPCA plus modification of existing outfall)*	**Outfall Option 2: New Outfall at North CEMEX** *(new construction)*	**Outfall Option 3: New Outfall at Potrero Road** *(new construction)*	***Outfall Option 4: Modified National Refractories Outfall*** *(modifications to existing outfall, including repairs and new diffuser)*	**Outfall Option 5: New Outfall at Sandholdt Road** *(new construction)*	***Outfall Option 6: New Connection to Existing MLPP Cooling System Outfall CalAm #3***	***Outfall Option 7: New Outfall at Moss Landing [DeepWater Desal Outfall]*** *(new construction)*
4.15 CULTURAL RESOURCES							
Construction, Operations and/or Facility Siting There would be NI on cultural resources.	**Similar.**	**Increased.** The potential to adversely effects archaeological resources, and human remains would be increased requiring mitigation. The impacts related to paleontological resources would also be greater.	**Increased.** The potential to adversely effects archaeological resources, and human remains would be increased requiring mitigation. The impacts related to paleontological resources would also be greater.	**Increased.** The potential to adversely effects archaeological resources, and human remains would be increased requiring mitigation. The impacts related to paleontological resources would also be greater.	**Increased.** The potential to adversely effects archaeological resources, and human remains would be increased requiring mitigation. The impacts related to paleontological resources would also be greater.	**Increased.** The potential to adversely effects archaeological resources, and human remains would be increased requiring mitigation. The impacts related to paleontological resources would also be greater.	**Increased.** The potential to adversely effects archaeological resources, and human remains would be increased requiring mitigation. The impacts related to paleontological resources would also be greater.
4.16 AGRICULTURE AND FOREST RESOURCES							
Construction, Operations, and/or Facility Siting: There would be NI on agricultural and forest resources.	**Similar.**	**Increased**. Impacts would be increased because construction could temporarily disrupt and displace Farmland of Statewide Importance, and could conflict with existing zoning for agricultural uses or Williamson Act contracts.	**Increased.** Impacts would be increased because construction could temporarily disrupt and displace Farmland of Statewide Importance, and could conflict with existing zoning for agricultural uses or Williamson Act contracts.	**Similar.**	**Similar.**	**Similar.**	**Similar.**
4.17 MINERAL RESOURCES							
Construction, Operations, and/or Facility Siting: There would be NI on mineral resources.	**Similar.**	**Similar.**	**Similar.**	**Similar.**	**Similar.**	**Similar.**	**Similar.**
4.18 ENERGY RESOURCES							
Construction Activities: There would be NI on energy resources.	**Increased.** Impacts would be increased because construction would require the use of fuel and/or energy.	**Increased.** Impacts would be increased because construction would require the use of fuel and/or energy.	**Increased.** Impacts would be increased because construction would require the use of fuel and/or energy.	**Increased.** Impacts would be increased because construction would require the use of fuel and/or energy.	**Increased.** Impacts would be increased because construction would require the use of fuel and/or energy.	**Increased.** Impacts would be increased because construction would require the use of fuel and/or energy.	**Increased.** Impacts would be increased because construction would require the use of fuel and/or energy.
Operations and Facility Siting: Operation would have LS impacts related to the use of large amounts of fuel and energy and constrains on the local or regional energy supplies.	**Similar.**	**Similar.**	**Similar.**	**Similar.**	**Similar.**	**Similar.**	**Similar.**
4.19 POPULATION AND HOUSING							
Construction, Operations, and/or Facility Siting: Construction and operation would have an LS impact related to direct growth inducement.	**Similar.**	**Similar.**	**Similar.**	**Similar.**	**Similar.**	**Similar.**	**Similar.**

TABLE 5.3-6
DESALINATION PLANT SITE OPTIONS EVALUATION – PRELIMINARY ENVIRONMENTAL IMPACTS COMPARISON

Proposed Project: MPWSP Desalination Plant **Site on Charles Benson Road** *(new construction)*	**Desalination Plant Site Option 2: Moss Landing** **National Marine Refractories Site** *(new construction)*	**Desalination Plant Site Option 3: Moss Landing Power Plant** **East Tank Farm Parcel** *(new construction)*
4.2 GEOLOGY, SOILS, AND SEISMICITY		
Construction Activities: Construction would have LSM impact associated with the potential to increase soil erosion or loss of topsoil. *Operations, and Maintenance:* Operation and maintenance would have a LS impact as a result of the potential to expose people or structures to seismically-induced groundshaking, liquefaction, lateral spreading, and corrosive soils. There would be NI from the potential to expose people or structures to landslides, coastal retreat due to sea level rise, subsidence, expensive soil and soil disposal.	**Similar**	**Similar**
4.3 SURFACE WATER HYDROLOGY AND WATER QUALITY		
Construction Activities: Construction would have a LS impact related to the degradation of water quality associated with increased soil erosion, inadvertent releases of toxic chemicals, and a LSM impact from construction-related discharges of dewatering effluent from open excavations, and water produced during well drilling and development. *Operations and Maintenance:* The potential to violate water quality standards or waste discharge requirements or result in an adverse water quality effect as a result of brine discharges during project operation would be a LS impact. Operation and maintenance would have a LS impact from the alteration of drainage patterns in a way that would increase erosion, siltation, the amount of surface runoff, increase flooding on- or offsite, or exceed the capacity of the stormwater drainage systems. Furthermore, the potential to expose people or structures to a significant risk of loss, injury, or death from flooding due to sea level rise would be LS. No impacts would result from the impeding or redirecting flood flows, or exposing people or structure to risk of loss, injury, or death from flooding due to a tsunami.	**Increased** – In addition to the impacts identified for the proposed project, this option could expose people or structures to a significant risk of loss, injury, or death from flooding due to sea level rise and coastal flooding. Other impacts would be similar to the proposed project.	**Increased** – – In addition to the impacts identified for the proposed project, this desalination site option could expose people or structures to a significant risk of loss, injury, or death from flooding due to sea level rise and coastal flooding. Other surface water hydrology and water quality impacts would be similar to the proposed project.
4.4 GROUNDWATER RESOURCES		
Construction Activities: Construction would not substantially deplete groundwater supplies, interfere substantially with groundwater recharge, nor would construction violate water quality standards or otherwise degrade water quality and there would be NI. *Operations and Maintenance:* For the reasons stated above, operation and maintenance would have NI on groundwater resources.	**Similar**	**Similar**
4.5 MARINE RESOURCES		
Construction, Operations and Maintenance: There would be no impact on Marine Resources as a result of construction or operations at desalination plant location at Charles Benson Road.	**Similar**	**Similar**
4.6 TERRESTRIAL BIOLOGICAL RESOURCES		
Construction Activities: Project-related construction activities would have LSM impacts related to the adverse effects on species identified as candidate, sensitive, or special-status, either directly or through habitat modification; and conflict with local tree ordinances. *Operations and Maintenance:* Operations and maintenance would result in LSM impacts on species identified as candidate, sensitive, or special-status, either directly or through habitat modification and NI to riparian habitat, critical habitat, or other sensitive natural communities; federal wetlands, federal other waters, and/or waters of the State; or conflict with the provisions of an adopted Habitat Conservation Plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan.	**Increased** - This desalination site option would likely have similar impacts on biological resources. However, two drainages may be considered jurisdictional features by the USACE, RWQCB and/or CCC. Therefore, this site option has an increased potential to adversely affect federally protected wetlands, federal "other waters", and Waters of the State and would require mitigation for impacts on wetlands or other waters. Operations would have similar impacts on special-status species and NI to wetlands or other waters; riparian habitat, critical habitat, or other sensitive natural communities; or conflict with the provisions of an adopted Habitat Conservation Plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan.	**Increased** – This desalination option is located within non-native grassland and scrub habitat, which may be considered a sensitive natural community. Additionally, a potential wetland is located on the site. This desalination plant would have adverse environmental effects on species identified as candidate, sensitive, or special-status, either directly or through habitat modification; riparian habitat, critical habitat, or sensitive natural communities; federal wetlands, federal other waters, and/or waters of the State; and conflict with local tree ordinances. Operations of this desalination plant would have similar impacts on special-status species and no impacts on wetlands or other waters; riparian habitat, critical habitat, or other sensitive natural communities; or conflict with the provisions of an adopted Habitat Conservation Plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan.

TABLE 5.3-6
DESALINATION PLANT SITE OPTIONS EVALUATION – PRELIMINARY ENVIRONMENTAL IMPACTS COMPARISON

Proposed Project: MPWSP Desalination Plant Site on Charles Benson Road *(new construction)*	**Desalination Plant Site Option 2: Moss Landing National Marine Refractories Site** *(new construction)*	**Desalination Plant Site Option 3: Moss Landing Power Plant East Tank Farm Parcel** *(new construction)*
4.7 HAZARDS AND HAZARDOUS MATERIALS		
Construction Activities: Construction would have an LS impact associated with the potential to create a hazard to the public through the routine transport, use and disposal of hazardous materials and an LSM impact associated with the potential to release hazardous materials to the environment. The increased risk of fire during construction would be an LS impact. There would be NI from siting the MPWSP Desalination Plant on a known hazardous materials site and no impact from hazardous materials handling or hazardous emissions within 0.25 mile of a school during construction. *Operations and Maintenance:* Compliance with applicable laws and regulations would ensure that periodic maintenance activities would have an LS impact associated with the transport, use, and disposal of hazardous materials. There would be NI from hazardous materials handling or hazardous emissions within 0.25 mile of a school during operation. The MPWSP Desalination Plant would be located within an airport land use plan area; therefore the impact would be LS.	**Similar**	**Similar**
4.8 LAND USE, LAND USE PLANNING, AND RECREATION		
Construction Activities: There are no parks or recreational facilities near the MPWSP Desalination Plant site; NI related to disruption or closure of recreational facilities. *Operations and Maintenance:* LS impact with respect to land use compatibility because the proposed project would not preclude continued use of other adjacent lands for grazing and other agricultural activities.	**Similar**	**Similar**
4.9 TRAFFIC AND TRANSPORTATION		
Construction Activities: Construction activities would have LSM impacts due to a temporary increase in traffic from construction workers and trucks traveling to and from the construction work areas and increases in traffic safety hazards due to potential conflicts between large construction vehicles and other vehicles, bicyclists, and pedestrians. Wear and tear on smaller haul route roadways caused by heavy trucks transporting equipment and material to and from construction work areas would be an LSM impact. Construction would have an LS impact on the capacity of roadways, emergency access and disruptions to public transportation, bicycle, and pedestrian facilities during construction. *Operations and Maintenance:* The impact of long-term traffic increases from the operation and maintenance activities would be LS.	**Similar**	**Similar**
4.10 AIR QUALITY		
Construction Activities: Emissions of criteria air pollutants and contribution to the violation of an ambient air quality standard during construction of the MPWSP Desalination Plant (and all other project components) would be LSM. The MPWSP Desalination Plant (and all other project components) potential to expose sensitive receptors to substantial pollutant concentrations or create objectionable odors affecting a substantial number of people during construction would be LS. *Operations and Maintenance:* Operation and maintenance would have LS impacts related to the increase of criteria pollutant emissions that could affect regional air quality and the potential to expose sensitive receptors to substantial pollutant concentrations or create objectionable odors affecting a substantial number of people during operations.	**Similar**	**Similar**

TABLE 5.3-6
DESALINATION PLANT SITE OPTIONS EVALUATION – PRELIMINARY ENVIRONMENTAL IMPACTS COMPARISON

Proposed Project: MPWSP Desalination Plant Site on Charles Benson Road *(new construction)*	**Desalination Plant Site Option 2: Moss Landing National Marine Refractories Site** *(new construction)*	**Desalination Plant Site Option 3: Moss Landing Power Plant East Tank Farm Parcel** *(new construction)*
4.11 GREENHOUSE GASES		
Construction Activities: The contribution to climate change of GHG emissions from construction, in conjunction with other project construction, amortized over the 30 month construction period would have a SUM impact. *Operations and Maintenance:* The contribution to climate change of GHG emissions from operation and maintenance, in conjunction with other project operations would be SUM.	**Similar**	**Similar**
4.12 NOISE AND VIBRATION		
Construction Activities: Construction would have LS impacts due to a temporary increase in ambient noise level, exposure to construction noise levels in excess of standards established, and exposure to excessive groundborne vibration during construction. These impacts would be LS because construction noise and vibration levels would be below established thresholds and standards. *Operations and Maintenance:* For the reasons stated above operation and maintenance would have a LS impact as a result of noise and vibration.	**Similar**	**Increased** – Due to the site proximity to nearby residences to this desalination site option, construction at this location has an increased potential to violate established standards and expose sensitive receptors to increase vibrations. Furthermore, operation of a desalination plant on this site would likely violate established standards set by Monterey County and could require mitigation.
4.13 PUBLIC SERVICES AND UTILITIES		
Construction Activities: Project-related construction activities would have LSM impacts due to the disruption or relocation of regional or local utilities and the potential to exceed landfill capacity or be out of compliance with federal, state, and local statutes and regulations related to solid waste. Construction would not result in the need for new or physically altered governmental facilities in order to maintain acceptable service ratios, response times, or other performance objectives for any public services, therefore NI would occur. *Operations and Maintenance:* Operation and maintenance would have an LS impact related to the potential to exceed landfill capacity or be out of compliance with federal, state, and local statutes and regulations related to solid waste. Impacts would be LSM as the MPWSP Desalination Plant could result exceed wastewater treatment requirements of the Central Coast RWQCB. There would be no need for new or physically altered governmental facilities in order to maintain acceptable service ratios, response times, or other performance objectives for any public services, therefore no impact would occur.	**Similar**	**Similar**
4.14 AESTHETICS		
Construction Activities: Construction would have an LS impact on scenic resources, visual character or light and glare, as there are no designated scenic roadways or scenic viewpoints from which the construction activities would be visible from and the MPWSP Desalination Plant would constructed near similar types of industrial development. Furthermore, there are no nearby residences that could be affected by lighting. *Operations and Maintenance:* For the reasons stated above, operation and maintenance would have an LS impact on aesthetics resources.	**Similar**	**Increased** – This desalination site option would be located within 500 feet of nearby residences, which could be affected by night time lighting and would require mitigation to reduce impacts. Other impacts would be similar to the proposed project.
4.15 CULTURAL RESOURCES		
Construction Activities: No historical resources eligible for listing in the CRHR or historic properties eligible for listing in the NRHP are located within the indirect APE for the MPWSP Desalination Plant. Therefore, there would be NI on historical resources from construction. The potential inadvertent discovery of human remains is considered an LSM impact. Construction would result in an LS impact related to the direct or indirect destruction of a unique paleontological resource or site, or unique geologic feature during construction.	**Similar**	**Similar**

TABLE 5.3-6
DESALINATION PLANT SITE OPTIONS EVALUATION – PRELIMINARY ENVIRONMENTAL IMPACTS COMPARISON

Proposed Project: MPWSP Desalination Plant Site on Charles Benson Road *(new construction)*	**Desalination Plant Site Option 2: Moss Landing National Marine Refractories Site** *(new construction)*	**Desalination Plant Site Option 3: Moss Landing Power Plant East Tank Farm Parcel** *(new construction)*
4.16 AGRICULTURE AND FOREST RESOURCES		
Construction Activities: Construction would have NI related to conversion of important farmland, conflicts with agricultural zoning or land with Williamson Act contracts, or otherwise change the existing environment in a way that would result in the conversion of farmland to non-agricultural use because the MPWSP Desalination Plant would not be located in an area mapped as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance; on land under Williamson Act contract. *Operations and Maintenance:* For the reasons stated above operation and maintenance would have NI on agricultural resources.	**Similar**	**Similar**
4.17 MINERAL RESOURCES		
Construction Activities: There are no active mining in the immediate vicinity of the MPWSP Desalination Plant. The MPWSP Desalination Plant would be constructed in an area designated as MRZ-2. Development on the site could limit the future recovery of mineral resources beneath the plant footprint. Therefore, impacts would be LS. *Operations and Maintenance:* For the reasons stated above operation and maintenance would have a LS impact.	**Similar**	**Similar**
4.18 ENERGY CONSERVATION		
Construction Activities: Construction of the MPWSP Desalination Plant (and all other project components) would require the use of fuels and electricity, as well as indirect energy use associated with the production of construction materials. The potential for project construction to use large amounts of fuel or energy in a wasteful manner would be a LSM. *Operations and Maintenance:* While operation and maintenance would use fossil fuels and electricity, the use of such energy would not be unnecessary, wasteful or inefficient; therefore, the impact of fuel and energy use would be LS. Impacts of operation, in conjunction with other components, on local or regional energy supplies or the need for expanded generation or transmission facilities would also be LS.	**Similar**	**Similar**
4.19 POPULATION AND HOUSING		
Construction Activities: Construction of the MPWSP Desalination Plant (and all other project components) would require up to 400 construction workers. The potential for project construction to induce substantial population growth as a result of construction would be LS as proposed project would not create employment opportunities substantially greater than would normally be available to construction workers in the area. *Operations and Maintenance:* During operation and maintenance, it is assumed that approximately 25 to 30 facility operators and support personnel would operate the MPWSP Desalination Plant. This incremental increase would not induce population growth in the region; therefore the direct growth-inducing impact of the project would be LS.	**Similar**	**Similar**

This page intentionally left blank

A summary of the intake options comparison table is presented below in **Table 5.3-7**.

TABLE 5.3-7
SUMMARY OF INTAKE OPTIONS COMPARISON TABLE

	Intake Option 2	Intake Option 3	Intake Option 4	Intake Option 6	Intake Option 8	Intake Option 9	Intake Option 13
4.2 Geology, Soils, and Seismicity							
Construction Activities	=	=	=	=	=	=	=
Operations and Facility Siting	↓	↓	↓	↑	↓	↓	=
4.3 Surface Water Hydrology and Water Quality							
Construction Activities	↑	=	↑	↑	=	↑	=
Operations and Facility Siting	=	↑	=	=	=	↓	=
4.4 Groundwater Resources							
Construction Activities	↓	=	↓	↓	↓	↓	=
Operations and Facility Siting	↓	↑	↓	↓	↓	↓	=
4.5 Marine Biological Resources							
Construction Activities	↑	=	↑	↑	↑	↑	=
Operations and Facility Siting	↑	=	↑	↑	↑	↑	=
4.6 Terrestrial Biological Resources							
Construction Activities	↓	↓	↓	↓	↓	↑	=
Operations and Facility Siting	↓	=	↓	↓	↓	↓	=
4.7 Hazards and Hazardous Materials							
Construction Activities	=	=	=	=	=	=	=
Operations and Facility Siting	=	=	=	=	=	=	=
4.8 Land Use, Land Use Planning, and Recreation							
Construction Activities	=	↑	↑	=	↑	↑	=
Operations and Facility Siting	=	↑	↑	=	↑	↑	=
4.9 Traffic and Transportation							
Construction Activities	=	↑	↑	↓	↓	↓	=
4.10 Air Quality							
Construction Activities	↓	=	=	=	=	↓	=
Operations and Facility Siting	=	=	=	=	=	=	=

TABLE 5.3-7 (Continued)
SUMMARY OF INTAKE OPTIONS COMPARISON TABLE

	Intake Option 2	Intake Option 3	Intake Option 4	Intake Option 6	Intake Option 8	Intake Option 9	Intake Option 13
4.11 Greenhouse Gases							
Construction Activities	=	=	=	=	=	=	=
Operations and Facility Siting	=	=	=	=	=	=	=
4.12 Noise and Vibration							
Construction Activities	=	↑	↑	↓	↓	↓	=
Operations and Facility Siting	=	↑	↑	↓	↓	↓	=
4.13 Public Services and Utilities							
Construction Activities	=	=	=	↓	=	=	=
Operations and Facility Siting	=	=	=	↓	=	=	=
4.14 Aesthetics							
Construction Activities	↑	=	=	↑	=	=	=
Operations and Facility Siting	↑	=	=	↑	=	=	=
4.15 Cultural Resources							
Construction Activities	↓	↓	↓	↓	↓	↓	=
4.16 Agriculture and Forest Resources							
Construction Activities	=	=	=	=	=	↑	=
Operations and Facility Siting	=	=	=	=	=	↑	=
4.17 Mineral Resources							
Construction Activities	↓	↓	↓	↓	↓	↓	=
Operations and Facility Siting	↓	↓	↓	↓	↓	↓	=
4.18 Energy Resources							
Construction Activities	=	=	=	=	=	=	=
Operations and Facility Siting	=	=	=	=	=	=	=
4.19 Population and Housing							
Construction Activities	=	=	=	=	=	=	=
Operations and Facility Siting	=	=	=	=	=	=	=

↑ Increased impact ↓ Decreased impact = Similar impact

Outfall Options

The only outfall option not requiring new construction in MBNMS or any physical modification is the proposed project's use of the existing MRWPCA outfall. All other outfall options would require additional pipelines, modification of an existing outfall, new construction on the ocean floor in MBNMS, or both. As a result, outfall options 1 through 7 would result in increased adverse environmental effects during construction compared with the proposed use of the existing outfall. However, some outfall options demonstrated reduced impacts for certain environmental topic areas during operation or as a result of facility siting, including:

- **Hazards and Hazardous Materials** – Outfall options 2 through 7, unlike the proposed use of the existing outfall, would result in greater impacts, although the facilities would not be located within an airport land use plan area.
- **Public Services and Utilities** – Outfall options 2, 3, 4, 5, and 7 would result in reduced impacts related to increased corrosion of the existing wastewater outfall and diffuser compared with the proposed use of the existing outfall.

All seven of the outfall options would result in increased construction impacts, including new impacts in the marine environment, compared to the proposed project, and would not avoid or minimize potential environmental impacts, other than those noted above. Therefore, only the proposed use of the existing outfall was carried forward in the development of the "whole" alternatives because they would not meet the Federal purpose and need to minimize impacts and are not likely to meet regulatory requirements.

A summary of the outfall options comparison table is presented below in **Table 5.3-8**.

Desalination Plant Site Options

Two alternative desalination plant sites were compared to the proposed desalination plant site at Charles Benson Road. These included Option 2: Moss Landing National Marine Refractories site (which is the site proposed as part of the People's Moss Landing Project), and Option 3: Moss Landing Power Plant East Tank Farm Parcel (which is the site proposed as part of the DeepWater Desal Project). The comparative analysis presented in Table 5.3-6 determined the following for each of the desalination site options:

- **Option 2**: The National Marine Refractories Site would have a similar level of environmental effects for most of the environmental topic areas compared to the proposed site at Charles Benson Road, but would result in increased impacts on surface water hydrology (it is located in the 100-year flood zone) and terrestrial biology.
- **Option 3**: The East Tank Farm Parcel would have a similar level of environmental effects for most of the environmental topic areas compared to the proposed site at Charles Benson Road, but would result in increased impacts on surface water hydrology, terrestrial biology, noise and vibration, and aesthetics.

TABLE 5.3-8
SUMMARY OF OUTFALL OPTIONS COMPARISON TABLE

	Outfall Option 1	Outfall Option 2	Outfall Option 3	Outfall Option 4	Outfall Option 5	Outfall Option 6	Outfall Option 7
4.2 Geology, Soils, and Seismicity							
Construction Activities	=	↑	↑	↑	↑	↑	↑
Operations and Facility Siting	=	↑	↑	↑	↑	↑	↑
4.3 Surface Water Hydrology and Water Quality							
Construction Activities	↑	↑	↑	↑	↑	=	↑
Operations and Facility Siting	=	↑	↑	↑	↑	↑	↑
4.4 Groundwater Resources							
Construction Activities	=	=	=	=	=	=	=
Operations and Facility Siting	=	=	=	=	=	=	=
4.5 Marine Biological Resources							
Construction Activities	↑	↑	↑	↑	↑	↑	↑
Operations and Facility Siting	=	=	=	=	=	=	=
4.6 Terrestrial Biological Resources							
Construction Activities	=	↑	↑	=	↑	↑	↑
Operations and Facility Siting	=	=	=	=	=	=	=
4.7 Hazards and Hazardous Materials							
Construction Activities	↑	↑	↑	↑	↑	↑	↑
Operations and Facility Siting	=	↓	↓	↓	↓	↓	↓
4.8 Land Use, Land Use Planning, and Recreation							
Construction Activities	=	=	↑	=	↑	=	=
Operations and Facility Siting	=	=	↑	=	↑	=	=
4.9 Traffic and Transportation							
Construction Activities	↑	↑	↑	↑	↑	↑	↑
Operations and Facility Siting	=	=	=	=	=	=	=
4.10 Air Quality							
Construction Activities	↑	↑	↑	↑	↑	↑	↑
Operations and Facility Siting	=	=	=	=	=	=	=

TABLE 5.3-8 (Continued)
SUMMARY OF OUTFALL OPTIONS COMPARISON TABLE

	Outfall Option 1	Outfall Option 2	Outfall Option 3	Outfall Option 4	Outfall Option 5	Outfall Option 6	Outfall Option 7
4.11 Greenhouse Gases							
Construction Activities	=	=	=	=	=	=	=
Operations and Facility Siting	=	=	=	=	=	=	=
4.12 Noise and Vibration							
Construction Activities	↑	↑	↑	↑	↑	↑	↑
Operations and Facility Siting	=	=	=	=	=	=	=
4.13 Public Services and Utilities							
Construction Activities	↑	↑	↑	↑	↑	↑	↑
Operations and Facility Siting	↑	↓	↓	↓	↓	=	↓
4.14 Aesthetics							
Construction Activities	=	↑	↑	=	↑	↑	↑
Operations and Facility Siting	=	=	=	=	=	=	=
4.15 Cultural Resources							
Construction Activities	=	↑	↑	↑	↑	↑	↑
Operations and Facility Siting	=	↑	↑	=	=	=	=
4.16 Agriculture and Forest Resources							
Construction Activities	=	=	=	=	=	=	=
Operations and Facility Siting	=	↑	↑	=	=	=	=
4.17 Mineral Resources							
Construction Activities	=	=	=	=	=	=	=
Operations and Facility Siting	=	=	=	=	=	=	=
4.18 Energy Resources							
Construction Activities	↑	↑	↑	↑	↑	↑	↑
Operations and Facility Siting	=	=	=	=	=	=	=
4.19 Population and Housing							
Construction Activities	=	=	=	=	=	=	=
Operations and Facility Siting	=	=	=	=	=	=	=

↑ Increased impact ↓ Decreased impact = Similar impact

Overall, there are no potential impacts associated with developing the Charles Benson Road desalination plant site that would be avoided or minimized by using either of the other options. For this reason, and because CalAm already owns the property, only the Charles Benson Road site was carried forward for development of whole alternatives.

A summary of the desalination plant site options comparison table is presented below in **Table 5.3-9**.

TABLE 5.3-9
SUMMARY OF DESALINATION PLANT SITE OPTIONS COMPARISON TABLE

	Desalination Plant Site Option 2	Desalination Plant Site Option 3
4.2 Geology, Soils, and Seismicity		
Construction Activities	=	=
Operations and Facility Siting	=	=
4.3 Surface Water Hydrology and Water Quality		
Construction Activities	↑	↑
Operations and Facility Siting	↑	↑
4.4 Groundwater Resources		
Construction Activities	=	=
Operations and Facility Siting	=	=
4.5 Marine Biological Resources		
Construction Activities	=	=
Operations and Facility Siting	=	=
4.6 Terrestrial Biological Resources		
Construction Activities	↑	↑
Operations and Facility Siting	↑	↑
4.7 Hazards and Hazardous Materials		
Construction Activities	=	=
Operations and Facility Siting	=	=
4.8 Land Use, Land Use Planning, and Recreation		
Construction Activities	=	=
Operations and Facility Siting	=	=
4.9 Traffic and Transportation		
Construction Activities	=	=
Operations and Facility Siting	=	=
4.10 Air Quality		
Construction Activities	=	=
Operations and Facility Siting	=	=
4.11 Greenhouse Gases		
Construction Activities	=	=
Operations and Facility Siting	=	=
4.12 Noise and Vibration		
Construction Activities	=	↑
Operations and Facility Siting	=	↑

TABLE 5.3-9 (Continued)
SUMMARY OF DESALINATION PLANT SITE OPTIONS COMPARISON TABLE

	Desalination Plant Site Option 2	Desalination Plant Site Option 3
4.13 Public Services and Utilities		
Construction Activities	=	=
Operations and Facility Siting	=	=
4.14 Aesthetics		
Construction Activities	=	↑
Operations and Facility Siting	=	↑
4.15 Cultural Resources		
Construction Activities	=	=
Operations and Facility Siting	=	=
4.16 Agriculture and Forest Resources		
Construction Activities	=	=
Operations and Facility Siting	=	=
4.17 Mineral Resources		
Construction Activities	=	=
Operations and Facility Siting	=	=
4.18 Energy Resources		
Construction Activities	=	=
Operations and Facility Siting	=	=
4.19 Population and Housing		
Construction Activities	=	=
Operations and Facility Siting	=	=

↑ Increased impact ↓ Decreased impact = Similar impact

Summary of Component Option Evaluation Conclusions

Of the seven intake options evaluated, for reasons described previously and in Table 5.3-4, two intake options were carried forward into the development of whole alternatives for full EIR/EIS analysis-- Option 3, Slant Wells at Potrero Road, and Option 9, Open-water Intake at Moss Landing. Because all of the outfall options evaluated would have greater construction-related impacts (Table 5.3-5) in MBNMS than the proposed project, which would use the existing MRWPCA outfall without modification, only the existing MRWPCA outfall was carried forward into the development of whole alternatives. The proposed Charles Benson Road desalination plant site was also carried forward since neither of the other options offers any advantage to, and would not reduce any significant impacts of, the proposed project.

Based on the conclusions of the component evaluations, the intake, desalination plant site, and outfall options were combined into whole alternatives for detailed consideration. They are fully described in Section 5.4 and evaluated in Section 5.5. Alternative 1 would utilize slant wells at Potrero Road (Intake Option 3) and Alternative 2 would utilize an open-water intake at Moss Landing (Intake Option 9). Both alternatives would use the Charles Benson Road desalination

plant site and the existing MRWPCA outfall. The components of the DeepWater Desal alternative and the People's Project alternative were included and evaluated in the components screening process; the DeepWater Desal and the People's Project, as well as two reduced sized alternatives are also described in Section 5.4 and are evaluated in Section 5.5.

References

California American Water (CalAm), 2012. Before the Public Utilities Commission of the State of California, A.12-04-019, Application of California-American Water Company (U210W) for Approval of the Monterey Peninsula Water Supply Project and Authorization to Recover All Present and Future Costs in Rates, Filed April 23, 2012.

California American Water (CalAm), 2014. Email from Richard Svinland and Ian Crooks, Re: RFI – Ranney Collector Well Layout. April 23, 2014 and May 5, 2014.

California Coastal Commission, 2004. *Seawater Desalination and the California Coastal Act.* March 2004.

California Public Utilities Commission (CPUC), 2000. *Monterey Peninsula Long-Term Water Supply Contingency Plan (Plan B), Component Screening Report.* Prepared for the Water Division of the California Public Utilities Commission by EDAW, Inc., November 2000.

California Public Utilities Commission (CPUC), 2002. *Carmel River Dam Contingency Plan, Plan B Project Report, Final Report, Application No. 97-03-052*. Prepared for the Water Division of the California Public Utilities Commission by Raines, Melton, and Carella, Inc. on July 2002.

California Public Utilities Commission (CPUC), 2009. *California American Water Company, Coastal Water Project, Final Environmental Impact Report.* Prepared for California Public Utilities Commission, October 30, 2009. Available for public review at the California Public Utilities Commission.

City of Marina, 1982. *The City of Marina Local Coastal Land Use Plan*. Prepared by Ironside and Associates. Certified by California Coastal Commission on April 30, 1982.

City of Marina, 2000. *City of Marina General Plan*, amended December 31, 2006.

DeepWater Desal LLC., 2016. *Monterey Bay Regional Water Project, Project Narrative: Supplement to California State Lands Lease Application.* Available at www.deepwaterdesal.com/reports-and-publications.htm.

Dynegy, 2011. *State Water Resources Control Board Once-Through Cooling Water Policy, Implementation Plan for the Moss Landing Power Plant*. April 1, 2011.

Geoscience Support Services, Inc. (Geoscience), 2008. *Horizontal Well Technology Application In Alluvial Marine Aquifers For Ocean Feedwater Supply And Pretreatment, Section 2, Research And Development For Horizontal/Angle Well Technology.* Submitted to California Department of Water Resources September 30, 2008.

Geoscience Support Services, Inc. (Geoscience), 2014. *Monterey Peninsula Water Supply Project Hydrogeologic Investigation, Technical Memorandum (TM1) Summary of Results – Exploratory Boreholes*. Prepared for CalAm, RBF Consulting, July 8, 2014.

Independent Scientific Technical Advisory Panel, 2014. *Final Report: Technical Feasibility of Subsurface Intake Designs for the Proposed Poseidon Water Desalination Facility at Huntington Beach, California.* Under the Auspices of the California Coastal Commission and Poseidon Resources (Surfside) LLC. October 9, 2014.

Independent Scientific Technical Advisory Panel, 2015. *Phase 2 Report: Feasibility of Subsurface Intake Designs for the Proposed Poseidon Water Desalination Facility at Huntington Beach, California.* Under the Auspices of the California Coastal Commission and Poseidon Resources (Surfside) LLC. August 17, 2015.

Landmark Realty, 2011. *Replacement Cost Appraisal Summary Report*. Prepared for Mr. Nader Agha, Owner, Moss Landing Commercial Park. October 3, 2011.

Lester, C., 2006. *Regulatory Issues*. In Alpert, H., Borrowman, C., and B. Haddad, *"Evaluating Environmental Impacts of Desalination in California"* Center for Integrated Water Research 27 July 2007.

Luster, 2016. Email from Tom Luster, California Coastal Commission, Re: Key Issues Discussed at March 4th multi-agency meeting with DeepWater Desal. June 30.

Mickley, 2012. *Independent Consultant Review: The People's Moss Landing Water Desal Project Proposal, March 2012*. Prepared for The People's Moss Landing Water Desal Project, March 8, 2012.

Monterey County, 1982. *North County Land Use Plan*. Local Coastal Program Certified June 1982, Monterey County, California.

Monterey County, 2010. *2010 Monterey County General Plan*. Adopted October 26, 2010.

Monterey County Water Resources Agency (MCWRA), 2014. *Special Board of Directors Meeting, Interlake Tunnel Project Workshop*. November 19, 2014.

Moss Landing Business Park, LLC. (MLBP LLC), 2013a. *Proposal, Submitted by the Moss Landing Commercial Business Park, LLC, to Design and Build The People's Moss Landing Desal Project.* February 15, 2013.

Moss Landing Business Park, LLC. (MLBP LLC), 2013b. *Project Details, Project Title: The People's Moss Landing Desal Project*. 2013.

Moss Landing Business Park, LLC. (MLBP LLC), 2013c. *People's Moss Landing Desal Project, Follow-Up April 30, 2013 Meeting*.

National Oceanic and Atmospheric Administration (NOAA), 2010. *Guidelines for Desalination Plants in the Monterey Bay National Marine Sanctuary*. Prepared by NOAA's Monterey Bay National Marine Sanctuary and National Marine Fisheries Service. May 2010.

The People's Moss Landing Water Desalination Project (PML Desal), 2014. *The Project.* Available at http://franklin.asmallorange.com/~peopleswater/the-project/. Accessed on October 28, 2014.

Regional Water Quality Control Board (RWQCB), 2009. *Order No. R3-2009-002 NPDES No. CA0007005, Waste Discharge Requirements for the Moss Landing Commercial Park and Moss Landing Cement Company, Moss Landing Cement Company Facility*. March 20, 2009.

RBF Consulting, 2013. *MPWSP Contingency Plan Update*. Prepared for California American Water, January 9, 2013.

Separation Processes, Inc. and Kris Helm Consulting (SPI and Helm), 2013. *Evaluation of Seawater Desalination Projects*. Prepared for Monterey Peninsula Regional Water Authority, January 2013.

State Water Resources Control Board (SWRCB), 2014. *Statewide Water Quality Control Policy on the Use of Coastal and Esturarine Waters for Power Plant Cooling.* Approved by the Office of Administrative Law, February 2, 2014.

State Water Resources Control Board (SWRCB), 2016. *Water Quality Control Plan – Ocean Waters of California*. California Ocean Plan, 2015. Effective January 28, 2016.

Tenera, 2007. *Moss Landing Power Plant Units 1&2 and Units 6&7, Impingement Study Data Report*. Prepared for Moss Landing Power Plant, March 2007.

5.4 Description of Alternatives Evaluated in Detail

5.4.1 Overview

This section describes the alternatives to the proposed project that are evaluated in detail in Section 5.5 and 5.6 of this EIR/EIS, including the "no project/no action" alternative. A description of the CEQA and NEPA guidelines related to alternatives evaluations is included in Section 5.1.1.

Consistent with the CEQA Guidelines, the analysis considers the ability of the alternatives to meet all or most of the basic project objectives. Consistent with NEPA guidance, the analysis considers the ability of alternatives to meet the project purpose and need. **Table 5.4-1** below provides an overview of the alternatives evaluated in detail.

The following sections describe each of the alternatives evaluated in detail organized in the following primary categories:

- Overview
- Construction Phase
- Operation and Maintenance Phase
- Ability to Meet Project Objectives / Purpose and Need

Each alternative is described by its primary components including: water intake, brine discharge, desalination plant, and product water conveyance facilities.

TABLE 5.4-1
OVERVIEW OF ALTERNATIVES EVALUATED IN DETAIL

Alternative	Components				
	Seawater Intake Facilities	**Brine Discharge/ Outfall Discharge Facilities**	**Desalination Plant**	**Conveyance Pipelines**	**Ground Water Replenishment Project Water Purchase Agreement**
Proposed Project *Described in Chapter 3*	9 new subsurface slant wells at CEMEX and conversion of test slant well to production well (10 total wells)	Existing MRWPCA ocean outfall pipeline and diffuser	New 9.6 mgd desalination plant on 25 acres at Charles Benson Rd. site	Source Water pipeline, Brine Discharge pipeline, Castroville pipeline, Pipeline to Castroville Seawater Intrusion Project (CSIP) Pond, new Desalinated Water Pipeline, new Transmission Main, ASR facilities, and Highway 68 interconnection improvements. Approximately 21 total miles of pipelines.	Not part of proposed project
No Project Alternative *Described in Section 5.4.2*	No new facilities would be constructed; payback to the Seaside Groundwater Basin would not occur; reliance on existing and planned water conservation and recycling programs; likely implementation of mandatory rationing and conservation measures.				CalAm would purchase and extract 3,500 afy of GWR water from the Seaside Groundwater Basin
Alternative 1 – *Slant Wells at Potrero Road* *Described in Section 5.4.3*	10 new subsurface slant wells at Potrero Rd.	Same as proposed project		Same as proposed project, plus an additional 5.5 miles of source water pipeline. Approximately 26 miles of pipelines.	Not part of alternative
Alternative 2 – *Open-Water Intake at Moss Landing* *Described in Section 5.4.4*	New Screened Open-Water Intake at Moss Landing – one 36" diameter intake pipeline (HDD[1] installation)			Source Water pipeline, Brine Discharge pipeline, new Desalinated Water Pipeline, new Transmission Main, ASR facilities, and Highway 68 interconnection improvements, plus an additional 6.5 miles of source water pipeline. Approximately 21 total miles of pipelines.	
Alternative 3 – *Monterey Bay Regional Water Project (MBRWP or DeepWater Desal Project)* *Described in Section 5.4.5*	New Screened Open-Water Intake at Moss Landing – same location as Alt. 2; ● two 42" diameter intake pipelines (HDD installation) and ● a 110' L x 30' W x 12' tall intake structure	New Outfall at Moss Landing; ● two 36" diameter discharge pipelines (HDD installation) and ● a 140'L x 10' W x 15' tall discharge structure	New 22 mgd desalination plant and co-located data center at 110-acre "East Tank Farm Parcel" off Dolan Road, Moss Landing	New Desalinated Water Pipeline, new Transmission Main, ASR facilities, and Highway 68 interconnection improvements, plus an 8 mi source water pipeline, transfer and brine discharge pipelines, and two new pipelines to serve other areas (Salinas and Santa Cruz Co; approximately 25 miles). Approximately 48 total miles of pipelines.	

TABLE 5.4-1 (Continued)
OVERVIEW OF ALTERNATIVES EVALUATED IN DETAIL

Alternative	Components				
	Seawater Intake Facilities	**Brine Discharge/ Outfall Discharge Facilities**	**Desalination Plant**	**Conveyance Pipelines**	**Ground Water Replenishment**
Alternative 4 – *People's Moss Landing Water Desalination Project (People's Project)* *Described in Section 5.4.6*	New Screened Open-Water Intake at Moss Landing – same general location as Alt. 2, but different installation ● 40" diameter pipeline, combination HDD and laid on seafloor (for 1,100') ● two 96" diameter screened intakes	New Outfall at Moss Landing; extension of existing outfall ● 36" diameter pipeline, combination HDD and laid on seafloor (for 700') ● two 16" diameter diffuser ports	New 12 mgd desalination plant at former National Refractories facility in Moss Landing	New Desalinated Water Pipeline, new Transmission Main, ASR facilities, and Highway 68 interconnection improvements, plus an alternative 8-mile-long source water pipeline. Approximately 20 total miles of pipelines.	Not part of alternative
Alternative 5a[2] – *Reduced Project 6.4-mgd Desalination Plant (Intake Slant Wells at CEMEX)* *Described in Section 5.4.7*	Same as proposed project, but fewer slant wells (7) at CEMEX	Same as proposed project except there would be less brine discharged.	New 6.4 mgd desalination plant at Charles Benson Rd site.	Same as proposed project, approximately 21 total miles of pipelines.	CalAm's purchase and extraction 3,500 afy of GWR water from the Seaside Groundwater Basin is considered in the cumulative analysis
Alternative 5b – *Reduced Project 6.4-mgd Desalination Plant (Intake Slant Wells at Potrero Road)* *Described in Section 5.4.8*	Same as Alternative 1, but fewer slant wells (7) at Potrero Road			Same as proposed project, plus an additional 5.5 miles of source water pipeline, approximately 26 miles of pipelines.	

NOTES:

1 Horizontal Directional Drilling (HDD) is described in Section 3.3.4.3 in Chapter 3, Description of the Proposed Project

2 Alternative 5 includes a reduced size desalination plant. The CPUC authorized CalAm to enter into a water purchase agreement for 3,500 afy from the GWR Project, and to build the new Monterey Pipeline and associated pump station needed for the GWR project, in September 2016. As a result, the GWR project is a reasonably foreseeable future project, and the cumulative impact scenario evaluated for Alternatives 5a and 5b includes implementation of the GWR project. The GWR project is not considered for cumulative impacts in conjunction with the proposed project or Alternatives 1, 2, or 4 because if a desalination option is selected that is of a size sufficient to fully satisfy the project objectives in terms of water supply, such choice would presumably mean that the GWR project was not successful in securing funding, completing construction and undertaking operations. The GWR project is conservatively considered for cumulative impacts with Alternative 3 because under that option, CalAm could meet its full project water supply objectives via the DeepWater Desal project, or could obtain water from a combination of the DeepWater Desal project and the GWR Project. See Table 4.1-2 in Section 4.1.

5.4.2 No Project Alternative

Both CEQA and NEPA require that an EIR/EIS consider and analyze a "no project" or "no action" alternative. CEQA Guidelines Section 15126.6(e) provides the following guidance on the "no project" alternative:

- An EIR shall consider the specific alternative of "no project" and evaluate its impacts to allow decision-makers to compare the impacts of approving the proposed project with the impacts of not approving the proposed project.
- The no project analysis shall discuss the existing conditions at the time the Notice of Preparation was published as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure.
- If the proposed project is a development project on identifiable property, the no project alternative is the circumstance under which the project does not proceed.

As described in the subsections below, the No Project Alternative reflects the scenario in which neither the proposed project nor Alternatives 1 through 5, described in Sections 5.4.3 through 5.4.8, would proceed.

Additionally, CEQ NEPA regulations at 40 CFR 1502.14 state that the alternatives analysis shall include an alternative of taking no action. In the case of the federal agency action, "no action" would mean that MBNMS would not authorize those portions of the proposed project or alternatives that would occur in the sanctuary. Where a choice of "no action" by the agency would result in predictable actions by others, this consequence of the "no action" alternative should be included in the analysis. Without MBNMS authorization, the proposed project and alternatives could not take place. Therefore, for purposes of this EIR/EIS, the CEQA No Project Alternative and the NEPA No Action Alternative, are the same.

5.4.2.1 Overview

Under the No Project Alternative, the CPUC would not issue a CPCN for the MPWSP or another alternative; MBNMS would not issue authorizations or special use permits for the components of the project within MBNMS, and no facilities would be constructed. CalAm would continue to operate its Monterey District facilities in compliance with the 2009 SWRCB Cease and Desist Order (CDO) as amended by SWRCB Order WR 2016-0016 (together referred to herein as the Revised CDO, described in more detail below) and the Seaside Groundwater Basin Adjudication.[1] Under the No Project Alternative, CalAm would have an estimated 6,380 afy of potable water available long-term for delivery within its service area from existing sources. The components of the No Project Alternative (i.e., changes compared to baseline conditions) that are the basis for analysis of its impacts in this EIR/EIS are as follows:

[1] The April 2015 MPWSP DEIR included two No Project Alternatives: No Project A was consistent with the CDO at the time; No Action B included an extension of the CDO timeframe. The No Project alternative in this EIR/EIS is consistent with the Revised CDO.

- Reduction in total water supply available to serve CalAm's Monterey District. CalAm's current supply is approximately 11,840 afy, and total long-term supply under the No Project Alternative would be 6,380 afy.
- Between 2018 and 2021, curtailed diversion limits from the Carmel River system of 7,310 to 4,310 afy compared to current rate of pumping (8,310 afy);
- Reduction in pumping from Seaside Groundwater Basin from current operating yield of 2,200 afy to a safe yield of 1,474 afy; and
- Implementation of Revised CDO Stage 3 Conservation Measures and Stage 4 Rationing.

Additionally, the analysis of the No Project Alternative considers the following differences compared to the proposed project; however, these are not considered direct or indirect impacts of the No Project Alternative because they do not represent a change from baseline conditions; rather, they represent avoided impacts or benefits not realized, and are discussed for purposes of comparison:

- No construction;
- No increase in total water supply to the estimated 16,430 afy with the proposed project;
- Between 2018 and 2022, 10,000 total fewer acre-feet of water diverted from Carmel River to customers;
- No increase in the Aquifer Storage and Recovery Project (ASR) reliable yield from 1,100;
- Continuation of moratorium on new water permit applications; and
- No "payback" to the Seaside Groundwater Basin.

A comparison of the components of the No Project Alternative to existing conditions and to the proposed project is provided in **Table 5.4-2**. These components are described in more detail in Sections 5.4.2.2 and 5.4.2.3.

5.4.2.2 Construction

Under the No Project Alternative CalAm would not build any MPWSP facilities. Therefore, none of the construction described for the proposed project in Section 3.3 of Chapter 3, Description of the Proposed Project, would occur.

5.4.2.3 Operation and Maintenance

Under the No Project Alternative, the concept of "operation and maintenance" refers to CalAm's ongoing operation of its Monterey District water supply and distribution system with the water supplies and demands that are predictable based on applicable restrictions and regulations and other factors affecting both supply and demand. This section describes the estimated deficit in water supply compared to demand, the actions and circumstances that could affect that estimate, and the actions that would be triggered by that deficit in order to maintain essential water supply and comply with regulations (i.e., the conservation and rationing requirements described below).

TABLE 5.4-2
COMPARISON OF THE NO PROJECT ALTERNATIVE TO EXISTING CONDITIONS AND THE PROPOSED PROJECT

Existing Conditions	Proposed Project	No Project Alternative
Construction		
n/a	Construction of MPWSP components as described in Chapter 3	No construction; no change from existing conditions
Operations		
8,310 afy diverted from Carmel River system	8,310 afy diverted until January 2022; 3,376 afy thereafter	8,310 afy reducing by 1,000 afy per year from 2018 to 2022; 3,376 afy thereafter Total of 10,000 af less water diverted from river between 2018 and 2021 compared to proposed project
Pumping of 2,200 afy from Seaside Basin	Pumping of 774 afy from Seaside Basin for 25 years; 1,474 afy thereafter 17,500 af payback to basin over 25 years	Pumping from Seaside Basin reducing to 1,474 afy by 2021 No payback
ASR reliable yield of 1,100 afy	ASR reliable yield increased to 1,300 afy	No increase in ASR reliable yield*
Moratorium on new water service connections	Moratorium lifted	Moratorium continued
Stage 1 and 2 Conservation Measures in place	Stage 1 Conservation Measures continued Stage 2 Conservation Measures may sunset when conditions met	Stage 1 and 2 Conservation Measures continued Stage 3 Conservation Measures and Stage 4 Rationing implemented

NOTES:
* The separate Monterey Pipeline and Pump Station project, described as project No. 60 in Table 4.1-2 in Section 4.1, would increase the ability to convey ASR water to approximately 1,300 afy when completed. This is not a component of the No Project Alternative, but is considered a project in the cumulative scenario relevant to this alternative.

Supply Shortages

Baseline water demand in the service area is approximately 12,270 afy as shown in Table 2-3 in Chapter 2. Under the No Project Alternative, no increase from baseline water demand would be reasonably predictable. Because the MPWSP or an alternative new water supply would not be implemented, this scenario assumes that potential demands associated with Pebble Beach water entitlements, hospitality industry rebound, and legal lots of record could not be served, and thus are not counted among demands under the No Project Alternative. This scenario also assumes that there would be no "payback" to the Seaside Groundwater Basin of the amount of water CalAm has pumped in excess of its adjudicated right. That is, given that the commencement of the basin replenishment (or payback) is contingent upon having a new water supply to augment existing sources;[2] it is assumed that under this alternative, CalAm's basin replenishment obligation would be delayed indefinitely due to the lack of sufficient supply.

[2] As discussed in Chapter 2, Section 2.2.4, CalAm is required to replenish the quantity of groundwater it has produced in excess of its adjudicated right in the period since the groundwater basin was adjudicated. CalAm's commitment to replenish the groundwater basin is based on a 2008 Memorandum of Understanding between CalAm and the Seaside Groundwater Basin Watermaster that calls for CalAm to commence replenishment on a feasible schedule upon completion and implementation of a water supply augmentation project. In 2014, CalAm and the Watermaster agreed to a replenishment schedule of 25 years at a replenishment rate of 700 afy upon completion and implementation of the MPWSP. CalAm's production from the basin during the replenishment period under the MPWSP would therefore be limited to 774 afy for 25 years. This replenishment would not occur under the No Project Alternative.

During the Revised CDO extension period under the No Project Alternative, CalAm's available supply of potable water to serve the Monterey District would decrease from 11,314 afy to 6,380 afy between 2017 and 2021. Supply would consist of the following existing sources:

- Continued use of Carmel River system water in compliance with SWRCB Order 95-10 and the Revised CDO; water supply of 8,310 afy, reduced by 1,000 af each October from 2018 through 2021, and 3,376 afy thereafter (*i.e., the Effective Diversion Limit; see Table 5.4-2 for difference between proposed project and No Project Alternative by water year*);
- Continued pumping of 1,474 afy from the Seaside Groundwater Basin (*in accordance with the Seaside Groundwater Basin adjudication; compared to 774 afy under the proposed project during 25-year replenishment period, and 1,474 afy thereafter*);
- Continued use of approximately 230 afy provided by Sand City's existing desalination plant (*same as proposed project*); and
- Continued use of 1,100 afy from the existing Phase I and II projects of the ASR system (*compared to improvement to 1,300 afy from proposed project ASR upgrades*).

SWRCB Order WR 2016-0016 extends the date by which CalAm must terminate all unlawful diversions from the Carmel River from December 31, 2016, to December 31, 2021. The Revised CDO set an initial diversion limit of 8,310 afy for Water Year 2015-2016 (October 1, 2015 to September 30, 2016) and established annual milestones that CalAm must meet in order to maintain the 8,310 afy diversion limit through 2021. Meeting the milestones would demonstrate tangible progress in developing an alternative water supply that will enable CalAm to reduce and terminate its unlawful diversions. If CalAm fails to meet a milestone in any given water year, the Revised CDO specifies that the annual diversion limit will be reduced by 1,000 afy for each of the following water years. The 1,000 afy reduction is only further reduced if another milestone is not met. Because five of the seven milestones require (or consist of) MPWSP approval, they would not be achievable under the No Project Alternative (which by definition assumes that the MPWSP would not be approved). Therefore, between 2016 and 2021, CalAm's diversions from the Carmel River would be reduced as shown below in **Table 5.4-3**. The analysis assumes that CalAm would achieve the milestones related to the Pure Water Monterey Groundwater Replenishment Project (GWR Project), which do not depend on MPWSP approval. Thus, based on the assumptions regarding Revised CDO milestones shown in the **Table 5.4-3**, prior to December 31, 2021 CalAm's supply from the Carmel River would range from 8,310 afy in 2016 to 4,310 afy at the end of 2021, and consist of its legal limit, 3,376 afy, thereafter.

In addition to the above-listed existing sources of water, the approved GWR Project, if fully implemented, could provide additional supply to the Monterey District. The GWR Project is separate from MPWSP and is considered a reasonably foreseeable project in the cumulative context for the No Project Alternative, but is not a component or consequence of this alternative, and therefore is not considered further in this subsection as a potential source of supply. See Section 5.4.2.4, Ability to Meet Project Objectives.

TABLE 5.4-3
ANTICIPATED CARMEL RIVER SYSTEM WATER SUPPLY UNDER THE NO PROJECT/ NO ACTION ALTERNATIVE BASED ON ORDER WR 2016-0016

Water Year	Milestone	Milestone Feasible / Assumed to Be Met under No Project / No Action?	Assumed Diversion Limit under No Project / No Action (afy)	Assumed Diversion Limit under Proposed Project (all milestones met; afy)	Date Reduction Assessed
2015-2016	CPUC approval of (1) Water Purchase Agreement for GWR Project water and (2) construction of CalAm components of the GWR Project conveyance facilities (the Monterey Pipeline and Pump Station)	Yes[a]	8,310	8,310	12/31/2016
2016-2017	Construction of the Monterey Pipeline and Pump Station commences	Yes[a]	8,310	8,310	Oct 1, 2017
2017-2018	CPUC Issuance of CPCN for MPWSP	No[b]	8,310	8,310	Oct 1, 2018
2018-2019	Construction of MPWSP desalination plant commences	No	7,310[c]	8,310	Oct 1, 2019
2019-2020	Completion of at least one source water production well; partial completion of other MPWSP components	No	6,310[c]	8,310	Oct 1, 2020
2020-2021	Additional progress on MPWSP production wells and other components	No	5,310[c]	8,310	Oct 1, 2021
2021-2022 and beyond	Substantial completion of MPWSP, allow delivery of MPWSP water	No	4,310 – 3,376[d]	8,310 to 3,376[d]	NA

NOTES: NA = Not applicable

[a] The milestones related to the GWR Project, which do not depend on MPWSP approval, have already been achieved.

[b] Issuance of a Certificate of Public Convenience and Necessity (CPCN) would constitute project approval, which is not assumed under this alternative.

[c] The City of Pacific Grove Local Water Project (No. 22 in Table 4.1-2 in Section 4.1) and the Monterey-Pacific Grove Area of Special Biological Significance (ASBS) Stormwater Management Project (No. 45 in Table 4.1-2 in Section 4.1) are recognized in the CDO as an available water supplies that if developed by Pacific Grove, would offset the required reductions resulting from a missed milestone, one acre foot for every acre foot offset by the use of recycled water. These projects could provide up to 192 afy in offset demand

[d] This analysis assumes a diversion limit of 4,310 afy through December 31, 2021 and diversions of only 3,376 afy, CalAm's legal entitlement, thereafter.

SOURCE: SWRCB, 2016.

The No Project Alternative water supplies of 11,314 afy through September 2018, reducing to 6,380 afy by January 2022, could not serve the baseline demand of 12,270 afy. It is assumed that CalAm would continue its implementation of existing conservation programs and measures, described in Appendix K, with the same intensity as under existing conditions. Because these programs and measures, such as limiting losses from aging pipes, are existing and ongoing efforts, they are not considered a component of the No Action Alternative, but do provide context for potential further reductions in demand compared to baseline. Estimates of the effect of these ongoing programs on baseline demand are provided in Appendix K to the extent that they can be quantified. As described in Appendix K, the expected reduction in demand by 2021 from these

ongoing conservation and demand management measures is approximately 1,125 afy, resulting in a total estimated long-term demand of approximately 11,145 afy (i.e., 12,270 afy less 1,125 afy).

Monterey Peninsula Water Conservation and Rationing Plan Actions

Even with the potential reductions in demand between 2016 and 2021 described above, CalAm's available supply would not be able to meet estimated demand during any water year under the No Project Alternative. The long-term available water supply totaling approximately 6,380 afy at the end of the Revised CDO extension period (2021) is roughly 6,050 afy less than or approximately 52 percent of the 2010 demand of 12,270 afy. Even assuming continued conservation efforts, this amount is roughly 4,900 afy less than or 57 percent of the total estimated demand of 11,145 afy anticipated by 2021 (reductions described above).[3] It is assumed that this deficit between available supplies and total demand under the No Project Alternative would trigger actions under MPWMD's 2016 Monterey Peninsula Water Conservation and Rationing Plan (Conservation and Rationing Plan) (MPWMD, 2016).

The Conservation and Rationing Plan, which comprises MPWMD Rules 160 to 167, requires (pursuant to MPWMD Rule 160) that MPWMD approve a physical storage target, as of May 1 each year, for the sources within the Monterey Peninsula Water Resources System (MPWRS)[4] and approve the distribution of monthly production from the water sources within the MPWRS on a quarterly basis. The production targets are based on production limits specified in SWRCB CDO Order WR 2009-006 and the Seaside Groundwater Basin Adjudication Decision. Triggers for Stages 2 and 3 Conservation and Stage 4 Rationing are determined, in part, by comparison of the annual available storage with storage that had been needed in the previous 12 months and comparison of the monthly production targets with actual monthly production. As with MPWMD's previous water conservation and rationing plan, Stage 1, Water Conservation: Prohibition of Water Waste (MPWMD Rule 162), remains in effect at all times and applies to all water users.

As noted, production targets are based on production limits specified in the CDO and the Seaside Groundwater Basin Adjudication. Therefore, under the No Project Alternative, production targets would be based on available supplies discussed above (i.e., no more than 3,376 afy from the Carmel River and 1,474 afy from the Seaside Groundwater Basin). Currently, actual production is more than 4,500 afy greater than the final Carmel River production limit of 3,376 afy. This analysis therefore assumes that actual production in the 12 months before the final CDO production limit takes effect would exceed the production target by more than 5 percent and trigger Stage 3 Water Conservation: Conservation Rates (MPWMD Rule 164), which could lead to Stage 4 Water Rationing (MPWMD Rule 165).

---

3 A comparison of available supplies under the No Project Alternative at the end of the Revised CDO extension period with the most recent demand year, 2015, reveals a smaller shortfall – 1,800 to 2,000 afy; however, since 2015 was the fourth year of a major drought, during which drought regulations were in effect and there was heightened awareness of drought conditions, this analysis considers the comparison with 2010 demand to more accurately reflect the difference between available supplies under the No Project Alternative and existing service area demand. This comparison does not include other demands CalAm proposes to meet with the MPWSP, such as legal lots of record and Pebble Beach entitlements (discussed in Section 2.3.3 of Chapter 2, Water Demand, Supplies, and Water Rights).

4 System storage includes storage in the Carmel Valley Alluvial Aquifer, the Seaside Groundwater Basin, and the Los Padres Reservoir.

Stage 3 Water Conservation involves implementation of two succeeding conservation rate levels. Level 1 consists of a 25 percent surcharge on then-existing rates and Level 2 (to be implemented after the imposition of Level 1 for three months, if the monthly production target continues to be exceeded) consists of a 40 percent surcharge. (Neither surcharge would apply to residential customers in the first tier of water usage.) Stage 4 Water Rationing could be triggered if Stage 3 is deemed unsuccessful or Stage 3 fails to sunset after a period of eight months. Stage 4 could also take effect if directed by a governmental or regulatory agency to enact Stage 4 (which is also the case for Stages 2 and 3). The Conservation and Rationing Plan specifies that Stage 4 shall not be triggered "if the General Manager determines upon credible evidence that production targets associated with the final Cease and Desist Order are likely to be met by adhering to the requirements of a lesser Stage."

Mandatory reductions established under Stage 4 would be equal to the shortfall (e.g., the amount by which the last 12 months' actual production exceeded the then-current production target) or another amount reflected in a governmental or regulatory order. Stage 4 rationing measures could include:

- prohibitions on all or specified non-essential water uses;
- a moratorium on accepting water permit applications;
- a prohibition against new water service;
- suspension of annexations to CalAm's service area;
- restrictions on watering and irrigating; and
- requirements for specific reductions in residential water use.

Summary

Impacts related to a No Project Alternative could result in severely supply-constrained conditions in CalAm's Monterey District. Existing conservation programs would continue to be implemented and new conservation and rationing measures would be required in an attempt to balance out the severe supply shortfall following Carmel River diversion curtailments under the Revised CDO in 2018 through 2021. Given the limited water supplies, it is assumed this alternative would trigger Stage 3, Conservation Rates, and very possibly Stage 4, Rationing Measures, of the Monterey Peninsula Water Conservation and Rationing Plan.

5.4.2.4 Ability to Meet Project Objectives

Ability to Meet Project Objectives under Baseline Conditions

The No Project Alternative would fail to meet almost all of the key objectives of the MPWSP. This alternative would achieve compliance with the Revised CDO and Seaside Basin Adjudication, but would not provide a replacement water supply in order to do so. The available potable water supply under the No Project Alternative at the end of the Revised CDO extension period would be approximately 6,380 afy. This represents approximately 52 percent of 2010 demand and approximately 57 percent of estimated demand after implementation of foreseeable demand management efforts described in Section 5.4.2.3 and Appendix K. This alternative would

not provide supply to allow for replenishment of water that CalAm previously pumped from the Seaside Basin in excess of CalAm's adjudicated right; would not provide water supply reliability; and would not provide supply for Pebble Beach water entitlement-holders, for the development of vacant legal lots of record, or to meet demand resulting from economic rebound of the hospitality industry (see Section 2.3.3, Other Service Area Demand Assumptions, for a discussion of these demands). The limited available water supply would trigger rationing measures and could lead to water shortages throughout the CalAm Monterey District service area.

Ability to Meet Project Objectives Assuming Implementation of the GWR Project

As noted above in Section 5.4.2.1 and shown in **Table 5.4-2**, the Carmel River supply that is assumed to be available during the Revised CDO extension period under the No Project Alternative is based on the assumption that the Revised CDO milestones pertaining to the GWR Project (which do not depend on MPWSP approval) would be met, and as of publication of the Draft EIR/EIS, these milestones have been met. The GWR Project, when constructed, would provide 3,500 of potable supply for the CalAm service area. With the GWR Project supply, total supplies available to CalAm at the end of the Revised CDO extension period would total about 9,880 afy, which is about 81 percent of 2010 demand and approximately 89 percent of estimated demand after implementation of foreseeable demand management and offset programs and other planned projects described in Section 5.4.2.3. Although this volume of supply would be much closer to the existing demand, the No Project Alternative in combination with the GWR Project would fail to meet most project objectives. While this scenario would achieve compliance with the Revised CDO and the Seaside Groundwater Basin Adjudication, even in combination with the GWR Project, the No Project Alternative would not provide supply to allow for replenishment of water that CalAm previously pumped from the Seaside Basin in excess of CalAm's adjudicated right; would not provide water supply reliability; and would not provide supply for Pebble Beach water entitlement-holders, for the development of vacant legal lots of record, or supply to meet demand resulting from economic recovery and rebound of the hospitality industry. In addition to failing to provide sufficient supply to meet the average annual demand assumed in MPWSP planning, the No Project Alternative combined with a GWR Project water purchase agreement would not provide sufficient supply flexibility to meet most peak demands.

5.4.3 Alternative 1 – Slant Wells at Potrero Road

5.4.3.1 Overview

This alternative is based on the screening of individual project components conducted in Section 5.3, Alternatives Development and Screening Process. Alternative 1 would supply seawater to the proposed 9.6 mgd desalination plant located at the Charles Benson Road site using the same type of subsurface intake system as the proposed project, but at a different location (described in Section 5.3.3.2, Intake Option 3 – Subsurface Slant Wells at Potrero Road). The desalination plant, brine discharge, product water conveyance pipelines and ASR components would be identical to the proposed project described in Chapter 3. Therefore, the description of Alternative 1 focuses on the locations for the intake system and source water pipelines that are different from the proposed project.

This alternative would include the decommissioning of the test slant well at Cemex, and construction of 10 subsurface slant wells in the beach parking lot at the west end of Potrero Road in northern Monterey County, near the southern border of the unincorporated community of Moss Landing (see **Figure 5.4-1**). The Potrero Road beach parking lot, which is owned and operated by the California Department of Parks and Recreation (California State Parks), lies within the coastal zone. The LCP land use plan designation for lands adjacent to the Potrero Road parking lot is Scenic and Natural Resource Recreation. The zoning designation of lands adjacent to the parking lot is Open Space Recreation (OR).

The slant wells would be grouped in two clusters, with five wells in each cluster and buried in the parking area, below the hardened sand parking surface. The wellheads would be located above the maximum high tide elevation and encased in a concrete vault that could be up to 20 feet wide, 30 feet long and 10 feet deep, and buried 5 feet below grade. The concrete vault would provide maintenance access to the well heads and pumps. The slant wells would be designed as pumping wells (i.e., each well would be equipped with an electric submersible pump) and would extend 220 to 535 feet seaward of the mean high water line (MHWL), terminating approximately 120 to 150 feet under the seafloor in Monterey Bay, within the submerged lands of MBNMS.

The electrical controls for the slant wells would be located at the edge of the parking lot. The electrical control building, the only above-ground structure, would be approximately 4 feet wide, 12 feet long, and 6 feet high. Overhead electrical lines would extend from the electrical control building to Potrero Road and east along the north side of Potrero Road to connect with the existing Pacific Gas and Electric (PG&E) power line on Potrero Road.

A short, 36-inch-diameter collector pipeline would convey the seawater from the slant well clusters to a source water pipeline that would be constructed within Potrero Road. The source water pipeline would be located within existing rights-of-way to convey seawater to the desalination plant at Charles Benson Road.

The source water pipeline would extend directly east from the parking lot -- south of and parallel to Potrero Road -- continue south along Highway 1, south/southeast along Molera Road, and southwest along Monte Road to the desalination plant site on Charles Benson Road (**Figure 5.4-1**). Other than the source water pipeline, which would result in approximately 5.5 miles of additional pipeline, all other pipelines would be the same as the proposed project.

5.4.3.2 Construction

All onshore construction activities and disturbance would occur in the parking lot at the western terminus of Potrero Road, and would not disturb the dunes or active beach area. Slant well construction would occur year-round and the entire parking lot, measuring less than one acre, would be closed during construction of the slant wells and associated infrastructure. The slant wells would be designed using similar materials, size and construction methodology as the proposed slant wells for the MPWSP. The boreholes would be approximately 900-1,000 feet long and drilled at an angle of 10 degrees below horizontal across the shallow Dune Sand Aquifer and the deeper Perched “A”

NOTES:
* See Subsection 7.10 for a description and analysis of this Alternative Salinas Valley Return option.

SOURCE: ESA, 2015

205335.01 Monterey Peninsula Water Supply Project

Figure 5.4-1
Alternative 1- Slant Wells at Potrero Road

This page intentionally left blank

Aquifers; the Perched "A" Aquifer is underlain by the relatively impermeable Salinas Valley Aquitard. The length of the wells and screen section intervals would depend on the aquifer materials encountered, and would extend under MBNMS submerged lands. The slant wells would be completed using up to 22-inch-diameter casings and up to 12-inch-diameter stainless steel screens. Effluent generated during construction and development of the slant wells would be placed in Baker tanks to allow sediment to settle out, and then discharged into a buried diffuser system in the parking lot for percolation into the underlying beach sands. Cuttings generated during the drilling process and the well head construction would be drained in a separation unit, with the drainage discharged to the buried diffuser. The dewatered cuttings (estimated at less than 200 cubic yards) would be hauled offsite for final disposal at an approved site.

Electrical power for pumping operations would be provided by connecting to PG&E's existing service at the Potrero Road site, located at the northeast corner of the parking lot. New power poles are anticipated to be installed by PG&E to reach the well site. A buried electrical conduit would be installed to convey power from the northwestern most power pole to an above ground 4 feet long, 2 feet wide, and 6 feet tall electrical control panel.

Alternative 1 would require the use of horizontal directional drilling (HDD) techniques to install pipeline underneath the Old Salinas River, Tembladero Slough, and the Salinas River. HDD is described in Section 3.3.4.3 of Chapter 3, Description of the Proposed Project. Other than the extended source water pipeline, all other pipelines would be constructed in the same manner and at the same locations as the proposed project.

5.4.3.3 Operation and Maintenance

Operation and maintenance requirements would be similar to that of the proposed project intake wells, except that they would occur at the Potrero Road location. All other aspects of operations and maintenance of the slant wells under Alternative 1 would be the same as the proposed project (see Sections 3.3 and 3.4 of Chapter 3, Description of the Proposed Project).

5.4.3.4 Ability to Meet Project Objectives

Alternative 1 would contain the same elements as the proposed project and would produce the same volume of product water. However, because of the hydrogeology of the Potrero Road area, Alternative 1 would draw a greater volume of water from the Salinas Valley Groundwater Basin than the proposed project. In the event the Salinas Valley Return Water obligation is determined to be 12 percent (the highest return value simulated), Alternative 1 would meet the need for replacement supplies and meeting peak month demand, but limited supply would be available for other uses, including accommodating tourism demand under recovered economic conditions. Alternative 1 would not provide sufficient supplies to serve existing vacant legal lots of record and would therefore, not meet the project objective/need for water, some of which was to support limited growth (e.g., Objective 6).

5.4.4 Alternative 2 – Open-Water Intake at Moss Landing

5.4.4.1 Overview

This alternative is based on the screening of individual project components conducted in Section 5.3, Alternatives Development and Screening Process. Alternative 2 would supply seawater to the proposed 9.6 mgd desalination plant located at the Charles Benson Road site using a screened open-water intake system located offshore and southwest of the Moss Landing Harbor entrance (described in Section 5.3.3.6, Intake Option 9 – Screened Deep-water Ocean Intake at Moss Landing). The existing test slant well would be decommissioned, and except for an additional 6.5 miles of source water pipeline, the desalination plant, brine discharge, new Desalinated Water Pipeline, new Transmission Main, and ASR components would be identical to the proposed project described in Chapter 3, Description of the Project. The Castroville Pipeline, Pipeline to Castroville Seawater Intrusion Project (CSIP) Pond, and operational components related to delivering water to Castroville Community Services District (CCSD) would not be implemented. Therefore, the description of Alternative 2 focuses on the intake system and source water pipelines that are different from the proposed project.

Open Ocean Intake System

The intake system would consist of a new intake structure in the Monterey Submarine Canyon to draw in raw seawater from the waters of MBNMS, intake piping to deliver the seawater to the shore, and an onshore intake pump station to pump the seawater to the desalination facility.

The proposed intake structure would be located on the sea floor within a ravine near the head of the Monterey Submarine Canyon, southwest of the Moss Landing Harbor entrance (see **Figure 5.4-2**) in MBNMS. The intake structure would be installed at the end of a new subsurface intake pipeline at the point where it emerges from below the sea floor approximately 1,300 feet offshore from the mean high water line (MHWL) at a depth of approximately 156 feet below mean lower low water (MLLW), in the waters of MBNMS.

The intake structure would consist of a 36-inch diameter pipeline mounted with concrete pipe supports on a reinforced concrete pad fixed to the sea floor with screw-type anchors. The intake structure would be connected to the intake pipeline with flexible couplings and would have three wedgewire screen assemblies; each assembly would have two screens. The passive narrow-slot wedgewire screens would have a 1-millimeter (mm) slot size, and the screened intake water velocity would be at or below 0.5 feet per second.

Intake Pump Station and Source Water Pipeline

Seawater would be conveyed approximately 3,600 feet from the intake structure to an onshore pump station via a 36-inch-diameter subsurface intake pipeline. A partially buried intake pump station located near the end of the railspur (on Dolan Road near SR-1) would pump the seawater to the proposed desalination plant on Charles Benson Road through a 36-inch-diameter source water pipeline. The approximate 8-mile-long pipeline alignment from the intake pump station at Moss Landing would extend west along Dolan Road to Highway 1, continue south along Highway 1, then

SOURCE: ESA, 2015

205335.01 Monterey Peninsula Water Supply Project

Figure 5.4-2

Alternative 2 - Open Water Intake at Moss Landing

This page intentionally left blank

south/southeast along Molera Road, then southwest along Monte Road to the desalination site on Charles Benson Road.

5.4.4.2 Construction

Under Alternative 2, construction of the intake system would be different than the proposed project, but the construction of the desalination plant, brine discharge facilities, product water conveyance pipelines and ASR would be the same. The open-water intake pipeline would be installed subsurface using HDD from the intake pump station. The existing railspur and underlying embankment would be removed, and the site would be graded to the final elevation of the intake pump station. The HDD entry pit would be within the footprint of the intake pump station. A surface-launched drill rig would drill a pilot bore to the intake structure location. The pilot bore would be enlarged to the size required for the intake pipe by using a back reamer(s). The pipe would likely be assembled on barges, lowered to the sea floor and pulled back through the borehole during the final reaming process.

At the breakout face where the pipeline emerges from the sea floor, a reinforced concrete pad would be secured to the ocean floor. The sea floor may need to be prepared below the concrete pad, using suction and/or mechanical techniques. The amount of sea floor material to be removed would depend on the local changes in bathymetric grade; excavated materials would be transferred to a barge and disposed of in a suitable area onshore or offshore.

Embedment type anchors are currently anticipated to be set into the sea floor to secure the concrete pad. Once the anchors have been installed, the intake structure would be placed on the sea floor. The entire assembly would be built offsite and transported to the intake structure location, then lowered to the sea floor by crane and set into place by divers. Alternatively, the intake structure could be assembled in place by divers as needed using modular components that are fabricated offsite then barged to the site. Once the intake structure has been installed, a prefabricated section of pipe would be used to connect the intake structure to the sub-sea floor pipeline.

5.4.4.3 Operation and Maintenance

Under Alternative 2, operation and maintenance of the desalination plant and product water pipelines would be similar to the proposed project. However, the intake system, including the pretreatment filters, would require increased maintenance due to the increased particulates in the open ocean intake water compared to water drawn through a subsurface intake. The intake screens would require manual cleaning approximately once per year, over a two day period, using divers. The seawater intake pipeline maintenance would involve pigging; the pig has an abrasive coating that scrubs the pipeline walls, removing any buildup of ocean sediments, mineral deposits, and bio-growth. The pigging process would take approximately three days, it would be confined to the interior of the pipeline, the intake would be out of service during maintenance and material removed during maintenance would be released into the ocean.

5.4.4.4 Ability to Meet Project Objectives

Alternative 2 would meet most of the project objectives because it contains most of the same elements as the proposed project and would produce the same volume of product water. However, the intake would be located farther north at a location that CalAm does not currently control, resulting in the construction of additional length of source water pipeline. It would also result in additional permitting complexity associated with the construction and operation of an open-water intake due to entrainment and impingement of marine organisms. The increased permitting complexity may delay the availability of the supply relative to the State Board's CDO, delaying the ability to serve water to meet project objectives 1 through 7.

5.4.5 Alternative 3 – Monterey Bay Regional Water Project (MBRWP or DeepWater Desal Project)

Alternative 3 is the Monterey Bay Regional Water Project (MBRWP or DeepWater Desal), which is being proposed by DeepWater Desal, LLC. The DeepWater Desal project will be evaluated in a separate EIR/EIS being prepared by the California State Lands Commission (as the CEQA Lead Agency) and MBNMS (as the NEPA Lead Agency). The California State Lands Commission and MBNMS issued a joint Notice of Preparation/Notice of Intent of a Draft EIR/EIS for the MBRWP project[5] on June 1, 2015 (CSLC, 2015). For the purposes of this EIR/EIS, it is considered as an alternative to the proposed project and the description herein is based on information received from MBNMS. The evaluation of this alternative in this EIR/EIS is based on information available publically, information provided by MBNMS, and the independent judgement of the analysts using the best available information. More detailed analyses of the DeepWater Desal project will be forthcoming in the separate EIR/EIS and will be based on technical studies that were not available at the time this EIR/EIS was being prepared. The approach to analysis of the impacts of the DeepWater Desal project in this EIR/EIS is intended to be reasonable so as not to over- or under-state impacts, but also draws conservative conclusions where information is currently unavailable.

5.4.5.1 Overview

Alternative 3 includes the construction and operation of a screened open ocean intake system, a seawater desalination facility, a co-located data center, and associated components to provide up to 25,000 afy of potable water and data transmission and storage services. Alternative 3 would be developed to meet a regional need for water, and CalAm would be one of several customers, or off-takers, of the supply. CalAm would decommission the test slant well at CEMEX, and purchase water from DeepWater Desal to serve the needs of their customers in the Monterey District. In addition to the facilities proposed by DeepWater Desal and an additional 6.5 miles of source water pipeline, the new Desalinated Water Pipeline, new Transmission Main, Highway 68 interconnection improvements, and ASR components would be identical to the proposed project described in Chapter 3, Description of the Proposed Project. The Castroville Pipeline, Pipeline to

[5] State Clearinghouse No.: 2015061001

CSIP Pond, and operational components related to delivering water to CCSD would not be implemented. Alternative 3 includes the following new components:

- Open ocean intake system;
- Brine discharge system;
- Seawater desalination facility;
- Product water distribution systems (e.g., pipelines);
- Data center and back-up power generation; and
- Substation

As shown in **Figure 5.4-3**, the new components of Alternative 3 would be located in the Moss Landing area of unincorporated Monterey County and offshore in the Monterey Bay. Each component is described below.

Open Ocean Intake System

Alternative 3 would include a new, screened, open-water intake system located offshore and southwest of the Moss Landing Harbor entrance. To produce 25,000 afy (22 mgd) of potable water, the desalination facility would need approximately 55,000 afy (49 mgd) of raw seawater (source water). The intake system would consist of a new seawater intake structure, intake piping to deliver the seawater to the shore, and an onshore intake pump station to pump the seawater to the desalination facility via transfer piping. The location of the seawater intake facilities would be the same as identified in Alternative 2. Also, the intake design would be similar to the intake facility design in Alternative 2, but the Alternative 3 structures would be larger (two intake pipes for Alternative 3 versus one intake pipe for Alternative 2) to accommodate a larger project. Additionally, the desalination plant for Alternative 3 is in a different location than Alternative 2, resulting in different source water and desalinated water pipeline alignments.

Intake Structure

As described for Alternative 2, the intake structure would be placed on the seafloor within a ravine near the head of the Monterey Submarine Canyon southwest of the Moss Landing Harbor entrance; its location would be approximately 1,300 feet offshore from the mean high water line (MHWL) at a depth of approximately 156 feet below mean lower low water (MLLW) in the waters of MBNMS.

The intake structure would be approximately 110 feet long, 30 feet wide, and 12 feet tall and would consist of two 42-inch diameter pipe manifolds; each would be mounted with concrete pipe supports on reinforced concrete pads that would be fixed to the seafloor with screw-type anchors. The intake structure pipes would be connected to the intake pipelines with flexible couplings to allow for some movement. Each intake structure pipe would have 6 screen assemblies for a total of 12 screen assemblies; each assembly would have 2 screens. The screen assemblies would draw seawater from the open ocean through fine-mesh passive narrow-slot wedgewire screens with a 1 mm slot size, and an intake water velocity at or below 0.5 feet per

second. The intake structures would be installed at the end of the subsurface intake pipelines at the point where they emerge from below the sea floor.

Intake Pipelines, Pump Station and Transfer Pipelines

The primary difference between the intake pipelines of this alternative and Alternative 2 is that this alternative includes two intake pipelines rather than one. Seawater would be conveyed approximately 3,600 feet from the intake structure to an onshore pump station via two 42-inch-diameter subsurface intake pipelines. The pump station would be located near the end of the rail spur on Dolan Road near SR-1.

The onshore 3,600-square-foot pump station would be constructed of concrete and would be mostly below-grade with an exposed stairway access hatch, equipment access hatch, and roof heating, ventilating, and air conditioning (HVAC) unit. The intake pump station would contain approximately four centrifugal intake pumps (three operating and one standby), each with a rated capacity of approximately 12,000 gallons per minute and with a discharge pressure of 150 pounds per square inch. Additional features of the intake pump station include a system for pipeline maintenance ("pigging"), cathodic protection, and a water quality sampling station. The only equipment above-grade would be transformers and an emergency backup power supply system that would be housed in a small building. A gravel access entrance to the intake pump station from Dolan Road would be provided, along with a small parking area. Security fencing would be built around the facility and a security gate would provide for controlled access to the pump station.

A chemical biofouling control system would be included in the design of the pump station, and would prevent biological growth on the walls of the seawater conveyance pipelines. If required, biofouling control would be accomplished by periodic addition of liquid sodium hypochlorite.

The onshore intake pump station would pump the seawater to the main facility site through two 36-inch-diameter transfer pipelines installed via conventional trenching under Dolan Road. The transfer pipelines would be approximately 5,800 linear feet or 1.1 miles in length extending from the intake pump station to the main facility site.

The intake piping system would include multiple manifold access points at the main facility site, from which cold seawater would be directed to individual data center buildings (described below) for use in cooling. From the data center buildings, the warmed seawater would be pumped back to the intake pipeline. Following the data center interconnections, the warmed seawater would flow into an interim warm water holding tank, with a capacity of approximately 350,000 gallons. From the holding tank, the warmed seawater would be pumped to the desalination facility by a booster pump station located within the data center boundary. The booster pump station would be designed at the same capacity and redundancy as the intake pump station.

SOURCE: ESA, 2015

205335.01 Monterey Peninsula Water Supply Project

Figure 5.4-3

Alternative 3 - Monterey Bay Regional Water Project

This page intentionally left blank

Brine Discharge Facilities

The desalination facility would generate approximately 30,000 AFY of brine as a result of the reverse osmosis treatment process and the discharge system would include the following three components:

- Brine pump station;
- Discharge pipelines; and
- Discharge diffuser structure.

Brine Pump Station and Discharge Pipelines

Brine would be discharged from the desalination facility to the offshore diffuser structure via two proposed subsurface 36-inch-diameter discharge pipelines. The discharge pipelines would be approximately 12,000 linear feet (2.3 miles) in length, extending from the desalination facility underground and would emerge from the sea floor northwest of the Moss Landing Harbor entrance. A brine pump system would be built at the desalination facility site to provide the required pressure and velocity at the discharge diffuser structure. The same HDD pit for the intake pipelines would be used for the discharge pipelines, which would be within the intake pump station footprint.

Discharge Diffuser Structure

The discharge diffuser structure would be located on the sea floor of Monterey Bay approximately 3,400 feet offshore from the mean high water line (MHWL at a depth of approximately 76 feet below mean lower low water (MLLW) (see Figure 5.4-3), where the two discharge pipes emerge from the sea floor. The ends of the two discharge pipes would create a confluence with a single 36-inch-diameter pipe manifold structure consisting of five separate standing pipe risers. Each riser would be fitted with a duckbill diffuser nozzle, capable of discharging a maximum of 5.45 mgd, for a combined discharge total of 27.26 mgd. The completed diffuser assembly would be about 140 feet long, 10 feet wide and 15 feet tall. The diffuser structure would be buried in riprap protective cover and ballast stone that would be placed up to the level of the diffuser, extend out a few feet in either direction, then descend down to the sea floor at a 4:1 horizontal to vertical slope. The ballast and armor stone may need to be keyed a few feet below the sea floor over a horizontal width of five feet. Approximately 8,000 cubic yards of armor ballast stone would be needed. Only the duckbill diffuser nozzles would extend above the protective cover.

Desalination Facility, Data Center, and Substation (Main Facility Site)

The Alternative 3 desalination facility, data center, and electrical substation components would be located in the Moss Landing area of unincorporated Monterey County. These facilities would be located on the south side of a 110-acre parcel off Dolan Road (main facility site). This parcel, also referred to as the East Tank Farm Parcel, is located on the north side of Dolan Road, approximately 1.5 miles east of Highway 1. The site is bordered by Dolan Road on the south, the

Moss Landing Power Plant (MLPP) on the west, and predominantly agricultural lands and the Elkhorn Slough to the north and east.

Desalination Plant

Alternative 3 would include the construction and operation of a desalination facility on the main facility site off Dolan Road. The facility would produce 25,000 afy of potable water from raw seawater and would generate 30,000 afy of brine concentrate (brine) as a by-product.

The desalination plant would house all of the equipment used for the desalination process, except for the seawater intake system, brine discharge system, and product (potable) water distribution systems. The desalination plant would provide the following primary systems:

- Heat-transfer process (housed at data center);
- Pre-treatment system;
- Desalination and energy recovery system;
- Solids/residuals handling systems;
- Post-treatment system; and
- Finished product water storage and pump station.

The details of these facilities and associated operations are explained below. Major buildings that would house these systems are identified in **Table 5.4-4**. Additional details on the RO process are provided in Section 3.2.2.2 of Chapter 3, Description of the Proposed Project.

Heat-Transfer Process

The intent of co-locating the desalination facility and the data center would be to cool the data center with seawater rather than conventional cooling methods, and to warm the seawater with data center waste heat prior to the RO treatment process.[6] Therefore, the initial step in the RO treatment process would include capturing heat from the data center through a closed-loop cooling system. The seawater routed through a heat exchanger prior to entering the desalination facility would be used to cool the data center buildings and as a result, the seawater would be heated for the RO treatment process.

Pre-Treatment System

After the heat transfer process and prior to desalination, the seawater would require filtration to remove suspended solids and organic matter that could foul the RO membranes. The pre-treatment system could consist of dissolved air flotation, flocculation/sedimentation system, or a dual-media primary filtration system followed by a single-stage, deep-bed, dual-media filtration system with sufficient redundancy. The pre-treatment requirements would be determined after additional source water sampling is conducted as part of obtaining the drinking water permit for

[6] Seawater warmed by heat from the data center would increase the efficiency of the desalination process (by making the membranes more malleable) and would therefore, reduce the energy required to operate the desalination facility.

TABLE 5.4-4
SUMMARY OF ALTERNATIVE 3 COMPONENTS CONSIDERED FOR ANALYSIS

Project Component	Component Characteristics	Quantity	Approximate Size	Maximum Height (in feet above grade)
Seawater Desalination Facility				
Pre-treatment systems	Dissolved air flotation, flocculation/sedimentation system, or a dual-media primary filtration system followed by dual-media filtration system.	1–2 buildings	TBD	35 feet
Backwash treatment system	Periodic backwashing of filters to remove accumulated solids.	1 building/enclosure	TBD	20 feet
Cartridge filtration system	Following pre-treatment, filtered water would pass through micron cartridge filters to capture residual matter. Systems include wetwell and pumps.	1 building	TBD	30 feet
Seawater reverse osmosis desalination and energy recovery system	Semi-permeable membranes to separate and concentrate salts from seawater, resulting in permeate (water that will become potable water) and a concentrated solution called brine. System includes pumps, treatment units, and energy recovery devices.	1 building	TBD	35 feet
Solids handling system	A lamella clarifier/solids settling system with integrated surge basin and either a belt filter press or centrifuges to achieve greater than 20% dry solids.	1 building/ enclosure	TBD	35 feet
Post-treatment system	Calcite or lime and carbon dioxide conditioning of SWRO permeate to adjust and stabilize pH. Includes a drawback tank and calcite contactors.	Multiple tanks	TBD	35 feet
Product water storage and delivery	Product water storage tanks, product water pump stations, and surge tank. Product water pump station discharges potable water into the distribution system.	1–2 finished water tanks 1–2 pump stations 1 surge tank	TBD	40 feet (finished water tank) 20 feet (pump station) 25 feet (surge tank)
Chemical storage and delivery	Fully contained bulk storage tanks.	1 building	TBD	30 feet
Transformer pad and MCC area	--	—	—	—
Control building	Control room, offices, bathrooms, storage, and maintenance shop.	1 building	TBD	35 feet
Parking	Desalination facility paved parking.	20 spaces	NA	NA

TABLE 5.4-4 (Continued)
SUMMARY OF ALTERNATIVE 3 COMPONENTS CONSIDERED FOR ANALYSIS

Project Component	Component Characteristics	Quantity	Approximate Size	Maximum Height (in feet above grade)
Seawater Intake System				
Intake structure	Located on the seafloor at a depth of approximately 156 feet, below mean lower low water (MLLW), would draw seawater from the open ocean in the MBNMS through fine-mesh screens (passive narrow-slot wedgewire screens with 1-millimeter slot size).	each structure consists of 2 pipes with 12 screen assemblies with 2 screens each that is screw-anchored to the sea floor and connected to an intake pipeline	110 feet long 30 feet wide	12 feet tall (above sea floor)
Intake pipelines	Convey seawater from the intake structure to onshore pump station.	2 pipelines	42-inch-diameter 3,600 linear feet	Below sea floor
Intake pump station	Draw seawater from the intake structure and pump it to the desalination facility.	1 building	3,600 square feet	Mostly below grade
Transfer pipelines	Transfer pipelines would carry the seawater from pump station to the desalination facility.	2 pipelines	36-inch-diameter 5,800 linear feet	Below grade
Brine Discharge System				
Brine discharge diffuser structure	Located on the seafloor at a depth of approximately 76 feet and would discharge brine into the MBNMS via a multi-jet linear diffuser designed to rapidly mix the brine with ocean water.	1 discharge structure consisting of 1 pipe with 5 separate pipe risers, each having a duckbill diffuser nozzle. Each structure is buried in riprap protective cover and ballast stone that would be placed up to the level of the diffuser	140 feet long 10 feet wide	15 feet tall (above sea floor)
Brine pump station	Located at the desalination facility, would provide required pressure and velocity at the discharge structure.	1 pump station	TBD	TBD
Discharge pipelines	Underground pipelines would convey brine from the desalination facility to the discharge diffuser structure in the ocean.	2 pipelines	36-inch-diameter 12,000 linear feet	Below grade
Product Water Distribution System				
Monterey Peninsula Distribution System	Pipeline that could transport 9 million gallons per day (MGD) of product water.	1 pipeline	36-inch-diameter	Below grade

TABLE 5.4-4 (Continued)
SUMMARY OF ALTERNATIVE 3 COMPONENTS CONSIDERED FOR ANALYSIS

Project Component	Component Characteristics	Quantity	Approximate Size	Maximum Height (in feet above grade)
Data Center				
Data center	Provides data transmission and data storage capabilities.	4 buildings	Approximately 1 million square feet	35 feet
Closed-loop cooling system	Each data center would include a closed-loop cooling system to provide air conditioning to offices and computer server areas.	4 (1 for each building)	NA	NA
Backup power supply	Back-up power generators to provide required redundant electrical power to data center and desalination facility in case of a full or partial loss of PG&E electrical services. Generators to be located in a generation plant building.	1 building 3 natural gas-fueled generators	10 megawatts (MW) each	35 feet (building)
Parking	Data center parking	138 spaces	NA	NA
Substation				
Substation	Provide a redundant supply of electric power.	1 substation	230 kV 137,000 square feet	40–50 feet
Switchgear building	House the switchgear assembly circuit breakers and associated substation auxiliary equipment.	1 building	960 square feet	12 feet
Control building	House other control and metering equipment.	1 building	800 square feet	12 feet
Electrical transmission facilities	Provide for interconnection to PG&E's transmission system located on the main facility site. Includes transmission lines, transmission towers, and underground circuits.	5 towers	NA	85–140 feet

NOTES:
TBD = To Be Determined at a later design stage
NA = Not Applicable

this alternative. The pre-treatment media filters would be designed to utilize filtered seawater or RO brine as a source of backwash water. Most of the backwash wastewater would be recycled through the backwash reclaim system. Following pre-treatment, filtered water would pass through micron cartridge filters that would capture any residual material not removed by the pre-treatment media filters. The product of the pre-treatment process is called feed water.

Desalination and Energy Recovery System

Approximately six to 10 RO pumps (plus one standby) would be used to pump the feed water through the reverse osmosis membranes. Each pump would have a rated capacity of approximately 1,600 to 2,500 gallons per minute. When the feed water is pressurized against the RO membrane surface, two resulting streams emerge: high-quality permeate (the water that would eventually become product or potable water) and concentrated brine. An integrated isobaric energy recovery system would recapture hydraulic energy. One complete standby RO unit and energy recovery system would be available to ensure reliable water treatment production.

Solids/Residuals Handling Systems

The pre-treatment filtration system would require periodic backwashing to remove accumulated solids retained by the filters. Filter backwash would be collected and treated in a backwash solids handling system consisting of a lamella clarifier/solids settling system with integrated surge basin, and either a belt filter press or centrifuges to achieve greater than 20 percent dry solids. The basin would be glass-lined bolted steel or concrete designed to contain sufficient backwash volume to stabilize feed flow to the solids settling system. A mixture of duplex stainless steel and thermoplastic valves, pipe, and fittings would be used throughout the system.

The RO membranes would require periodic cleaning in order to maintain efficiency. The cleaning process typically includes the use of a detergent in either an acid or base solution, depending on the nature of material being removed. Spent (used) membrane cleaning solution would be collected and neutralized prior to discharge into the brine discharge line or alternatively to the sanitary sewer, as determined by applicable regulation. The neutralization tank would have a capacity equal to one complete membrane-cleaning event and would be constructed of glass-lined bolted steel, fiberglass, or concrete. Approximately four membrane-cleaning events are anticipated annually.

Post-Treatment System

A portion of the reverse osmosis permeate would require post-treatment conditioning with calcite or lime and carbon dioxide for pH adjustment and stabilization, followed by disinfection. Sulfuric acid could be used to assist with calcite dissolution, and sodium hydroxide could also be used for pH control downstream of the calcite contactors. Calcite contactors are used to neutralize the pH and to add calcium and bicarbonates to the permeate. The post-treatment system would forward desalted permeate to the calcite contactors and then to the finished water storage tank for blending.

Final Product Water Storage and Pump Station

To provide sufficient retention time for complete disinfection, product water would be temporarily stored on site prior to being forwarded to the distribution pipelines. A distribution pipeline corrosion control inhibitor would also be added, if needed, to ensure that the final product water would be fully compatible with distribution pipeline materials.

The storage facilities would consist of one aboveground tank with provision for a second tank, if required; each with a maximum capacity of 5.5 million gallons. The tanks would be constructed of pre-stressed concrete.

The product water pump station would discharge potable drinking water for distribution. Approximately eight operating pumps and one standby pump would each have a rated capacity of approximately 1,900 gallons per minute and be capable of discharge pressures reaching 100 pounds per square inch to the distribution system.

Data Center

The data center (approximately 1 million square feet of total building space) would be located on the 110-acre main facility site off Dolan Road next to the desalination plant and would consist of the following three major components, which are described below:

- Data center buildings and a landing area;
- Closed-loop cooling system; and
- Back-up power supply.

Data Center Buildings and Landing Area

Four buildings and a landing area (a concrete pad and connection points for electrical and mechanical support) would make up the data center. A data center is made up of computer servers that provide the physical infrastructure to receive and store electronic data for people, businesses, and government entities that can be retrieved by those using the internet. The data center would include approximately 1 million square feet of total building space. Three data center buildings are planned and a fourth building would be a modular data center that could be constructed in the future.

Closed-Loop Cooling System

Each data center building would include a closed-loop cooling system designed to provide air-conditioning to both office and computer server areas of the buildings. In lieu of the chiller units and evaporative cooling systems typically employed for air conditioning, the data center buildings would use cold seawater to cool the buildings and systems.

A closed-loop heating and cooling system works through heat transfer. Hydronic piping would be routed throughout the data center to each air handling device. This piping would be a closed loop, meaning the same freshwater continues to recirculate through the system. The hydronic system would require an initial "charge" where the entire loop would be filled with water. This water

would likely be purchased from Pajaro Sunny Mesa Community Services District and imported to the data center. As water circulates through the closed loop, it would flow through heat exchangers where it would pick up heat from the facility. It would then circulate through a large heat exchanger through which the cold seawater would also be passing. Cold seawater would pass through a non-contact, tube-and-shell, or plate-style heat exchanger where it would collect heat from the data center cooling system. There would be no mixing of seawater with fresh cooling water, and no seawater piping would enter the data center facilities. After leaving the heat exchanger, the warmed seawater would be recombined with the desalination intake pipeline. No seawater would be lost to the heat transfer process.

The data center closed-loop cooling system within each of the four buildings would hold approximately 400,000 to 850,000 gallons of fresh water, for a total of approximately 2.5 million gallons for all four buildings. Prior to the initial charging, the fresh water may require treatment, such as softening and deionization, to remove hardness minerals that could result in scaling.

The closed-loop system would not be expected to consume water during normal operation. There would be incidental losses from system leaks and make-up water would be added during operation to keep the system fully charged. Annual maintenance would include replacing up to 20 percent of the closed-loop system capacity with fresh water. Water from the closed-loop system, whether captured from incidental losses or maintenance procedures, would be discharged to the sanitary sewer system, in compliance with any applicable pre-treatment requirements.

Back-Up Power Supply

Electrical service from the PG&E system would provide the main source of power for the data center and a new substation would be constructed on the main facility site (see below). Additionally, the proposed data center would include up to three natural gas-fueled back-up power generators, either gas turbines or reciprocating engines (each retrofitted with carbon/greenhouse gas [GHG] capture technology), to provide the required redundant electrical power in the case of a full or partial loss of electrical service from the grid. The generators would each be rated at up to 10 megawatts (MW) and would be located within a generator plant building. Natural gas fuel for the generators would be supplied by an existing PG&E-owned natural gas pipeline that is located in the main facility site. New service connection to this natural gas pipeline would be installed as part of the project. It is expected that each generator would be operated for no more than 1,500 hours per year.

Substation

The data center would require up to 150 MW of electrical power and the desalination facility and other site infrastructure would require an additional 25 MW of electrical power. A redundant supply of electric power would require constructing a new 230-kilovolt (kV) substation with a footprint of approximately 137,000 square feet.

The substation and five transmission towers (ranging from 85 to 105 feet above grade) would be built on the main facility site and would be designed to interconnect with PG&E’s transmission system through the 230 kV high-voltage power lines that run through a corridor located on the

main facility site. The interconnection and substation facilities would be designed to provide the redundant electrical power supply required to ensure power quality and reliability for operations. The preliminary design proposes an air-insulated substation enclosed in a metal structure so all conductors, instruments, switches, and breakers would be fully enclosed.

Product Water Conveyance

The DeepWater Desal proposal includes product water pipelines to supply three different areas: the Monterey Peninsula; Castroville and Salinas; and North Monterey and Santa Cruz Counties. It is assumed that up to an additional 25 miles of product water pipelines could be constructed to accommodate the product water that would not serve the Monterey Peninsula.

The desalinated product water would be delivered from the desalination plant site to the Monterey Peninsula via a 36-inch diameter pipeline. The pipeline would leave the desalination plant west along Dolan Road, south along Highway 1, south/southeast along Molera Road, southwest along Monte Road, to a connection point near the intersection of Monte Road, Lapis Road, and Charles Benson Road. The pipeline would then connect to the product water conveyance system described for the proposed project in Chapter 3, Description of the Proposed Project and shown on **Figure 5.4-3**.

Hydroacoustic Monitoring System

Alternative 3 would also include the construction and operation of a hydroacoustic monitoring system. The hydroacoustic information link (HAIL) monitoring system would allow for the collection of continuous water quality data for Project monitoring, and may also be useful for other research and/or academia needs that may be of interest pertaining to the Monterey Submarine Canyon. The system would repurpose an existing, abandoned Dynegy oil pipeline in Monterey Bay and consist of three primary components: transmitter(s), receiver; and, onshore processor. The transmitter would send low-rate hydroacoustic data to the receiver located at the end of the Dynegy pipeline. The onshore computer processor would receive the data from the receiver. The HAIL system would provide a reliable underwater data link for instruments located up to approximately 6 miles from the system receiver.

This component of DeepWater Desal's application is not substantively related to the proposed project objectives or purpose and need and therefore, the hydroacoustic monitoring system and associated facilities are not analyzed in this EIR/EIS.

5.4.5.2 Construction

Open Ocean Intake System

The 42-inch-diameter dual intake pipelines would be constructed subsurface using HDD from the intake pump station site to the offshore seawater intake structure location in Monterey Bay. The installation of the pipelines would include anchoring in place and installation of ballast.

The HDD entry pit would be within the footprint of the intake pump station on Dolan Road. Prior to installation of the intake pipelines, the railroad spur and underlying embankment would be removed, and the site graded to the final elevation of the intake pump station.

The HDD segment of the intake pipelines would traverse subsurface along the north side of Dolan Road, cross under Highway 1, the Moss Landing Harbor Channel, and Moss Landing Sand Spit within the discharge tunnel easement of the MLPP, and then to a point offshore where the pipelines would surface on the sea floor. The pipelines would also be at least 80 feet below the MLPP discharge pipe. Both intake pipelines would have similar elevations and would be separated by 10 to 20 feet along the alignment.

The HDD method uses a drill rig launched from an onshore location to drill a pilot bore to the intake structure location. The pilot bore would be enlarged by one or more back reamers to the size required for the intake pipe. It is assumed that the pipes would be assembled on barges, lowered to the sea floor and pulled back through the borehole during the final reaming process.

Construction of the intake structure would occur after installation of the pipelines has been completed. The bed of the intake structure may need to be prepared below the concrete pads. This would be accomplished using diver-assisted or lead dredging using suction and/or mechanical techniques. The amount of sea floor materials to be removed would depend on the local changes in bathymetric grade, but should be confined within the planned 120- by 50-foot area to accommodate the intake structure. Excavated materials would be transferred to a barge and disposed of in a suitable area onshore or offshore.

Embedment type anchors would be set into the sea floor to secure the concrete pads and would extend 10 feet below the seafloor. Given that sub-seafloor materials are soft, screw-type anchors would be installed and the intake structure would be placed on the seafloor. The entire assembly would be built off site and transported to the intake structure location, then lowered to the seafloor by crane and set into place by divers. Alternatively, the intake structure could be assembled in place by divers as needed using modular components that are fabricated off site then barged to the site. Once the intake structure has been installed, a prefabricated section of stiff or flexible pipe would be used to connect the intake structure to the sub-seafloor pipelines.

The 36-inch diameter transfer pipelines from the intake pump station to the desalination facility would be installed along the defined Dolan Road alignment within a conventional trench that is approximately 10 feet wide and 15 feet deep. Approximately 5 to 10 feet of cover would be provided between the top of the pipeline and roadway.

Brine Discharge Facilities

Installation of the five-jet linear diffuser would be similar to the intake structure since the diffuser structure would be supported on prefabricated concrete pads placed on the seafloor. The diffuser structure would be buried in riprap protective cover and ballast stone. The discharge pipelines would be constructed entirely subsurface except in the “breakout” location in the vicinity of the outfall structure on the shoulder of the Monterey Submarine Canyon. The same HDD pit used for

the intake pipelines (within the intake pump station site) would be used to install the offshore portions of the discharge pipelines. Using conventional trench methods (as described above), the pipelines would be buried under Dolan Road between the desalination facility and the HDD site.

The onshore pipeline segments would be constructed of fiberglass-reinforced plastic or similar non-metal material onshore and high-density polyethylene (HDPE) or flexible polyvinyl chloride (PVC) for the offshore pipeline segments.

Desalination, Data Center, and Substation Construction

Construction of the data center, desalination facility, and substation on the main facility site would take approximately 2 years to complete. Activities would include site mobilization, demolition, site preparation and grading, paving for parking and access routes, trenching and backfilling for underground yard piping, excavation and installation of foundations, construction of all structures, interior finishing, equipment installation, testing, and commissioning. Construction equipment used would be very similar to equipment used for the proposed project, as listed in **Table 3-4** of Chapter 3, Description of the Proposed Project. Approximately 60 acres of land on the main facility site could be disturbed during construction. The remainder of the 110-acre main facility site is located within a PG&E easement across the site, which would be subject only to improvements related to the interconnections of the substation with the PG&E transmission system and existing natural gas pipeline.

Product Water Conveyance

The product water distribution systems would also involve site mobilization, site preparation and grading, trenching and backfilling for underground piping, and paving where pipeline alignments would be located in paved roads to the connection point with the proposed project conveyance system. Construction activities for the product water conveyance system would be the same as described for the proposed project in Section 3.3 of Chapter 3, Description of the Proposed Project in addition to the 25 miles of pipeline needed to serve Salinas and areas in Santa Cruz County.

5.4.5.3 Operation and Maintenance

Seawater Intake System

The intake system would operate 24 hours a day, 365 days a year. Redundant screens on the intake structure and the dual intake pipelines would allow for the intake system to operate continuously, even during maintenance activities.

Screen sections for the intake structure could be removed entirely for maintenance purposes when needed and the end of each intake pipe could be removed to facilitate cleaning or pigging. The intake screens would be manually cleaned by divers once per year, which would take two days to complete.

Dual-intake pipes are proposed to provide for system redundancy and to maintain source water flows during pipeline maintenance. One screen/pipeline could be out of service for maintenance

while the other screen/pipeline system is in service. Annual pipeline maintenance would involve pigging to remove accumulated sediment and bio-growth. The pig has an abrasive coating that scrubs the pipeline walls, removing any buildup of ocean sediments, mineral deposits, and bio-growth.

Material removed during intake screen and pipeline maintenance would be released into the ocean at the screen location where manual screen cleanings are taking place or at the end of the intake pipeline where the pig is released. Wastes would not be disposed of elsewhere.

Brine Discharge Facilities

The brine discharge system would also operate 24 hours a day, 365 days a year. The dual discharge pipelines would allow for the discharge system to operate continuously even during routine inspections using closed-circuit television video. No other chemical- or mechanical-type cleaning system would be required.

Desalination Facility

The desalination facility would operate 24 hours a day, 365 days a year. The facility would be centrally operated from a computerized control system that would assist the facility staff in operating and monitoring the process equipment. The desalination facility would contain redundancy to facilitate periodic on-line maintenance of the individual treatment components with no reduction in facility output. However, approximately 18 days throughout the year, the facility could require reduced or no capacity for major maintenance or inspection purposes, such as those needed for State Water Resources Control Board, Division of Drinking Water Programs, compliance. This would result in an approximate annual plant availability of 95 percent, similar to the proposed project.

Chemical Storage and Use/Safety Procedures

Chemical use and storage would be similar to the proposed project (see Section 3.2.2.4 in Chapter 3, Description of the Proposed Project). Chemicals certified for use in drinking water treatment would be used in the desalination process to optimize pre-treatment filtration, ensure the correct water quality standards are met, and maintain the reverse osmosis membrane elements in a clean condition. Chemicals would also be used for stabilization and disinfection of the desalted product water to allow for distribution in a regulated potable water supply.

The chemicals would be delivered to the site in bulk quantities and stored in fully contained bulk storage tanks prior to use. All chemical storage, handling, and feed facilities would be designed, constructed, and maintained in compliance with all applicable governmental codes and regulations to ensure safe storage and handling.

Staffing

The desalination facility would be fully automated, but would be continuously staffed with a total of approximately 18 full-time employees spread over three shifts. Additionally, outside services

would be required from electrical, equipment, and instrumentation contractors, and the service industry.

Data center core staffing would require 20 employees during each 8-hour shift. Additional contracted staff and client visitors could add up to an additional 20 people during any 8-hour shift. If required, staggering shifts to avoid peak-hour traffic times could be accommodated as most scheduled maintenance would take place during non-peak load times late at night, on weekends, or during holiday shutdowns to minimize disruption.

Solid Waste Generation

The proposed desalination facility would generate waste from the solids produced in the pre-treatment process. These solids would be settled, dewatered, and ultimately disposed of in a solid waste landfill or other approved land application method. Approximately 8.5 tons per day, or 3,102 tons per year, of sludge would be generated from the pre-treatment process and would be hauled off the site for disposal. The solids would contain naturally occurring organic and inorganic matter removed from the raw seawater during the pre-treatment process and precipitated iron from coagulation dosing with ferric chloride, if needed. Other solid wastes generated would include used cartridge filters generated during routine maintenance activities. Spent reverse osmosis membranes are non-hazardous waste and would be disposed of in a landfill. The administrative activities at the facility and the data center would generate typical office wastes.

Electrical Power Consumption

The operating desalination facility would consume 12 to 16 MW of electric power to provide for desalination facility, intake system, discharge system, and product water distribution system operation. The data center would require 150 MW of electrical power to operate.

Water Use and Wastewater Generation

Potable water would be required for the main facility site breakroom/kitchen and restrooms, which would result in the demand for 2,300 gallons per day of water. Potable water would be supplied via a new water line connection to an existing potable water line located in Dolan Road. Product water from the desalination facility would not be used on site for domestic purposes. Sanitary waste would be routed to the Castroville Community Services District for delivery to MRWPCA. Peak flows associated with the discharge of water from the closed-loop cooling system would be expected to occur once a year and would be approximately 588,000 gallons.

Stormwater Drainage

Stormwater detention ponds would be installed along the north side of the main facility site to provide approximately 3.6 acre-feet of water quality treatment. The ponds would be planted with native plantings.

Fencing, Access, and Parking

The main facility site is surrounded by a 7-foot-high chain-link fence. The perimeter of the desalination facility would be similarly fenced and would include three-strand barbed wire. Facilities within the main facility site perimeter, such as the electrical substation, could have additional fencing for both safety and security reasons. The main entrance for the facility site would be through the existing access via controlled automatic gates, located on the south side of the site at the western terminus of Via Tanques Road near its intersection with Dolan Road. A new secondary entrance would be located on the western side of the site off of Via Tanques Road. Two parking lots would also be installed at the main facility site, with a total of 158 spaces for employee and visitor parking.

Lighting and Landscaping

Outdoor area lighting for the main facility site would consist of permanently mounted fixtures secured to structures, equipment, walls, and poles as required, providing access lighting for personnel and for security. The lighting system would be designed to provide nighttime lighting levels consistent with applicable standards.

The landscaping plan for the main facility site includes planting tall native screening trees around the perimeter of the site and around major buildings. Low to medium-height native grasses and shrubs would also be planted.

Product Water Conveyance

The product distribution pipelines would likely be owned by the water agency purchasing water from the project; CalAm would own the pipelines to the Monterey Peninsula and others would own the pipelines to Salinas and Santa Cruz County. Annual flushing, valve operation, and system integrity inspection would be expected. Product water distribution system maintenance activities would be the same as for the proposed project (see Section 3.4.3 of Chapter 3).

5.4.5.4 Ability to Meet Project Objectives

Alternative 3 would meet all of the project objectives and would produce the required volume of product water, but its permitting complexity may delay the availability of the supply relative to the State Board's Cease and Desist Order. The alternative includes an open-water intake and the placement of ballast rock on the sea floor, and the desalination facilities would be co-located with a data center. The alternative would produce more water than is needed for CalAm's Monterey District and those contracts would need to be negotiated. An additional 6.5 miles of product water pipeline would be required to connect the alternative to the proposed project's pipelines in Marina; 25 additional miles of product water pipelines are also required to deliver water to other customers. DeepWater Desal would need to complete its own project-specific EIR/EIS process, develop mitigation for the impingement and entrainment losses associated with the open water intake, receive the required permits (including authorizations from MBNMS) and enter into a water purchase agreement with CalAm. The water purchase agreement would need to be approved by the CPUC prior to delivery of product water to CalAm's customers in the Monterey

District service area. The increased permitting complexity may delay the ability to serve water to meet project objectives 1 through 7.

5.4.6 Alternative 4 – People's Moss Landing Water Desalination Project (People's Project)

Alternative 4 is the People's Moss Landing Water Desalination Project (People's Project), which is proposed by Moss Landing Green Commercial Park, LLC (MLGCP). The People's Project will be evaluated in a separate EIR that is being prepared for the Moss Landing Harbor District as the CEQA Lead Agency. The Moss Landing Harbor District issued a Notice of Preparation[7] for the People's Project on June 25, 2015 (Moss Landing Harbor District, 2015). It is possible that a joint EIR/EIS will be prepared for the project, with MBNMS as lead federal agency, if a complete application is submitted to the Sanctuary.[8] For the purposes of this EIR/EIS, this project is considered as an alternative to the proposed project and the description herein is based on information received from MBNMS in June 2016. The evaluation of this alternative in this EIR/EIS is based on information that was publically available, information provided by MBNMS, and the independent judgement of the analysts based on the available information. More detailed analyses of the People's Project will be forthcoming in the separate environmental review document(s) and will be based on technical studies that were not available at the time this EIR/EIS was being prepared. The approach to analysis of the impacts of the People's Project in this EIR/EIS is based on available information, and draws conservative conclusions where information is currently unavailable.

5.4.6.1 Overview

Alternative 4 includes decommissioning the test slant well at CEMEX, and the construction and operation of an open ocean intake system, a 12 mgd desalination plant and associated components to provide 13,400 afy of water supply to meet the current and future needs of the Monterey Peninsula area. The People's Project applicant has used CalAm's required need for replacement supplies and water needs of the General Plan Build-out to size this alternative. None of the project components would be the same as the proposed project except for the product water pipelines south of Neponset Road, at the point marked "connection to CalAm" on **Figure 5.4-4**. Alternative 4 would include the following new components:

- Open ocean intake system in the same vicinity as Alternative 3;
- Desalination plant including source water receiving tanks; pretreatment, reverse osmosis, and post-treatment systems; chemical feed and storage facilities and associated non-process facilities.
- Brine discharge system consisting of rehabilitating and extending an existing 51-inch diameter discharge pipeline; and

7 State Clearinghouse number 2015061103
8 The project proponent submitted permit application materials to MBNMS in October 2015 and the application was deemed incomplete. A revised application has not yet been submitted, as of October 2016.

- All of the desalinated product water would be delivered from the desalination plant site to the Monterey Peninsula via a new 36-inch diameter pipeline. The pipeline would leave the desalination plant west along Dolan Road, then south along Highway 1, then south/southeast along Molera Road, then southwest along Monte Road, to a connection point near the intersection of Monte Road, Lapis Road, and Charles Benson Road. The almost 8-mile-long pipeline would then connect to the product water conveyance system described for the proposed project in Chapter 3, Description of the Proposed Project and shown on Figure 5.4-4.

As shown in **Figure 5.4-4**, the components of Alternative 4 would be located in the Moss Landing area of unincorporated Monterey County and offshore in the Monterey Bay. Each component is described below.

Open Ocean Intake System

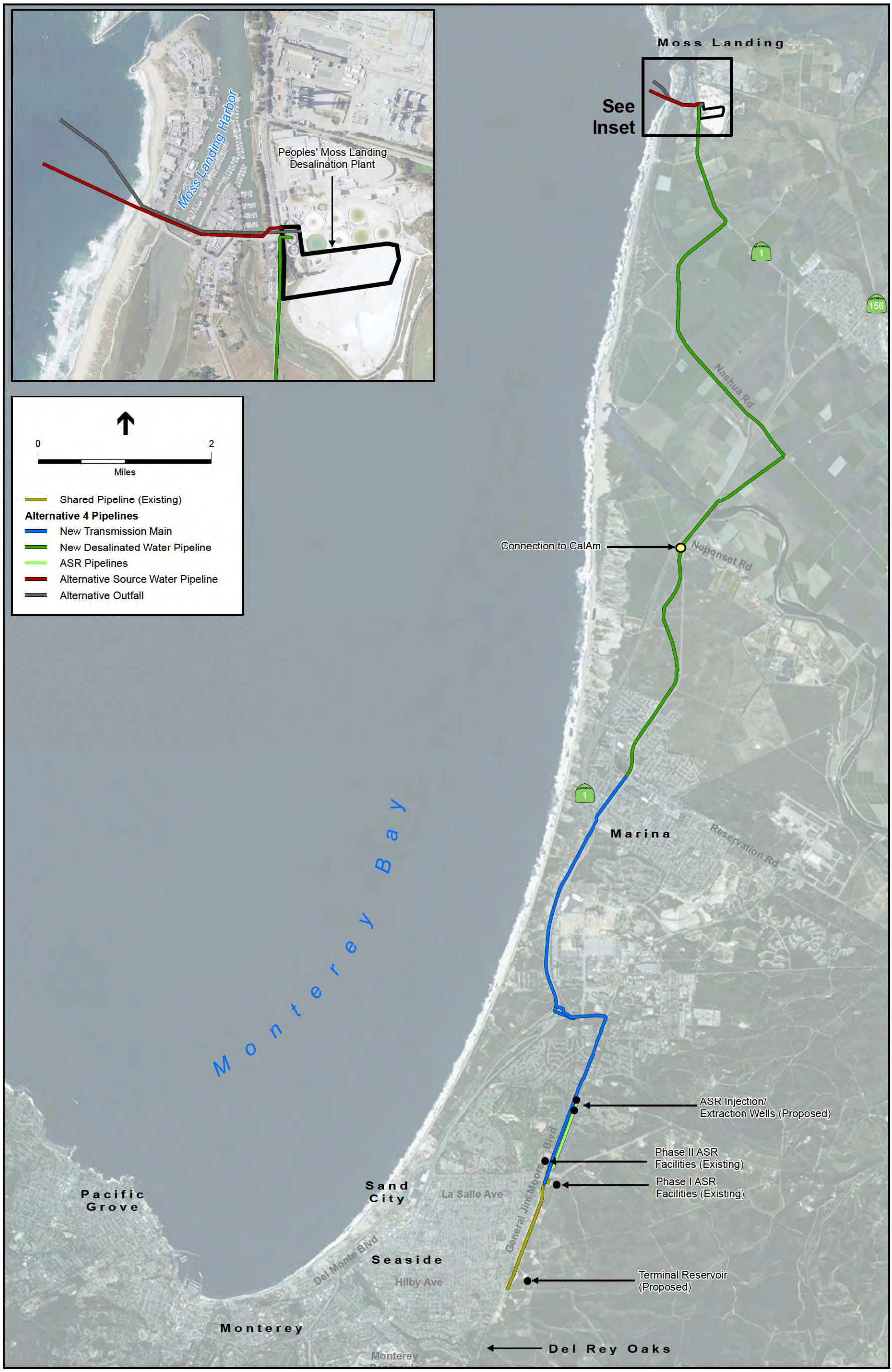
The screened open ocean intake system in Monterey Bay would draw seawater for use as source water for the desalination plant. Approximately 30 mgd of source water would be needed to produce approximately 12 mgd of desalinated product water. The intake would use an existing 20-foot-diameter intake pump caisson structure located on the beach adjacent to the Monterey Bay Aquarium Research Institute on Sandholt Road in Moss Landing. The existing caisson was originally built in the 1940s and used as an open intake facility and pump house. The previous intake pipeline was removed and does not currently exist. The intake structure would be rehabilitated to include a new 40-inch diameter intake pipe that would extend approximately 1,400 feet out from the existing caisson into MBNMS. The near shore portion of the pipe (the first 300 feet) would be drilled under the sea floor and the remaining 1,100 feet would be laid on the sea floor and covered with riprap armoring.

Two wedgewire screens (one active and one stand-by) would be attached at the end of this new pipeline extension and would be located on the sea floor approximately 120 feet below mean sea level (msl). Each screen structure would be 96-inches in diameter, would be designed with 1.0 mm wedgewire slots for a maximum through-screen velocity of 0.5 feet per second and would be fabricated from copper nickel alloy to minimize the potential for biofouling.

A new 10-foot-high pump house would be built on top of the existing caisson structure with a first-floor elevation of approximately 17 feet above msl. Vertical turbine pumps would be used, with pumps submerged in the intake structure and motors in the pump house above. From the pump house, a new 40-inch diameter underground pipeline would convey the seawater under the island and beneath the Moss Landing Harbor and State Route 1 (or Highway 1) and deliver it to the proposed desalination plant at the Moss Landing Green Commercial Park.

Brine Discharge Facilities

An existing 2,750-foot outfall pipeline originates at the Moss Landing Green Commercial Park, goes under the marina and the marina parking lot island, under the commercial harbor, under the island, and extends approximately 800 feet from shore to a water depth of approximately 43 feet in Monterey Bay (Landmark Realty, 2011). The 51-inch-diameter concrete pipe is buried with approximately 25 feet of cover over the entire length (Miller, 2012). Due to the age and condition of the existing 51-inch-diameter pipeline, a new 36-inch-diameter pipeline would be slip-lined



SOURCE: ESA, 2015

205335.01 Monterey Peninsula Water Supply Project

Figure 5.4-4

Alternative 4 - Peoples' Moss Landing Water Desalination Project

This page intentionally left blank

within the existing pipeline and extended approximately 700 feet on the sea floor to a water depth of approximately 120 feet at the edge of the submarine canyon (see **Figure 5.4-4**). The discharge would include two new 16-inch-diameter diffuser ports. Alternative 4 would discharge approximately 17.5 mgd of brine effluent with a maximum concentration of 62.5 ppt.

Desalination Facility (Moss Landing Green Commercial Park)

The desalination plant for Alternative 4 would be located at the Moss Landing Green Commercial Park, located on the southeast corner of Dolan Road and Highway 1. The approximately 200-acre site is zoned under the Monterey County General Plan for Heavy Industrial Coastal Dependent use. Of the total site, a 16.5-acre parcel is being proposed for developing the Alternative 4 desalination plant and would be fenced off from the rest of the property.

The desalination plant would include: (1) an equalization basin to receive and store the incoming source water; (2) an inlet pump station to convey source water from the equalization basin to a pretreatment system; (3) a pretreatment system; (4) a reverse osmosis system; (5) a post treatment system; (6) a return flow pipeline that would convey brine and washwater back to the disengaging basin; (7) chemical feed and storage facilities; and (8) facilities for residuals management. The desalination plant site would also contain a 5 million gallon treated water storage tank, as well as non-process administrative facilities.

Equalization Basin

The source water pipeline would terminate at a series of existing open top, partially buried, concrete storage tanks to serve as an equalization basin. The equalization basin would stabilize volume and temperature of the source water received from the intake facility prior to entering the desalination pretreatment process. The equalization basin would include rehabilitating two existing partially buried concrete open tanks to provide some equalization of the seawater, adequate retention time for coagulation of chemicals (as described below: *Pretreatment*) to react with the raw seawater to provide settling of large particulates and solids that may have made it through the passive screens. Each of these two tanks would have a capacity of 1.8 million gallons and plate settlers would be installed in the tanks to enhance sedimentation and settling. A coagulant dosing system would be used upstream of the contact tanks to inject chemicals such as ferric chloride into the seawater in order to improve the efficiency of downstream treatment processes. These tanks would be equipped with hopper bottoms for solid collection. A mechanical rotating sludge collector would be installed in each tank to remove deposited solids.

Inlet Pump Station

An inlet pump station would be located at the desalination plant and would pump raw seawater from the equalization basin to the pretreatment system. The pump station would be sized for a lift of approximately 30 feet and would have a capacity of 30 mgd.

Pretreatment System

The proposed pretreatment system would have a capacity of 30 mgd, and would consist primarily of flocculation, dissolved air flotation, media filtration, ultra-filtration, and cartridge filtration.

Reverse Osmosis System

The desalination plant would utilize a RO system similar to that described for the proposed project in Section 3.2.2.2 of Chapter 3, Description of the Proposed Project. The RO membranes would be housed in a new approximately 20,000 square-foot building. The system would utilize a "first pass" and partial "second pass" process to meet water quality requirements. Hardness, alkalinity, and pH of the product water would be adjusted after the RO process to meet water quality standards. Disinfection, as required to meet regulatory requirements, would take place using hypochlorite.

Byproducts and Residual Management

The following is a summary of the types and estimated quantities of byproducts and residuals produced at the proposed facility:

- Concentrate (brine) from the RO system. This stream would essentially have all the salts and ions present in the source water but at higher concentration. At the proposed RO recovery rate of 45 percent, the concentration of salts and ions would be 1.8 times that of seawater. At this recovery rate, the concentrate would contain total daily solids (TDS) in the range of 63,000 to 64,000 mg/L depending on the seawater temperature and salinity.
- Recovered and Treated backwash water from the Media Filters. The back wash water from the Media Filters and UF would be transferred to backwash collection tanks and pumped to the backwash treatment system consisting of sludge tank and centrifuges. The sludge would be collected and sent to a sludge treatment facility, while the clear supernatant would be mixed with the concentrate and sent to the outfall.
- Recovered and Treated Clean Backwash from Post Treatment. Similarly recovered clean backwash from post treatment would be mixed in the outfall blend tank and sent to the outfall. **Table 5.4-5** is a summary and expected quality of the combined outfall.

TABLE 5.4-5
OUTFALL WATER QUALITY AND QUANTITY

Product	Flow (MGD)	TDS (mg/L)
Concentrate (Brine) from RO	15.46	65,000
Recovered and Treated Backwash from Media Filtration	1.98	35,800
Recovered and Treated Clean Backwash from Post Treatment	0.06	400
Combined Total	**17.5**	**61,500**

- Clean-in-Place (CIP) Wastes. All three types of membranes used in Alternative 4 would require CIP systems. A CIP involves two steps: 1) circulating cleaning chemicals through the membranes; and 2) flushing the membranes with clean water to remove the waste-cleaning solutions. Neutralization systems would be included in the membrane facility with a neutralization tank placed under the building floor. The appropriate chemical, typically either sodium bisulfite acid or sodium hydroxide, would neutralize the cleaning chemicals so the waste can be properly sent to the sanitary sewer. A vertical chemical resistant pump would serve as mixing the chemicals as well as pumping the neutralized content of the tank gradually to the sewer system. The CIP events would be scattered throughout a week to reduce peak waste flows.

- Miscellaneous Wastes. Miscellaneous drains from analyzers, wash-downs, sample panels, etc., would be connected to the sanitary sewer system.
- Bathroom and Indoor Plumbing Wastes. Bathroom, showers and other building plumbing wastes would be connected to the sanitary sewer system. **Table 5.4-6** shows the estimated peak volumes and continuous flows to the sanitary system. A sewage pump station would be included adjacent to the desalination plant site and flow would be discharged into the Castroville Sanitation District sewer at the intersection of Dolan Road and Highway 1.

TABLE 5.4-6
OTHER RESIDUALS DISPOSAL

Residual	Total Volume per Event (gallons)	Frequency	Continuous flow (gpd)	Comment	To
RO CIP Cleaning	300,000	Once per month	50,000	Neutralized	Sanitary Sewer
BWRO Cleaning	80,000	Once every 2 months	20,000	Neutralized	Sanitary Sewer
Floor Drain, Analyzers, and Wash Waters	N/A	Continuous	3,000	Neutralized	Sanitary Sewer
Sanitary Sewer from Buildings and Offices	N/A	Continuous	1,500	Neutralized	Sanitary Sewer
Combined Total			74,500	Neutralized	Sanitary Sewer

- All process solid wastes would be combined and sent to the sludge tanks and sludge treatment facility. The sludge treatment would consist of sludge conditioning, centrifuges, thickeners, belt presses and chemical treatment for production of 30-35 percent solid content sludge, which would be sent off site by dump trucks. **Table 5.4-7** shows estimated volume of sludge to be hauled offsite.

TABLE 5.4-7
ESTIMATED SLUDGE PRODUCTION

Item	Units	Design
Dry Sludge Volume (30% Solids)	Gal/Day	407
Weight of Dry Sludge	Pounds/Day	4,070
Number of Hauling Trucks per Week		<2

Product Water Conveyance

Alternative 4 would include a 5 million gallon treated water storage tank at the desalination plant site, and a product water pipeline to connect to the CalAm Monterey District distribution system. The desalinated water would be delivered from the desalination plant site to the Monterey Peninsula via a new 8-mile-long, 36-inch-diameter pipeline that would proceed south along Highway 1, south/southeast along Molera Road, southwest along Monte Road, to a connection point near the intersection of Monte Road, Lapis Road, and Charles Benson Road. At this point, the new pipeline would connect to the product water pipelines described for the proposed project in Chapter 3, Description of the Proposed Project.

The People's Project would produce more water than is needed to meet the project objectives of the MPWSP. After meeting current customer demand of approximately 12,500 afy, the People's Project, in addition to existing supplies, would result in an excess of 6,000 afy for potential growth in the region.

5.4.6.2 Construction

Construction activities would take approximately 24 months and would include site grading and excavation; installation of prefabricated and onsite fabricated components (e.g., pretreatment and RO equipment, storage tanks, etc.); construction of buildings, electrical system, pump station and pipelines; and disposal of construction waste and debris. Construction equipment and materials associated with the open ocean intake system and desalination plant would be stored within the respective construction work areas. Construction equipment and materials associated with pipeline installation, including stockpiling of material, would be stored along the pipeline easements and at nearby staging areas. Staging areas would not be sited in sensitive areas such as riparian or critical habitat for protected species. To the extent feasible, parking for construction equipment and worker vehicles would be accommodated within the construction work areas and on adjacent public roadways complying with public parking signs.

Construction estimates are presented below in **Table 5.4-8**.

TABLE 5.4-8
ASSUMPTIONS FOR CONSTRUCTION ACTIVITIES

Alternative Components	Total Excess Spoils and construction Debris (Cubic Yards)	Construction Equipment	Construction Duration and Work Hours
Open Ocean/Bay Intake	150	Barge, Excavators, HDD Drilling Equipment, Dozers, Divers, Trucks	Overall schedule is approximately 6 months. Typical construction hours are from 7am to 4pm M-F.
Desalination Plant Facilities	40,000	Excavator, Backhoe, Grader, Crane, Dozer, Compactor, Trencher/Boring Machine, Front-end Loader, Water Truck, Flat-bed Truck, Forklift	Overall schedule is approximately 24 months. Typical construction hours are from 7 am to 4 pm - Monday through Friday
Outfall Pipeline and Diffuser	100	Barge, Excavators, HDD Drilling Equipment, Dozers, Divers, Trucks, etc.	Overall schedule is approximately 3 months. Typical construction hours are from 7 am to 4 pm - Monday through Friday
Product Water Pipeline	50,000	Excavator, Backhoe, Grader, Crane, Dozer, Compactor, Trencher/Boring Machine, Front-end Loader, Water Truck, Flat-bed Truck, Forklift, Compressor Jack Hammer, Asphalt Paver/Roller, Street Sweeper	Refer to proposed project in Chapter 3. Product water would be delivered to CalAm at Marina, then same as proposed project
Terminal Reservoir	3,000		Same as proposed project described in Section 3.

Open Ocean Intake Pipeline

The existing caisson intake facility would be rehabilitated to withdraw the required 30 mgd of source water. Horizontal directional drilling or another trenchless technique would be used for the near shore portion of the new intake pipe (from caisson to approximately 300 feet offshore) and the remaining 1,100 feet of new pipe would be laid on the sea floor, ballasted with concrete collars and protected with riprap armoring. Two passive wedgewire screens would be mounted on a riser. Construction would require a combination of barges and scuba divers.

From the rehabilitated caisson and new pump house, a new 40-inch diameter pipeline would be installed using horizontal directional drilling methods to transfer the seawater to the desalination plant. The intake pipeline would be horizontally directional drilled under the Moss Landing Harbor and would then cross Highway 1 using pipe bursting methods to insert the new pipe into an existing 36inch pipeline crossing Highway 1. The pipe bursting process consists of advancing a conical-shaped bursting head that has a diameter 50 to 100 mm larger than the new replacement pipe, through the existing pipe. The product pipe immediately follows the bursting head as it is simultaneously pulled or pushed into the newly formed cavity.

Construction of the open ocean intake facility would be completed within approximately six months. During peak construction, five to ten construction workers may be employed.

Brine Discharge Pipeline

A new 36-inch diameter pipeline would be slip-lined within the existing 51-inch-diameter outfall pipeline. From the end of the existing outfall pipeline, 700 feet of new, 36-inch diameter pipeline would be laid on the ocean floor at a depth of approximately 120 feet below mean sea level and would include two 16-inch diameter diffuser ports. A combination of barges and scuba divers would be required to install the outfall extension on the ocean floor. The new outfall location would be at the same elevation as (120 feet below msl) and would be approximately 630 feet away from the open ocean intake.

Desalination Plant

Construction of the desalination plant and appurtenant facilities would include site preparation, equipment delivery, and building construction. Ground clearing and excavation of the site would be performed using heavy construction equipment such as bulldozers, backhoes, cranes, and graders. Heavy equipment would be used to construct connections with existing water conveyance systems, and to construct footings of tanks and other support equipment. Upon completion of excavation, construction activities would also include pouring concrete footings for tanks, laying pipeline and making connections, installing support equipment such as control panels and fencing the perimeter of the site.

Product Water Conveyance

Construction activities associated with the product water conveyance pipelines would be the same as described for the proposed project in Section 3.3.4 in Chapter 3, Description of the Proposed Project.

5.4.6.3 Operation and Maintenance

Open Ocean/Bay Intake Pipeline

The intake screens would be provided with an automatic airburst connection from a boat for occasional cleaning. A buoy would mark the spot of the screens to help avoid potential problems with boaters and anchoring.

Brine Discharge

The People's Project has not provided any information about the maintenance of the brine discharge system.

Desalination Plant

Chemical Feed and Storage Facilities

Various chemicals to be used during treatment would be stored and processed onsite, similar to the proposed action. The chemicals include:

- Coagulant (Ferric Chloride or Ferric Sulfate)
- Flocculant/Polymer/Filter Aid
- Sulfuric Acid
- Antifoulant
- Lime
- Caustic
- CO2
- Hypochlorite
- Ammonia
- Sodium Metabisulfite

The listed chemicals are non-flammable, and would be stored in tanks that meet applicable regulatory requirements and are located within the new pre-treatment, reverse osmosis and post-treatment building. The design of this building would incorporate the regulatory requirements for hazardous materials storage. In addition, two lime saturation tanks, situated adjacent to the chemical building, would contain a bed of calcite for post treatment after the RO process. Chemicals may be purchased in bulk and then processed on site.

Power Usage

Estimated power usage is between 8 and 9 kWh, assuming average water temperatures.

The primary source of electricity would be either direct service from Moss Landing Power Plant through an over-the-fence agreement with Dynegy, or from PG&E provided from an existing 12 kV electrical system. An independent secondary power supply (if available) or emergency backup generator would be required to operate the entire facility during power shortages. The emergency generator could run on diesel fuel or natural gas (preferred, if available). s

Product Water Conveyance

Operation and maintenance activities associated with the product water conveyance facilities under Alternative 4 would be the same as under the proposed project.

5.4.6.4 Ability to Meet Project Objectives

Alternative 4 would meet all of the project objectives and would produce the required volume of product water, but its permitting process may delay the availability of the supply relative to the State Board's CDO. The alternative includes an open-water intake, a new discharge, and the placement of new pipeline and ballast rock on the seafloor. The alternative would produce more water than is needed for CalAm's current needs and the surplus would be available for growth in the region. An additional 6.5 miles of product water pipeline would be required to connect the alternative to the proposed project's pipelines in Marina. The People's Project would need to complete an EIR (and an EIS) process, develop mitigation (e.g., for the approximately 42,000 ft^2 of seafloor that would be covered in ballast rock and for the impingement and entrainment losses associated with the open water intake), receive the required permits and enter into a water purchase agreement with CalAm. The water purchase agreement would need to be approved by the CPUC prior to delivery of product water to CalAm's customers in the Monterey District service area. The increased permitting complexity may delay the ability to serve water to meet project objectives 1 through 7.

5.4.7 Alternative 5a – Reduced Project 6.4-mgd Desalination Plant *(Intake Slant Wells at CEMEX)*

5.4.7.1 Overview

This alternative is a variation of the proposed project, the implementation of which would be contingent upon the successful implementation of the Pure Water Monterey Groundwater Replenishment Project (GWR). As discussed in Section 1.1, Introduction, CalAm proposes to build a desalination plant with the capacity to produce up to 9.6 mgd of desalinated product water (proposed project), but also seeks authorization to reduce the size of the proposed plant to provide 6.4 mgd, and to purchase product water from the proposed GWR Project if it becomes clear that the GWR Project will be completed and on line in a timeframe that can supply water to meet the proposed project's purpose and needs (CalAm, 2016). Since the GWR Project was approved by the MRWPCA in October 2015, and the CPUC in September 2016 authorized CalAm to purchase 3,500 afy of the GWR supply for extraction from the Seaside Groundwater Basin, the GWR Project is assumed in the No Action alternative and analyzed as a project in the cumulative scenario for several of the alternatives, including Alternatives 5a and 5b. The GWR Project is described in Table 4.1-2 in Section 4.1 of Chapter 4, Environmental Setting (Affected Environment), Impacts, and Mitigation Measures.

Therefore, Alternative 5a includes the construction and operation of the reduced-capacity desalination plant capable of producing 6.4 mgd (compared with 9.6 mgd for the proposed project). Project components would be sited at the same locations as the proposed project and the only differences are the number of slant wells and the size of the desalination plant; all other facilities would be the same as for the proposed project. The GWR Project is addressed in the cumulative impacts analysis for this alternative.

Description of the Reduced Project

Figure 5.4-5 presents an overview of Alternative 5a. **Table 5.4-9** provides a detailed list of the facilities. Except for the number of slant wells (reduced to seven from 10) and the capacity of the desalination plant (reduced to 6.4 mgd from 9.6 mgd), the facilities are the same as described for the proposed project in Chapter 3, Description of the Proposed Project. Alternative 5a would include the following facilities:

- A seawater intake system, which would consist of seven subsurface slant wells (five active and two on standby; these would consist of the converted test slant well and six new wells) located at the CEMEX site extending seaward of the mean high water line (MHWL) into MBNMS, and a source water pipeline.
- A 6.4 mgd desalination plant and appurtenant facilities, including source water receiving tanks; pretreatment, reverse osmosis (RO), and post-treatment systems; chemical feed and storage facilities; brine storage and facilities; and other associated non-process facilities.
- Desalinated water conveyance facilities, including pipelines, pump stations, clearwells, and Terminal Reservoir; same as the proposed project.
- An expanded ASR system, including two additional injection/extraction wells (ASR-5 and ASR-6 Wells), two parallel ASR Conveyance Pipelines to convey water to and from the ASR-5 and ASR-6 Wells, and an ASR Pump-to-Waste System; same as the proposed project.

Construction

Construction of Alternative 5a would be similar to the proposed project as described in Section 3.3 of Chapter 3, Description of the Proposed Project, and summarized in **Table 3-4**. The Alternative 5a facilities are expected to be constructed over approximately 24 months (same as the proposed project), from July 2018 through June 2020. See Section 3.3.10, Construction Schedule.

5.4.7.2 Operation and Maintenance

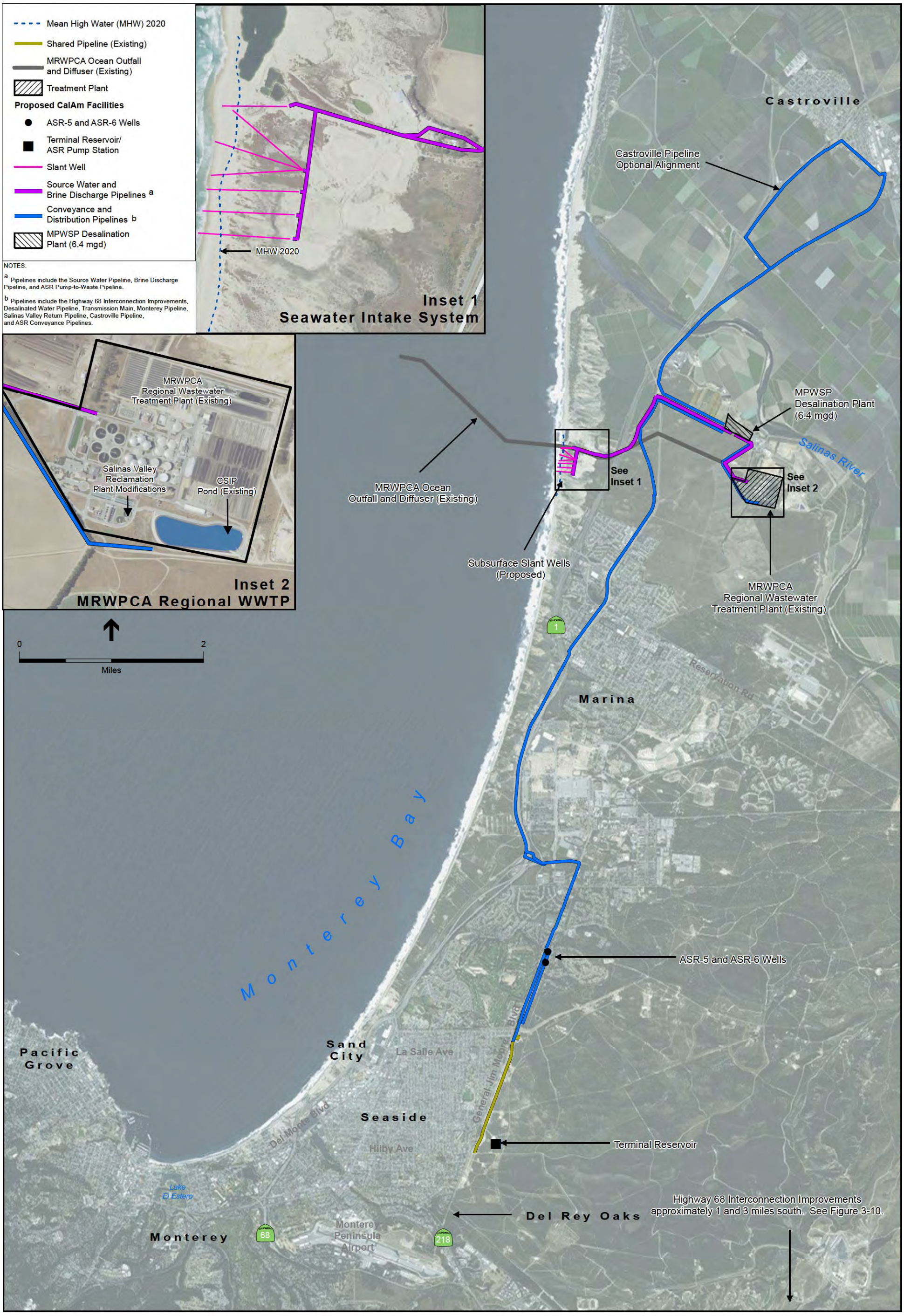
The Alternative 5a facilities would be operated in the same manner as for the proposed project (refer to Section 3.4, Operations and Maintenance).

Subsurface Slant Wells

Up to five subsurface slant wells would be operated at any given time, producing a combined total of up to 15.5 mgd of source water for the MPWSP Desalination Plant. Two wells would be maintained on standby.

6.4-mgd MPWSP Desalination Plant

The MPWSP Desalination Plant would utilize the 15.5 mgd of filtered source water to produce desalinated product water and approximately 9 mgd of brine. The 9 mgd of brine would be discharged out of the existing MRWPCA ocean outfall and diffuser into Monterey Bay, as described for the proposed project.



SOURCE: ESA, 2014

205335.01 Monterey Peninsula Water Supply Project

Figure 5.4-5

Alternative 5a - Intake Slant Wells at CEMEX

This page intentionally left blank

TABLE 5.4-9
ALTERNATIVE 5A FACILITIES

Facility	Description
Seawater Intake System	
Subsurface Slant Wells (Construction technology is same as proposed project) Approximately 15.5 mgd of seawater drawn from beneath the ocean floor in MBNMS for use as source water for the desalination plant.	• Seven slant wells located at the CEMEX site, extending offshore beneath Monterey Bay (the conversion of an existing test slant well into a permanent well plus six new wells at four new well sites) into MBNMS, with up to five wells operating at any given time and two wells maintained on standby • The slant wells would be grouped into five well sites: four sites with one well each and one site with three wells. Each well would have a wellhead vault, and aboveground mechanical piping (meter, valves, and gauges); each well site would have one electrical control cabinet, and one pump-to-waste vault (same as proposed project). • Well length, screens, pumps and concrete pads would be the same as described for the proposed project well sites 1 through 5.
Source Water Pipeline Conveys the combined source water from the slant wells to desalination plant.	• 2.7-mile-long, 42-inch-diameter pipeline
Desalination Facilities	
Pretreatment System Would treat source water to remove suspended and dissolved contaminants	• Pressure filters or multimedia gravity filters would be housed within a 6,000-square-foot pretreatment building • Two 300,000-gallon backwash supply and filtered water equalization tanks • Two 0.25-acre, 6-foot-deep lined backwash settling basins with decanting system
Reverse Osmosis System Would remove salts and other minerals from pretreated source water	• Dual-pass RO system consisting of four active modules and one standby module, with each module producing 1.6 mgd of “permeate” (the purified water produced through the RO membrane) • UV disinfection system (if required) • The RO and post-treatment systems and chemical storage tanks would be housed within a 30,000-square-foot process and electrical building
Post-treatment System Would adjust the hardness, pH, and alkalinity of the desalinated product water and disinfect the water in accordance with drinking water requirements	• Chemical feed lines and injection stations (for carbon dioxide, lime, sodium hydroxide, phosphate-based corrosion inhibitor, and sodium hypochlorite)
Chemical Storage The capacity would range from less than 5,000 gallons to 20,000 gallons, depending on the treatment chemical	• Chemical storage tanks with secondary containment • Sumps and sump pumps
Administrative Building Would house restrooms, locker rooms, break rooms, conference rooms, electrical controls, laboratory facilities, equipment storage and maintenance, and electrical service equipment	• 4,000- to 6,000-square-foot building

TABLE 5.4-9 (Continued)
ALTERNATIVE 5A FACILITIES

Facility	Description
Brine Storage and Disposal Facilities	
Brine Storage and Disposal Brine concentrate produced during the RO process would be conveyed to the brine storage basin located at the MPWSP Desalination Plant before it is conveyed to the wastewater treatment plant for disposal into waters of MBNMS	• 3-million-gallon brine storage basin • 1-mile-long, 30-inch-diameter Brine Discharge Pipeline
MRWPCA Ocean Outfall Pipeline and Diffuser (existing) Would convey brine from the wastewater treatment plant to the existing ocean outfall pipeline in MBNMS, which terminates at a diffuser located offshore that would discharge the concentrate into Monterey Bay	• 2.3-mile long, 60-inch-diameter pipe (onshore portion) • 2.1-mile-long, 60-inch-diameter pipe (offshore portion) • 1,100-foot-long diffuser with 172 ports (129 ports are open and 43 are closed), each 2 inches in diameter and spaced 8 feet apart on alternating sides
Desalinated Water Conveyance and Storage Facilities	
Clearwells (Water Storage Tanks) and Clearwell Pump Station Would pump water from the post-treatment process to the clearwells, which serve as holding tanks	• 6.4-mgd capacity, 120-horsepower pump • Two 103-foot-diameter, 1,750,000-gallon aboveground storage tanks (providing a total combined storage volume of 3.5 million gallons)
Desalinated Water Pump Station Would pump desalinated product water to either the: 1) CalAm water system or; 2) CCSD and/or CSIP as Salinas Valley return flows	• 6.4-mgd capacity, 800-horsepower pump to pump water through the Desalinated Water Pipeline to the CalAm water system • 1.4 mgd, 20-horsepower pump to pump water through the Salinas Valley Return Pipeline CSIP Pond or the Castroville Pipeline to CCSD
New Desalinated Water Pipeline Would convey desalinated product water from the clearwells at the MPWSP Desalination Plant to the new Transmission Main at Reservation Road	• 3.3-mile-long, 36-inch-diameter pipeline
New Transmission Main Would convey desalinated product water between the Desalinated Water Pipeline at Reservation Road and ASR facilities at General Jim Moore Boulevard	• 6-mile-long, 36-inch-diameter force main
Terminal Reservoir Would store desalinated product water and ASR product water	• Two 3-million-gallon storage tanks
Carmel Valley Pump Station 500-square-foot facility that would provide the additional water pressure needed to pump through the existing Segunda Pipeline into Segunda Reservoir	• 3 mgd, 100 hp pump station

TABLE 5.4-9 (Continued)
ALTERNATIVE 5A FACILITIES

Facility	Description
Desalinated Water Conveyance and Storage Facilities (cont.)	
Castroville Pipeline Would convey desalinated product water from the MPWSP Desalination Plant to the Castroville Seawater Intrusion Project (CSIP) distribution system and the Castroville Community Services District (CCSD) Well #3 ● Product water would be delivered to the CSIP system via a new connection point located approximately halfway along the pipeline alignment at Nashua Road and Monte Road ● At the northern pipeline terminus, product water would be delivered to the CCSD at Del Monte Avenue and Merritt Street	4.5-mile-long, 12 inch-diameter pipeline extending from MPWSP Desalination Plant to Castroville (see **Figures 3-11** and **3-12**)
Pipeline to CSIP Pond Would convey desalinated product water from the MPWSP Desalination Plant to the CSIP pond for subsequent delivery to agricultural users in the Salinas Valley.	1.2-mile-long, 12-inch-diameter pipeline (see **Figure 3-5**)
Interconnection Improvements for State Route 68 Satellite Systems a) Ryan Ranch–Bishop Interconnection b) Main System–Hidden Hills Interconnection Would allow MPWSP supplies to be conveyed to the Ryan Ranch, Bishop, and Hidden Hills water systems	a) 1.1-mile-long, 8-inch-diameter pipeline b) 1,200-foot-long, 6-inch-diameter pipeline
ASR System	
Six ASR Injection/Extraction Wells (four existing wells and two proposed): ● ASR-1 and ASR-2 Wells (existing) ● ASR-3 and ASR-4 Wells (existing) ● ASR-5 and ASR-6 Wells (proposed) Would be used to inject Carmel River supplies and desalinated product water into the Seaside Groundwater Basin for storage; during periods of peak demand, would be used to extract the stored water for delivery to customers	● Two proposed 1,000-foot-deep injection/extraction wells (ASR-5 and ASR-6 Wells) with a combined injection capacity of 2.2 mgd and extraction capacity of 4.3 mgd ● Four existing injection/extraction wells (Phase I and II wells)

TABLE 5.4-9 (Continued)
ALTERNATIVE 5A FACILITIES

Facility	Description
ASR System (cont.)	
ASR Pipelines: 1. ASR Recirculation Pipeline 2. ASR Conveyance Pipeline 3. ASR Pump-to-Waste Pipeline ASR Recirculation pipeline would be used to convey water from existing conveyance pipelines and infrastructure at Coe Avenue and General Jim Moore Boulevard to the new ASR-5 and ASR-6 Wells for injection ASR Conveyance Pipeline would be used to convey extracted ASR water supplies to the existing infrastructure at Coe Avenue/General Jim Moore Boulevard ASR Pump-to-Waste Pipeline would convey backflush effluent produced during routine maintenance of the ASR-5 and ASR-6 Wells to the existing Phase I ASR settling basin.	● Three parallel 0.8-mile-long, 16-inch-diameter pipelines

Castroville Pipeline

The 4.5-mile-long, 12-inch-diameter Castroville Pipeline (same as the proposed project) would convey desalinated water (Salinas Valley return flows) from the MPWSP Desalination Plant to the CSIP distribution system and the CCSD Well #3.

Pipeline to CSIP Pond

If the Castroville Pipeline is not built, CalAm would pump the Salinas Valley return water from the MPWSP Desalination Plant through a new 1.2-mile-long, 12-inch-diameter pipeline to the existing Castroville Seawater Intrusion Project pond at the southern end of the MRWPCA Regional Wastewater Treatment Plant. From the Castroville Seawater Intrusion Project pond, water would be delivered to agricultural users in the Salinas Valley through existing infrastructure.

Seaside Groundwater Basin ASR System

The Seaside Groundwater Basin ASR system would be operated in a similar manner as under the proposed project. Sections 3.2.2.3 and 3.4.4 in Chapter 3, Description of the Proposed Project.

5.4.7.3 Ability to Meet Project Objectives

The implementation of Alternative 5a on its own and without the GWR project and associated water purchase agreement, would only partially meet the project objectives because the 6.4-mgd project would not develop enough supply to meet the annual or peak demands in CalAm's Monterey District. The 6.4 mgd desalination plant in combination with other existing sources (Carmel River legal entitlement, Seaside Basin, ASR, and Sand City Desalination) would achieve compliance with Order 95-10 and the Seaside Groundwater Basin Adjudication. However, Alternative 5a would not provide water supply reliability; and would not provide supply for Pebble Beach water entitlement-holders, for the development of vacant legal lots of record, or supply to meet demand resulting from economic recovery of the hospitality industry. Assuming that the GWR Project is constructed (which is assumed in the cumulative analysis for this alternative), it would provide 3,500 afy of potable supply for the CalAm service area. Alternative 5a in combination with the GWR Project supply would meet the project objectives.

5.4.8 Alternative 5b – Reduced Project 6.4-mgd Desalination Plant (*Intake Slant Wells at Potrero Road*)

5.4.8.1 Overview

This alternative, like Alternative 5a, is a variation of the proposed MPWSP, the implementation of which would be contingent upon the successful implementation of the GWR Project. Furthermore, Alternative 5b (**Figure 5.4-6**) is similar to Alternative 5a described above, except that the intake slant wells would be located at the Potrero Road site (same as Alternative 1 but fewer wells) instead of at the CEMEX site. Alternative 5b therefore, includes the decommissioning of the test slant well at CEMEX, and the construction and operation of the

reduced-capacity desalination plant capable of producing 6.4 mgd (compared with 9.6 mgd for the proposed project), with the intake wells at Potrero Road. The effects of Alternative 5b in combination with the GWR project are discussed in the evaluation of cumulative impacts.

Only the following facilities would be different from Alternative 5a (refer to Section 5.4.7 for a description of other facilities):

- A seawater intake system consisting of seven subsurface slant wells (five active and two on standby at any given time) located at the Potrero Road site (described in Alternative 1) extending 220 to 535 feet offshore into MBNMS.
- A 42-inch-diameter source water pipeline as described under Alternative 1 would connect the slant wells to the 6.4 mgd desalination plant at the Charles Benson Road site.

5.4.8.2 Construction

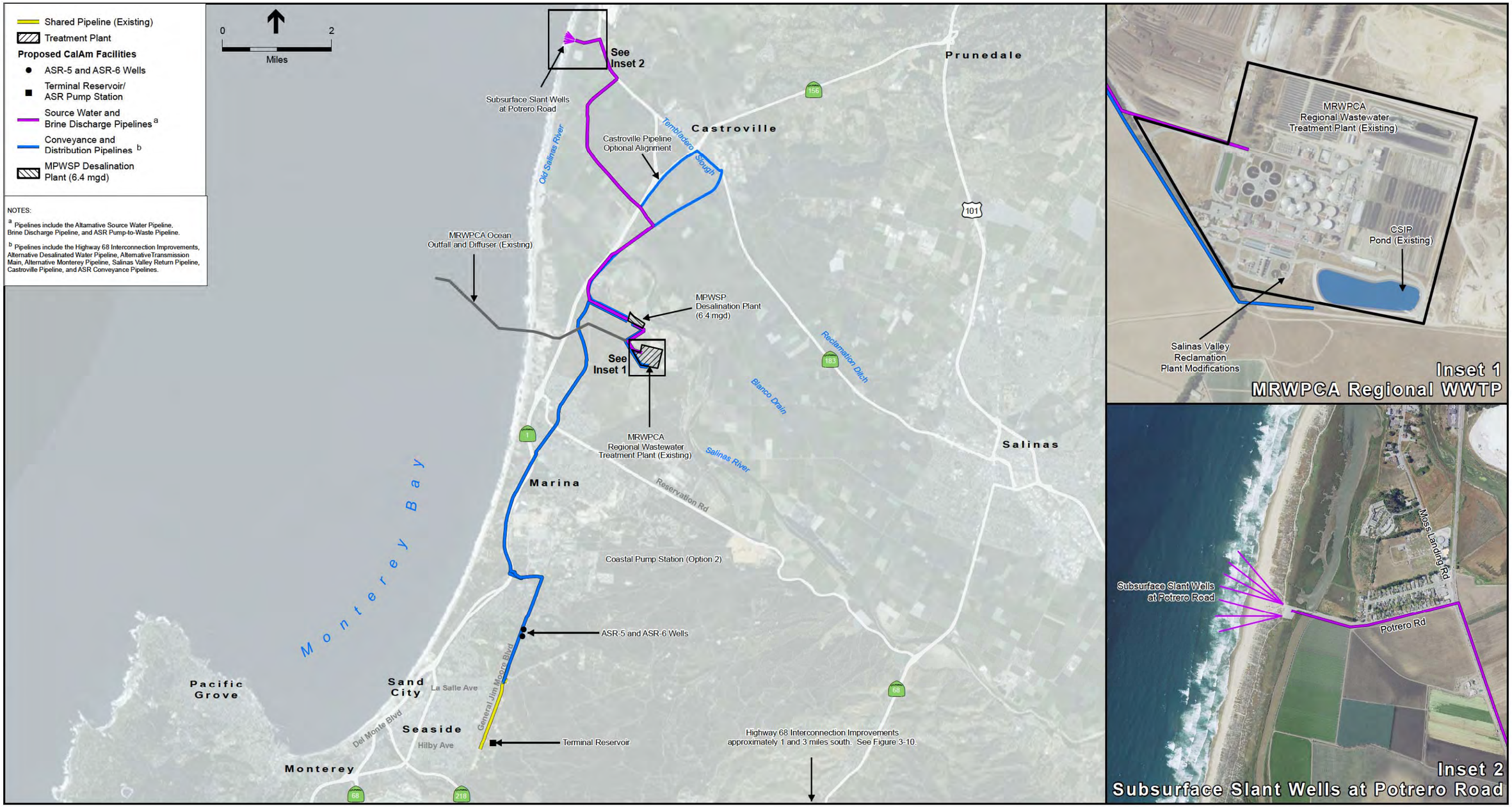
Construction methods for the intake wells and source water pipeline would be similar to those described for Alternative 1 except that only seven intake wells would be needed (five active and two on standby). The source water pipeline alignment would be the same as described under Alternative 1. All other components (i.e., desalination plant, brine discharge, ASR and product water pipelines) would be the same as described under Alternative 5a.

5.4.8.3 Operation and Maintenance

Operation and maintenance requirements would be the same as described under Alternative 5a.

5.4.8.4 Ability to Meet Project Objectives

Just like Alternative 5a, the implementation of Alternative 5b alone, without the GWR Project, would not meet project objectives because the 6.4 mgd project would not produce enough supply to meet the annual or peak demands in CalAm's Monterey District. Similar to Alternative 5a, this alternative would meet all project objectives if the GWR Project is operational and able to deliver water to CalAm.



SOURCE: ESA, 2015

205335.01 Monterey Peninsula Water Supply Project

Figure 5.4-6

Alternative 5b - Intake Slant Wells at Potrero Road

This page intentionally left blank

References

California American Water Company (CalAm), 2016. *Attachment H, Monterey Peninsula Water Supply Project, Project Description*, March 2016.

California State Lands Commission (CSLC), 2015. *Notice of Preparation/Notice of Intent of a Draft Environmental Impact Report/Environmental Impact Statement and Notice of Public Scoping Meeting*. June 1, 2015.

City of Marina, 2014. Draft Initial Study and Mitigated Negative Declaration for the California American Water Slant Test Well Project. Prepared by SWCA Environmental Consultants. May.

Landmark Realty, 2011. *Replacement Cost Appraisal Summary Report*. Prepared for Mr. Nader Agha, Owner, Moss Landing Commercial Park. October 3, 2011.

Miller, 2012. *Structural Evaluation, Intake and Outfall Pipelines, Intake Pump Station and Water Storage Reservoirs, The People's Moss Landing Water Desalination Project*. August 14, 2012.

MBNMS, 2014. Final Environmental Assessment for the California American Water Slant Test Well Project. Prepared by SWCA Environmental Consultants. September. Available at: http://montereybay.noaa.gov/resourcepro/resmanissues/desal_projects/pdf/140912calam-slantwell_ea-final.pdf

MPWMD, 2016. Addendum to the Aquifer Storage and Recovery Project Environmental Impact Report/Environmental Assessment and the Pure Water Monterey/Groundwater Replenishment Project Environmental Impact Report for the Hilby Avenue Pump Station. http://www.mpwmd.net/asd/board/boardpacket/2016/20160620/16/Item-16-Exh-A.pdf.

MRWPCA and MPWMD, 2016. Consolidated Final Environmental Impact Report for the Pure Water Monterey Groundwater Replenishment Project, Volume IV, Exhibit B. http://purewatermonterey.org/wp/wp-content/uploads/Volume-IV-EIR-Certification-and-Project-Approval-Jan-2016.pdf.

State Water Resources Control Board (SWRCB), 2016. *Order WR 2016-0016, In the Matter of Application of California American Water Company, To Amend State Water Board Order 2009-0060*. Adopted July 19, 2016.

This page intentionally left blank

5.5 Alternatives Impact Analysis

Sections

Tables

Figures

5.5.1 Overview

This section evaluates the comparative environmental impacts of the alternatives that are described in detail in Section 5.4 of this EIR/EIS, including the "No Project" (No Action) Alternative. Section 5.6 presents the comparative environmental impacts in summary tables. Text in this Section 5.5 is intended to be reviewed with the comparative tables in Section 5.6 that provide a summary for each relevant significance criterion.

Information about each alternative is provided to facilitate a meaningful evaluation, analysis, and comparison of alternatives with the proposed project, including those not within the jurisdiction of the lead agencies. A description of the CEQA and NEPA guidelines related to alternatives evaluations is included in Section 5.1.1. The analyses that follow in this section present the same topical areas, and in the same order, as those presented in Chapter 4 of this EIR/EIS. Each section includes the following:

- **Setting/Affected Environment** – Baseline information is provided for those resources where the study area for alternatives is different from the proposed project's study area. For most issue areas, the proposed project onshore study area is south of the intersection of Nashua Road and Highway 1. Several alternatives have locations in areas north of the intersection of Nashua Road and Highway 1, or in Moss Landing. Reference is made to the setting for the proposed project in Chapter 4 where the setting/affected environment is the same.

- **Direct and Indirect Effects** – A brief recap of the proposed project effects described in detail in Chapter 4 is provided for the reader's convenience. An analysis of each alternative is then provided, starting with the No Project Alternative, followed by Alternatives 1 through 5a and 5b. While providing impact conclusions required by CEQA and NEPA, the analyses focus on the differences in impacts of each alternative compared to the proposed project. Similar to the impact analysis in Chapter 4, each of the alternatives is evaluated using the following primary analysis categories:

  – Construction Impacts

  – Operational and Facility Siting Impacts

  – Cumulative Impact Analysis (refer to Section 4.1 and **Table 4.1-2** for a description and list of projects considered in the cumulative scenario)

Within each analysis category, the impacts are summarized in the text. For specific impact statements that correspond to individual significance criteria, see the comparative tables in Section 5.6.

Reference is made to analysis in Chapter 4 for impacts that would be the same as, or similar to, the impacts of the proposed project. Each of the alternatives shares some components of the proposed project, and the impacts for those shared components would be the same as the proposed project. For instance, Alternative 1 shares all project components except the location for the slant wells, and has an additional 5.5 miles of source water pipeline to connect the slant wells at the alternative location to the desalination plant. In each resource section, the impact analysis for the shared components is in the corresponding resource section in Chapter 4, and the conclusions by resource are also summarized in 5.6. The impacts for each alternative incorporate the combined impacts of the shared and different components into the overall analysis and impact conclusion for each resource and accounts for any synergistic or accumulative impacts from all components.

Where applicable, mitigation measures that are applied to the proposed project in Chapter 4 are applied to potentially significant impacts of the alternatives. When an alternative's impact is determined to be increased in severity compared to the significant impact of the proposed project, that conclusion is being drawn from the information about the alternative that was available at the time this EIR/EIS was being prepared. In some circumstances, further analysis and technical studies could conclude that the impact could be mitigated to a less-than-significant level. In those instances, however, until such time as that information is developed and made available, the impact is declared to be significant and unavoidable.

The analysis of each alternative identifies a significance conclusion for each evaluation criterion, based on comparison to the affected environment or no action condition, and discusses the severity of impact compared to the proposed project. Impact significance determinations include No Impact (NI), Less than Significant (LS), Less than Significant with Mitigation (LSM), and Significant and Unavoidable (SU). For purposes of CEQA, the impacts of the alternatives compared to those of the proposed project are described using the following terms:

- ***Same impact conclusion*** – impacts would be identical to those of the proposed project or would be of the same general magnitude such that the level of significance does not change (e.g., for both the proposed project and the alternative, the impact is less than significant);
- ***Increased impact conclusion*** – impacts would be notably greater than the proposed project such that the level of significance is increased (e.g., from less than significant to less than significant with mitigation); or
- ***Reduced impact conclusion*** – impacts would be notably less than the proposed project such that the level of significance is reduced (e.g., from less than significant to no impact).

Finally, the water supply projects that are included within the cumulative scenario for each alternative are described in Section 4.1.7 (see **Table 4.1-2**) and summarized below in **Table 5.5-1** for purposes of clarification. The proposed project and alternatives are not assumed to occur independent of one another. However, DeepWater Desal may still be constructed and supply

water to serve Santa Cruz County and Salinas even if other alternatives, and/or the GWR Project (not a project alternative), are implemented. CalAm intends to purchase 3.2 mgd from the GWR Project under the No Project Alternative and Alternative 5. The other projects in **Table 4.1-2** are assumed to be relevant to the cumulative scenario for all alternatives unless otherwise noted.

TABLE 5.5-1
WATER SUPPLY PROJECTS RELEVANT TO THE CUMULATIVE SCENARIO FOR EACH ALTERNATIVE

	Cumulative Water Supply Project		
Alternative	**DeepWater Desal Project (No. 34)**	**People's Project (No. 57)**	**Pure Water Monterey Groundwater Replenishment (GWR) Project (No. 59)**
No Project Alternative	No	No	Yes
Proposed Project	Yes; serving Santa Cruz County and Salinas	No	No
Alternative 1: Slant Wells at Potrero Road	Yes; serving Santa Cruz County and Salinas	No	No
Alternative 2: Open-Water Intake at Moss Landing	Yes; serving Santa Cruz County and Salinas	No	No
Alternative 3: Monterey Bay Regional Water Project (DeepWater Desal)	N/A	No	Yes; serving Monterey District with 3.2 mgd. If this occurs, Alternative 3 would serve the Monterey District with 6.4 mgd instead of 9.6 mgd, and would serve Santa Cruz County and Salinas with the balance.
Alternative 4: Peoples' Moss Landing Water Desalination Project (Peoples' Project)	Yes; serving Santa Cruz County and Salinas	N/A	No
Alternatives 5: Reduced Desal Project 5a (CEMEX) and 5b (Potrero Road)	Yes; serving Santa Cruz County and Salinas	No	Yes; serving Monterey District with 3.2 mgd.

Because Alternative 5 alone would not meet the project objective to provide 9.6 mgd of water supply, and must be paired with the 3.2 mgd of supply from the approved GWR Project in order to do so, the cumulative analysis of Alternative 5 in each resource section below provides the "subtotal" of the combined impacts from construction and operation of Alternative 5 and the GWR Project. This is intended to facilitate a comparison among alternatives that accurately reflects the impacts of any alternative that would meet the project objective of providing 9.6 mgd. However, because an EIR for the GWR Project already has been certified and the project approved, these combined impacts are not fully attributable to Alternative 5, and are considered in the same way that cumulative impacts are treated under CEQA and NEPA. This combined impact of Alternative 5 and the GWR Project also is considered in light of its contribution to overall cumulative impacts.

5.5.2 Geology, Soils, and Seismicity

The evaluation criteria for Geology, Soils, and Seismicity address: erosion and loss of topsoil; exposure of people or structures to effects of fault rupture, seismically-induced groundshaking, ground failure, or landslides; expansive or corrosive soils; subsidence; soils incapable of supporting alternative wastewater systems; coastal erosion/dune retreat; and the potential to degrade marine geologic resources or oceanographic processes. The study area is susceptible to seismic activity, but none of the components intersect active faults. Components proposed near the shoreline are susceptible to coastal erosion.

5.5.2.1 Setting/Affected Environment

The regional geologic setting and general information on seismicity, faults, geologic hazards and seismic hazards in Section 4.2, Geology, Soils, and Seismicity, would apply to the alternatives. Components of the alternatives similar to the proposed project located south of the Nashua Road/Highway 1 intersection would occur within the same local geologic, soils, and seismic setting as that presented in Section 4.2 and the reader is referred to that section for a detailed description. For components unique to the alternatives that are located north of the Nashua Road/Highway 1 intersection, the local geologic setting is presented below.

Local Geology and Seismicity

North of the Nashua Road/Highway 1 intersection, pipeline alignments for the alternatives would extend within or alongside segments of Molera Road, Highway 1, Potrero Road, and Dolan Road in unincorporated Monterey County and occur adjacent to active farmland. The pipelines would be located mostly on Quaternary floodplain (Qfl) and basin (Qb) deposits (see far northern coastal area on **Figure 4.2-1**, Geologic Map of Project Area). The Moss Landing area is also mostly on floodplain and basin deposits with some of the Dolan Road area on marine terrace (Qmt) deposits. No active faults pass through this area and the nearest active fault is the San Andreas Fault Zone, about 12 miles to the northeast (see **Figure 4.2-4**).

Soil Properties

Most of the components of the alternatives would be constructed in developed areas with disturbed ground consisting of an indeterminate mix of fill materials and underlying native sandy loam soil. The location for the Alternative 3 desalination facility is on soil composed mostly of Santa Inez fine sandy loam with some Diablo Clay (NRCS, 2015). The locations for pipelines that would be built on or under the seafloor within Monterey Bay are further characterized in Section 5.5.4, Marine Biological Resources.

The soil properties of linear extensibility (shrink-swell or expansion), corrosion of unprotected concrete, and corrosion of unprotected steel are defined in Section 4.2. The following alternatives' components would be located on expansive soils with a high potential for corrosion of steel: the eastern portion of the parking lot at Potrero Road and the portion of Potrero Road between Alisal Slough and Laguna Road where pipelines would be constructed for Alternatives 1 and 5b, and the desalination facility in the Moss Landing area for Alternative 3. The alternative

components in the Potrero Road and Moss Landing area would not be located on soils with a high potential for corrosion.

5.5.2.2 Direct and Indirect Effects of the Proposed Project – Slant Wells at CEMEX

As described in detail in Chapter 3, Description of the Proposed Project, the proposed project (see **Figure 3-2**) would include construction of a desalination plant on 25 acres along Charles Benson Road northeast of the City of Marina that would create approximately 15 acres of impervious surfaces, up to nine new subsurface slant wells at the CEMEX active mining area, and conversion of the existing test slant well to a permanent well. The proposed project would also include improvements to the existing Seaside Groundwater Basin aquifer storage and recovery (ASR) system facilities, pump stations, storage tanks, and about 21 miles of new water conveyance pipelines. No construction or placement of facilities on the seafloor would occur.

The following paragraphs briefly summarize the impacts of the proposed project with respect to geology, soils, and seismicity. The detailed impact analysis of the proposed project is provided in Section 4.2.

Impact 4.2-1: Soil erosion or loss of topsoil during construction.

Project construction would involve localized, short-term ground disturbance activities (e.g., grading, excavation, trenching, and drilling). The potential for soil erosion during construction activities would be minimal because project facilities and all conveyance pipelines would be located in relatively flat areas with little topographic relief. Furthermore, project construction activities would be subject to compliance with the state Construction General Permit, the Monterey County Grading Ordinance, and Monterey County Erosion Control Ordinance, which would require the preparation and implementation of a Stormwater Pollution Prevention Plan (SWPPP) and best management practices (BMPs) that would reduce or prevent soil erosion that ensure erosion is minimized. Therefore soil erosion impacts would be less than significant for all project components.

Grading, excavation, and backfill activities in vegetated areas, including sensitive natural vegetation communities as well as agricultural lands, could result in the loss of topsoil. For the Source Water Pipeline, new Desalinated Water Pipeline, and Castroville Pipeline, Terminal Reservoir, ASR-5 and ASR-6 Wells, and the Carmel Valley Pump Station, the impact would be potentially significant due to the presence of a well-developed topsoil horizon and the potential for it to be lost during excavation and backfilling. The impact associated with topsoil loss would be reduced to a less-than-significant level with implementation of **Mitigation Measures 4.6-2b (Avoid, Minimize, and Compensate for Direct Construction Impacts on Sensitive Communities)** and **4.16-1 (Minimize Disturbance to Farmland).** These measures require that topsoil be salvaged, stockpiled separately from subsoils, and returned to its appropriate location in the soil profile during backfilling activities. Surface soils at the slant wells and MPWSP Desalination Plant site are sandy and do not have a well-developed soil horizon and there are no sensitive natural communities or crop production. The pipelines and interconnection

improvements south of Reservation Road would be constructed within existing roadways and highly disturbed areas and would have no effect related to the loss of topsoil. Therefore, construction of the subsurface slant wells, MPWSP Desalination Plant and pipelines and interconnection improvements south of Reservation Road would have no impact related to loss of topsoil.

Impact 4.2-2: Exposure of people or structures to substantial adverse effects related to fault rupture.

Faults mapped as inactive by the State of California because they do not display evidence of recent displacement, intersect the proposed new Transmission Main, and the Ryan Ranch-Bishop Interconnection Improvements. This impact would be less than significant, and no impact would result for all other components of the proposed project.

Impact 4.2-3: Exposure of people or structures to substantial adverse effects related to seismically induced groundshaking.

Monterey County will likely experience a large regional earthquake within the operational life of the MPWSP. However, because of the location of project facilities relative to the faults and the limited potential for ground surface rupture associated with these faults, the potential is low for the groundshaking to cause injury, loss of life, or substantial property damage. Completion of a comprehensive geotechnical investigation, adherence to the current building ordinances, and the application of standard engineering practices would ensure that structures are designed to withstand seismic events without sustaining substantial damage or collapsing. This impact would be less than significant.

Impact 4.2-4 Exposure of people or structures to substantial adverse effects related to seismically induced ground failure, including liquefaction, lateral spreading, or settlement; Impact 4.2-5 Exposure of people or structures to landslides or other slope failures.

The potential for ground failure[1] is higher in areas composed of granular soils with a shallow depth to groundwater. The Castroville Pipeline and the Source Water Pipeline would be located on soils with a moderate to high potential for liquefaction; the Carmel Valley Pump Station would be located on soils mapped with a moderate liquefaction potential. The other project components would not be located in areas susceptible to liquefaction-induced ground settlement. Only the Main System-Hidden Hills Interconnection Improvements (consisting of a 100-foot-long, 6-inch-diameter buried pipeline) would be located in an area characterized as having a moderate to high susceptibility to earthquake-induced landslides. There are no existing active landslides in the area and the project does not propose activities that would exacerbate an otherwise unstable slope condition. The impact from seismically induced ground failure would be less than significant for all components of the proposed project due to required engineering practices and construction methods.

[1] Ground failure includes liquefaction, lateral spreading, or settlement, which would cause the foundation of a structure to be damaged, or pipelines to rupture.

Impact 4.2-6, 4.2-7: Exposure to expansive or corrosive soils.

Unless properly removed or reconditioned, expansive soils (such as clay loam, fine sandy loam, or loamy fine sand) could exert additional pressures on foundations and below-grade facilities, which could lead to pipeline rupture or structural damage. Soils with a high conductivity can corrode unprotected underground metal pipes, electrical conduits, and concrete, which could lead to pipeline failure. Proposed components that would be placed on or in soils with potential for moderate to high expansion potential include the Castroville Pipeline, Carmel Valley Pump Station, the Main System-Hidden Hills Interconnection Improvements, and the Ryan Ranch–Bishop Interconnection Improvements. Project components that would be on or in soils with moderate to high corrosion potential include the MPWSP Desalination Plant, Terminal Reservoir, ASR-5 and ASR-6 Wells, ASR Pipelines, and the Ryan Ranch–Bishop Interconnection Improvements. The structural elements would be required to undergo appropriate design-level geotechnical evaluations prior to final design and construction. If expansive and/or corrosive soils are identified during the final geotechnical design study, the project geotechnical engineer would recommend remedies to eliminate damage from expansive and corrosive soils, and those industry-standard recommendations would be implemented, including avoidance and/or removal of expansive and corrosive soils, or the use of cathodic protection. Given all of the existing building requirements and standards, the potential for expansive or corrosive soils to adversely impact project components is low and these impacts are less than significant.

Impact 4.2-8: Exposure of people or structures to substantial adverse effects related to land subsidence.

Overdrafting (long-term withdrawal in excess of recharge) of the Salinas Valley Groundwater Basin has taken place over an extended time, and saltwater has replaced the freshwater in those affected areas, thereby preventing subsidence. The proposed slant wells would be screened in aquifer units composed predominantly of sand and gravel which are less prone to subsidence because of their granular structure. Seawater would replace the water pumped from the slant wells and the continuous replacement of water would keep the pore spaces between the grains filled with water, further supporting the granular structure. Consequently, the soil structure above the slant wells would be unable to subside as a result of pumping and there would be no impact from subsidence associated with the subsurface slant wells.

The proposed ASR-5 and ASR-6 Wells would be located about 1,000 feet below ground surface in the sandstone portions of the Santa Margarita Formation in the Seaside Groundwater Basin. The sandstone structure would be expected to support the granular structure during groundwater pumping, especially considering the depth. Furthermore, for the first 25 years of the proposed project, 700 acre-feet annually would be left in the Seaside Groundwater Basin to restore water extracted in years prior to this project. This means that the overall groundwater levels in the Seaside Groundwater Basin would increase as a result of the proposed project, thus decreasing the potential for subsidence and resulting in no subsidence impacts.

Impact 4.2-9: Have soils incapable of supporting the use of alternative wastewater disposal systems.

The construction of the subsurface slant wells and the ASR wells would require the disposal of water from well drilling and development. The high permeability of the sandy materials at the proposed locations would be suitable for the infiltration of water and the impact would be less than significant. For all other project components, there would be no impact.

Impact 4.2-10: Accelerate and/or exacerbate natural rates of coastal erosion, scour, or dune retreat, resulting in damage to adjoining properties or a substantial change in the natural coastal environment.

The Monterey Bay coastline is expected to retreat due to rising sea level and would result in a beach and surf zone that is inland of its current location. Under a conservative predicted erosion rate, the proposed slant wells would not become exposed during their operational life (anticipated to be 20 to 25 years) and would not contribute to further coastal erosion or changes in the beach environment. However, it is possible that the existing test slant well (that would be converted to a permanent well) might become exposed on the beach during its operational life. If exposed, the subsurface slant well could accelerate and/or exacerbate natural rates of coastal erosion, scour, and dune retreat that could alter the natural coastal environment. The anticipated future presence of this slant well on the beach due to coastal retreat could result in a significant impact. **Mitigation Measure 4.2-9 (Slant Well Abandonment Plan)** would reduce the impact to a less-than-significant level by requiring CalAm to monitor coastal retreat rates and initiate well decommissioning if coastal retreat threatens the slant wells.

Impact 4.2-C: Cumulative impacts related to geology, soils, and seismicity.

Proposed project construction would not have a cumulatively considerable contribution to cumulative erosion-related impacts. Project operations would not have a considerable contribution to cumulative effects associated with fault rupture, seismic ground shaking, ground failure, landslides, or expansive/corrosive soils. Cumulative effects on topsoil could be significant, but the proposed project's potentially considerable contribution to this impact would be reduced to a level that is not cumulatively considerable (less than significant) with implementation of mitigation measures identified in Impact 4.2-1. Similarly, although cumulative impacts related to coastal erosion could be significant, implementation of the mitigation measures identified in Impact 4.2-10 would reduce the proposed project's potentially considerable contribution to cumulative coastal erosion impacts to less than significant.

5.5.2.3 Direct and Indirect Effects of No Project Alternative

Under the No Project Alternative, no new facilities would be constructed. Consequently, there would be no ground disturbance or placement of new structures that could affect or be affected by soils or seismic activity, and thus no construction- or operation-related direct or indirect impacts relative to geology, soils, and seismicity associated with the No Project Alternative. Because the No Project Alternative would have no direct or indirect impacts with respect to geology, soils, and seismicity, it could not contribute to cumulative effects related to these topics.

5.5.2.4 Direct and Indirect Effects of Project Alternative 1 – Slant Wells at Potrero Road

Alternative 1 would supply seawater to the proposed 9.6 mgd desalination plant located at the Charles Benson Road site using the same type of subsurface intake system as the proposed project, but at a different location (described in Section 5.4.3). The desalination plant, brine discharge pipeline, Castroville Pipeline, Pipeline to CSIP Pond, new Desalinated Water Pipeline, new Transmission Main, Terminal Reservoir, ASR components, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be identical to the proposed project described in Chapter 3, Description of the Proposed Project. The location of the slant wells at Potrero Road and the additional 5.5 miles of source water pipeline are the components unique to Alternative 1 (see **Figure 5.4-1**). Therefore, the geologic impact analysis of Alternative 1 focuses primarily on the locations for the intake system and source water pipelines that are different from the proposed project; however, impact conclusions are made for the whole of Alternative 1.

Construction Impacts

All construction activities and disturbance for the slant wells would occur in the parking lot at the western terminus of Potrero Road in northern Monterey County, near the southern border of the unincorporated community of Moss Landing. The Potrero Road beach parking lot is owned and operated by the California Department of Parks and Recreation (California State Parks) and the 10 slant wells would be buried 5 feet below the hardened sand parking surface. The approximately 4-foot-wide, 12-foot-long, and 6-foot-high electrical control building, the only above-ground structure at this location, would be located at the edge of the parking lot.

Slant well construction, using similar materials, pipe sizes, and construction methods to those described for the proposed project, would occur year-round at the Potrero Road parking lot. Construction of the slant wells would require short-term ground disturbance activities (e.g., grading, excavation, drilling, and the construction of structures) and the entire 1-acre parking lot would be closed during construction. The potential for erosion would be reduced from the 9 acres of disturbed area at CEMEX and construction at Potrero Road would not disturb the dunes or active beach area. The slant wells would be located in relatively flat areas with little topographic relief, which would minimize the potential for soil erosion during construction.

The 36-inch diameter source water pipeline for Alternative 1 would be constructed within Potrero Road and would continue south along Highway 1, then south/southeast along Molera Road, and southwest along Monte Road to the desalination plant site on Charles Benson Road (**Figure 5.4-1**). The construction of an additional 5.5 miles of source water pipeline could increase the potential for erosion compared to the proposed project. However, construction of both the slant wells and pipeline would be required to comply with the numerous existing State and local regulations described in Impact 4.2-1 that would reduce or prevent soil erosion. Thus, combining the impacts of the proposed project components with the addition of 5.5 miles of source water pipeline and the slant wells at Potrero Road, construction would result in the ***same impact conclusion*** as the proposed project, less than significant.

Like the proposed project at CEMEX, surface soils at the Potrero Road site are sandy and do not have a well-developed soil horizon. The site is covered in rural and disturbed habitat and does not support sensitive natural communities or crop production. Similar to the proposed project, however, pipeline construction activities could disturb vegetated areas adjacent to designated farmland. Grading, excavation, and backfill activities in these areas could result in the loss of topsoil (a fertile soil horizon that typically contains a seed base) during excavation and backfilling. Like the proposed project, the potential significant impact from loss of topsoil on agricultural lands would be reduced to a less-than-significant level with implementation of **Mitigation Measure 4.16-1** (**Minimize Disturbance to Farmland**). Thus, combining the impacts of the components common with the proposed project with the addition of 5.5 miles of source water pipeline and the reduction in slant well acreage at Potrero Road, construction of Alternative 1 could result in an increased potential for loss of topsoil, but with mitigation, would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Operational and Facility Siting Impacts

The impacts of components that are common with the proposed project (i.e., the desalination plant, brine discharge pipeline, Castroville Pipeline, Pipeline to CSIP Pond, new Desalinated Water Pipeline, new Transmission Main, Terminal Reservoir, ASR components, Highway 68 interconnection improvements, and Carmel Valley Pump Station) would be identical to the impacts identified for the proposed project, as summarized above in Section 5.5.2.2 (additional details in Section 4.2). The location of the slant wells at Potrero Road and the additional 5.5 miles of source water pipeline are the only components unique to Alternative 1 (see **Figure 5.4-1**) and they are not located on or near an active fault; therefore, for the exposure of people or structures to fault rupture or other ground failure, liquefaction, spreading, or settlement resulting from seismic events and groundshaking, Alternative 1 would result in the ***same impact conclusion*** as the proposed project, less than significant.

Only the Main System-Hidden Hills Interconnection Improvements, common with the proposed project, would be located in an area characterized as having a moderate to high susceptibility to earthquake-induced landslides. There are no existing active landslides in the study area and Alternative 1 does not propose activities that would exacerbate an otherwise unstable slope condition. Therefore, Alternative 1 would result in the ***same impact conclusion*** as the proposed project relative to exposure of people or structures to landslides or other slope failures because only components shared with the proposed project would be located in an area with moderate to high susceptibility to earthquake-induced landslides, less than significant.

In addition to the Castroville Pipeline, the Carmel Valley Pump Station, the Main System-Hidden Hills Interconnection Improvements, and the Ryan Ranch-Bishop Interconnection Improvements that are shared with the proposed project, the slant wells at the Potrero Road parking lot and the source water pipeline in Potrero Road would be located on or in expansive soils with moderate to high corrosion potential that can corrode unprotected underground metal pipes, electrical conduits, and concrete. Like the proposed project, this alternative would be subject to existing building requirements and standards to minimize effects of expansive or corrosive soils.

Therefore, the presence of expansive or corrosive soils would result in the ***same impact conclusion*** as the proposed project, less than significant.

The slant wells at Potrero Road, like the proposed project slant wells at CEMEX, would be screened in aquifer units composed predominantly of sand and gravel, which are less prone to subsidence because of their granular structure. Seawater would replace the water pumped from the slant wells and the continuous replacement of water would keep the pore spaces between the grains filled with water, further supporting the granular structure. Consequently, the soil structure above the slant wells would be unable to subside as a result of pumping resulting in the ***same impact conclusion*** as the proposed project related to subsidence, no impact.

Alternative 1 would result in a different method of disposing effluent generated during construction and development of the slant wells. Development of the slant wells would require storing seawater and sandy soil in storage tanks to allow sediment to settle out, and then discharging this water into a buried diffuser system in the parking lot for percolation into the underlying beach sands. Cuttings generated during the drilling process and the well head construction would be drained in a separation unit, with the drainage discharged to the buried diffuser. The high permeability of the sandy materials at Potrero Road would be suitable for the alternative wastewater disposal system for the infiltration of effluent. Like the proposed project, disposal of water from drilling and development of the ASR-5 and -6 wells would occur in sandy soils suitable for the infiltration of water. None of the other Alternative 1 components would require an alternative wastewater disposal system and this alternative would result in the ***same impact conclusion*** as the proposed project, less than significant.

Unlike the proposed project, the slant well insertion points and source water pipeline of Alternative 1 would be located approximately 70 feet inland of the modeled extent of erosion resulting from the 100-year storm event in the year 2060 (ESA, 2014). Therefore, they would not be exposed to coastal retreat during the project lifetime and would not contribute to coastal erosion or scour because of their set back location inland of the dunes. Therefore, Alternative 1 would not require implementation of **Mitigation Measure 4.2-9 (Slant Well Abandonment Plan)** identified for the proposed project. Alternative 1 would result in a ***decreased impact conclusion*** relative to coastal erosion compared to the proposed project, no impact.

In summary, this alternative would avoid the proposed project's potential impacts related to coastal erosion at the CEMEX slant well site. Similar to the proposed project, there would be no new facilities on the seafloor and Alternative 1 would not result in impacts on underwater slope stability and landslides. Similar to the proposed project, operation and siting of Alternative 1 would generally result in less-than-significant impacts relative to geology, soils, and seismicity.

Cumulative Analysis

Alternative 1 would avoid impacts related to coastal erosion, and so would have no contribution to cumulative coastal erosion effects.

The geographic scope of analysis for cumulative impacts related to geology, soils, and seismicity for Alternative 1 is defined by the location of the Alternative 1 components, and is the same as that described for the proposed project in Section 4.2.6, with the exception of the different location of the seawater intake system (Potrero Road, instead of CEMEX), and alternative source water pipeline route. Although the geographic scope generally covers a large area, geologic impacts are localized and site-specific. Section 4.2.6 describes that because of the site-specific nature of these impacts, and because the proposed project and projects within the geographic scope would be subject to the same requirements related to erosion control and adherence to building codes, the components common to the proposed project would not have a cumulatively considerable contribution to significant cumulative impacts related to erosion and soil-related and seismic hazards, and that after implementation of **Mitigation Measure 4.6-2b** and **4.16-1**, these components would not have a cumulatively considerable contribution to cumulative impacts related to the loss of topsoil. Of the projects described in **Table 4.1-2** in Section 4.1, the DeepWater Desal Project (No. 34) is the only additional project in the Alternative 1 geographic scope that would have components located near components that are unique to Alternative 1. However, the DeepWater Desal Project facilities would be located north of Potrero Road at Moss Landing and neither the facilities nor their associated impacts would geographically overlap with impacts of Alternative 1 components; therefore, the geological impacts of these components would not combine with impacts of Alternative 1. No other cumulative projects are located in this Potrero Road area or along the alternative source water pipeline route, so no changes or increases in cumulative impacts would occur compared to the proposed project. Similar to the proposed project, with implementation of **Mitigation Measures 4.6-2b** and **4.16-1**, Alternative 1's contribution to a significant cumulative impact on topsoil would be reduced to a level that is not cumulatively considerable. Therefore, Alternative 1 would result in the ***same impact conclusion*** as the proposed project for cumulative effects related to geology, soils, and seismicity, less than significant with mitigation.

5.5.2.5 Direct and Indirect Effects of Project Alternative 2 – Open-Water Intake at Moss Landing

Alternative 2 would supply seawater to the proposed 9.6 mgd desalination plant located at the Charles Benson Road site using a screened open-water intake system consisting of an intake structure located offshore in MBNMS and southwest of the Moss Landing Harbor entrance, a subsurface intake pipeline, and an intake pump station (described in Section 5.4.4). The desalination plant, brine discharge pipeline, new Desalinated Water Pipeline, new Transmission Main, Terminal Reservoir, ASR components, Highway 68 interconnection improvements, and the Carmel Valley Pump Station would be identical to the proposed project described in Chapter 3, Description of the Proposed Project. Because the open water intake would eliminate the need for returning source water drawn from the Salinas Valley Groundwater Basin, the Castroville Pipeline, the Pipeline to CSIP Pond, and operational components related to delivering water to Castroville Community Services District would not be implemented. The open water intake system and the additional 6.5 miles of source water pipeline are the components unique to Alternative 2 (see **Figure 5.4-2**). Therefore, the geologic impact analysis of Alternative 2 focuses

primarily on the locations for the intake system and source water pipelines that are different from the proposed project; however, impact conclusions are made for the whole of Alternative 2.

Construction Impacts

Similar to the proposed project, construction would involve localized, short-term ground disturbance activities (e.g., grading, excavation, trenching, and drilling). The potential for soil erosion during construction activities would be minimal because facilities on land and all conveyance pipelines would be located in relatively flat areas with little topographic relief. The construction of an additional 6.5 miles of source water pipeline could increase the potential for erosion. However, like the proposed project, Alternative 2 construction activities would be subject to numerous existing State and local regulations that ensure erosion is minimized. Thus, combining the impacts of the proposed project components with the addition of 6.5 miles of source water pipeline and the open water intake system, construction would result in the ***same impact conclusion*** as the proposed project, less than significant.

There is no farmland at the open-water intake pump station site, and the disturbed nature of the area means that loss of topsoil would not be an issue. Similar to the proposed project, however, pipeline construction activities could disturb vegetated areas adjacent to designated farmland. Grading, excavation, and backfill activities in these areas could result in the loss of topsoil during excavation and backfilling. Like the proposed project, the potential significant impact from loss of topsoil on agricultural lands would be reduced to a less-than-significant level with implementation of **Mitigation Measure 4.16-1** (**Minimize Disturbance to Farmland**). Therefore, the potential for loss of topsoil from the construction of the components common with the proposed project and the additional 6.5 miles of source water pipeline would be increased compared to the proposed project. However, because the mitigation measure would salvage and return topsoil to its appropriate location after construction, Alternative 2 would result in the ***same impact conclusion*** as the proposed project with respect to topsoil impacts, less than significant with mitigation.

Operational and Facility Siting Impacts

Impacts from components that are common with the proposed project would be identical to the impacts identified for these components in Section 4.2. The location of the intake system components and the additional 6.5 miles of source water pipeline are the components unique to Alternative 2 (see **Figure 5.4-2**) and they are not located on or near an active fault; therefore, the components of Alternative 2 located on land would result in the ***same impact conclusion*** as the proposed project for the exposure of people or structures to fault rupture or other ground failure, liquefaction, spreading, or settlement resulting from seismic events and groundshaking, less than significant. The potential for groundshaking and liquefaction-related impacts on underwater components of Alternative 2 is discussed below.

Only the Main System-Hidden Hills Interconnection Improvements, common with the proposed project, would be located in an area characterized as having a moderate to high susceptibility to earthquake-induced landslides. There are no existing active landslides in the study area and the components of Alternative 2 located on land do not include activities that would exacerbate an

otherwise unstable slope condition. Therefore, Alternative 2 would result in the ***same impact conclusion*** as the proposed project relative to exposure of people or structures to landslides or other slope failures, less than significant. The potential for underwater landslide and slope failure related to underwater components of Alternative 2 is discussed below.

In addition to the Carmel Valley Pump Station, the Main System-Hidden Hills Interconnection Improvements, and the Ryan Ranch-Bishop Interconnection Improvements that are shared with the proposed project, the Alternative 2 intake system and the portion of the source water pipeline north of Nashua Road/Highway 1 intersection would be located on or in expansive soils with moderate to high corrosion potential that can corrode underground metal pipes, electrical conduits, and concrete. Like the proposed project, this alternative would be subject to existing building requirements and standards to minimize effects of expansive or corrosive soils. Therefore, the presence of expansive or corrosive soils would result in the ***same impact conclusion*** as the proposed project, less than significant.

Like the proposed project, Alternative 2 would extract water from the Seaside Groundwater Basin through the ASR-5 and -6 wells, but would not extract groundwater from the Salinas Valley Groundwater Basin; as described for the proposed project, this extraction from the ASR wells would have no potential to cause subsidence. This would result in the ***same impact conclusion*** as the proposed project, no impact.

Alternative 2 would produce the same amount and type of well development water during development of the ASR-5 and -6 wells, but would not produce well development water associated with the subsurface slant wells. The high permeability of the sandy materials at the ASR wells would be suitable for the infiltration of water; therefore, Alternative 2 would result in the ***same impact conclusion*** as the proposed project related to the suitability of the locations for wastewater disposal, less than significant.

The subsurface pipeline from the Alternative 2 open water intake system to the pump station on Dolan Road would be installed about 100 feet below ground using horizontal directional drilling (HDD) methods as it crosses under the coastline and beneath Highway 1, an area of the coastline that is anticipated to experience coastal erosion during the project lifetime. However, the pipeline is not anticipated to become exposed within the project lifetime (ESA, 2014) nor would it contribute to coastal erosion; therefore, Alternative 2 would have a ***reduced impact conclusion*** related to coastal erosion compared to the proposed project, no impact.

The underwater components of Alternative 2 (the open water intake system) would have the potential to degrade the physical structure of a geologic resource or alter oceanographic processes, such as sediment transport, such that the result would be measurably different from pre-existing conditions. The Alternative 2 seawater intake structure would be located in Monterey Bay within MBNMS on the slopes of the Monterey Submarine Canyon. No active faults are known to occur in the local area; however, the seawater intake system would be expected to experience seismic shaking during the project lifetime, similar to the proposed project, and could be subject to damage from seismic shaking or seismically induced liquefaction, known to have occurred in the local area. Repairs would be necessary, potentially resulting in impacts on the

geologic resources and oceanographic processes at this location on the seafloor, resulting in an increased potential for impact compared to the proposed project. Additionally, because the open-water intake structure in Monterey Bay would be anchored on the slopes of the Monterey Submarine Canyon, the potential for future slope instability and underwater landslide would result in greater potential for adverse impacts on marine geologic resources compared to the proposed project. Also, placement of an open water intake on the seabed of MBNMS could affect seabed substrate and alter oceanographic processes such as sediment transport in the vicinity of Monterey Submarine Canyon. Although mitigation would be required, measures have not been defined and their efficacy cannot be guaranteed; therefore, impacts on slope stability, landslides, and alteration of geologic resources or marine processes within the Monterey Bay would result in an ***increased impact conclusion*** compared to the proposed project because they are considered to be significant and unavoidable.

In summary, Alternative 2 would avoid impacts of the proposed project related to coastal erosion at the slant wells at the CEMEX site, but the open water intake structure on the slopes of the Monterey Submarine Canyon in MBNMS could result in an ***increased impact conclusion*** compared to the proposed project because of the potential degradation of marine geologic resources or oceanographic processes. Alternative 2 would result in a significant and unavoidable impact.

Cumulative Analysis

Cumulative impacts resulting from the components of Alternative 2 that are common with the proposed project would be the same as those described for the proposed project in Section 4.2.6. In summary, these components could have a cumulatively considerable contribution to potentially significant impacts related to loss of topsoil, but after implementation of mitigation measures, these components would not have a cumulatively considerable contribution to a cumulative impact. Alternative 2 would avoid impacts related to coastal erosion, and so would avoid a contribution to cumulative coastal erosion effects.

The geographic scope of analysis for cumulative geology, soils, and seismicity impacts for Alternative 2 is defined by the location of the Alternative 2 components, and is the same as that described for the proposed project in Section 4.2.6, with the exception that the Castroville Pipeline and Pipeline to CSIP are not included, as well as the different location of the open water intake system and alternative source water pipeline. Although the geographic scope generally covers a large area, geologic impacts are localized and site-specific. Section 4.2.6 describes that because of the site-specific nature of these impacts, and because the proposed project and projects within the geographic scope would be subject to the same requirements related to erosion control and adherence to building codes, the components common to the proposed project would not have a cumulatively considerable contribution to significant cumulative impacts related to erosion and soil-related and seismic hazards, and that after implementation of **Mitigation Measure 4.6-2b** and **4.16-1**, these components would not have a cumulatively considerable contribution to cumulative impacts related to the loss of topsoil. The DeepWater Desal Project (No. 34) and the Moss Landing Community Plan (No. 37), described in **Table 4.1-2** in Section 4.1, are the only additional projects located near or overlapping the components unique to Alternative 2. Design

and construction of these projects would be required to comply with the same requirements as Alternative 2. Therefore, the cumulative impacts related to erosion and geologic impacts on land would be less than significant.

Both Alternative 2 and the DeepWater Desal project would result in the placement of structures (intakes and outfalls) in Monterey Bay that would be anchored on the slopes of the Monterey Submarine Canyon. Therefore, the cumulative potential for future slope instability and underwater landslide would be increased compared to either project alone, and the cumulative impact would be significant. Although mitigation measures would be required, they have not been defined and their efficacy cannot be guaranteed. Therefore, cumulative impacts from the underwater landslide risk would remain significant and unavoidable, and the open-water intake component of Alternative 2 would have a cumulatively considerable contribution to that significant cumulative impact. Therefore, Alternative 2 would result in an ***increased impact conclusion*** compared to the proposed project for cumulative effects related to geology, soils, and seismicity, significant and unavoidable.

5.5.2.6 Direct and Indirect Effects of the Project Alternative 3 – Monterey Bay Regional Water Project (MBRWP or DeepWater Desal Project)

Alternative 3 includes the construction and operation of a screened open ocean intake system and a brine discharge system located on the seafloor in Monterey Bay within MBNMS, subsurface pipelines connecting to these intake and discharge systems, a seawater desalination facility and co-located data center, and associated components to provide up to 25,000 afy of potable water and data transmission and storage services. The pipelines for the intake and discharge systems would be installed using HDD. The alternative would also include 6.5 miles of desalinated water pipeline to connect with the CalAm system and up to an additional 25 miles of pipelines to convey the desalinated water to other areas (total of 31.5 miles of additional pipeline). Several components would be identical to the proposed project: the new Transmission Main, new desalinated water pipeline south of the "Connection to CalAm" Point on **Figure 5.4-3**, ASR 5 and 6 wells and ASR pipeline, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be as described in Chapter 3, Description of the Proposed Project. Because this alternative would have an open water intake that would eliminate the need for returning source water drawn from the Salinas Valley Groundwater Basin, the proposed project Castroville Pipeline, Pipeline to CSIP Pond, and operational components related to delivering water to CCSD would not be implemented. The desalination plant and data center, open water intake system, brine discharge system, and the additional 31.5 miles of desalinated water pipeline are the components unique to Alternative 3 (see **Figure 5.4-3**). Therefore, the geologic impact analysis of Alternative 3 focuses primarily on these components; however, impact conclusions are made for the whole of Alternative 3.

Construction Impacts

Similar to the proposed project, construction would involve localized, short-term ground disturbance activities (e.g., grading, excavation, trenching, and drilling). The potential for soil

erosion during construction activities would be minimal because facilities on land and all conveyance pipelines would be located in relatively flat areas with little topographic relief. The construction of larger facilities on land (i.e., the desalination plant and data center) and an additional 31.5 miles of desalinated water pipeline could increase the potential for erosion compared to the proposed project. However, like the proposed project, Alternative 3 construction activities would be subject to numerous existing State and local regulations that ensure erosion is minimized. Thus, although Alternative 3 construction would have a greater potential for erosion due to the substantial additional area of ground disturbance, compliance with these regulations would ensure that it would result in the ***same impact conclusion*** as the proposed project, less than significant.

There is no farmland at the desalination plant, data center, substation, or open-water intake pump station sites, and the disturbed nature of the area means that loss of topsoil would not be an issue. Similar to the proposed project, however, pipeline construction activities could disturb vegetated areas adjacent to designated farmland. Grading, excavation, and backfill activities in these areas could result in the loss of topsoil during excavation and backfilling. Like the proposed project, the potential significant impact from loss of topsoil on agricultural lands would be reduced to a less-than-significant level with implementation of **Mitigation Measure 4.16-1** (**Minimize Disturbance to Farmland**). Therefore, the potential for loss of topsoil from the construction of the components common with the proposed project and the additional 31.5 miles of pipeline would be increased compared to the proposed project. However, because the mitigation measure would salvage and return topsoil to its appropriate location after construction, Alternative 3 would result in the ***same impact conclusion*** as the proposed project with respect to topsoil impacts, less than significant with mitigation.

Operational and Facility Siting Impacts

Impacts from components that are common with the proposed project (i.e., new Desalinated Water Pipeline, new Transmission Main, Terminal Reservoir, ASR components, Highway 68 interconnection improvements, and Carmel Valley Pump Station) would be identical to the impacts identified for the proposed project. The location of the intake, discharge, desalination plant, data center, substation, and additional 31.5 miles of desalinated water pipeline are the components unique to Alternative 3 (see **Figure 5.4-3**) and they are not located on or near an active fault; therefore, the components of Alternative 3 located on land would result in the ***same impact conclusion*** as the proposed project related to exposure of people or structures to fault rupture or other ground failure, liquefaction, spreading, or settlement resulting from seismic events and groundshaking, less than significant. The potential for groundshaking- and liquefaction-related impacts from underwater components of Alternative 3 is discussed below.

Only the Main System-Hidden Hills Interconnection Improvements, common with the proposed project, would be located in an area characterized as having a moderate to high susceptibility to earthquake-induced landslides. There are no existing active landslides in the area and the components of Alternative 3 located on land do not include activities that would exacerbate an otherwise unstable slope condition. Therefore, Alternative 3 would result in the ***same impact conclusion*** as the proposed project relative to exposure of people or structures to landslides or

other slope failures, less than significant. The potential for underwater landslide and slope failure related to underwater components of Alternative 3 is discussed below.

In addition to the Carmel Valley Pump Station, the Main System-Hidden Hills Interconnection Improvements, and the Ryan Ranch-Bishop Interconnection Improvements that are shared with the proposed project, the intake and discharge systems and the desalinated water pipeline for Alternative 3 north of Nashua Road/Highway 1 intersection would be located on or in expansive soils with moderate to high corrosion potential Like the proposed project, this alternative would be subject to existing building requirements and standards to minimize effects of expansive or corrosive soils. Therefore, the presence of expansive or corrosive soils would result in the ***same impact conclusion*** as the proposed project, less than significant.

Like the proposed project, Alternative 3 would extract water from the Seaside Groundwater Basin through the ASR-5 and -6 wells, but would not extract groundwater from the Salinas Valley Groundwater Basin; as described for the proposed project, this extraction from the ASR wells would have no potential to cause subsidence. This would result in the ***same impact conclusion*** as the proposed project for subsidence, no impact.

Alternative 3 would produce the same amount and type of well development water during development of the ASR 5 and 6 wells but would not produce well development water associated with the subsurface slant wells. The high permeability of the sandy materials would be suitable for the infiltration of water; therefore, Alternative 3 would result in the ***same impact conclusion*** as the proposed project related to the suitability of the locations for wastewater disposal, less than significant.

The four subsurface pipelines between the Alternative 3 open water intake/brine disposal systems and the pump station on Dolan Road would be installed about 100 feet below ground using HDD methods as they cross under the coastline and beneath Highway 1, an area of the coastline that is anticipated to experience coastal erosion during the project lifetime. Due to their depth below ground, the pipelines would not become exposed within the project lifetime nor would they contribute to coastal erosion; therefore, Alternative 3 would have a ***reduced impact conclusion*** related to coastal erosion compared to the proposed project, no impact.

The underwater features of Alternative 3 would have the potential to degrade the physical structure of a geologic resource or alter oceanographic processes, such as sediment transport, such that the result would be measurably different from pre-existing conditions. The Alternative 3 seawater intake and brine disposal systems would be located in Monterey Bay within MBNMS on the slopes of the Monterey Submarine Canyon. No active faults are known to occur in the local area; however, the seawater intake and brine disposal system would be expected to experience seismic shaking during the project lifetime, similar to the proposed project; and could be subject to damage from seismic shaking or seismically induced liquefaction, known to have occurred in the local area. Repairs would be necessary, potentially resulting in impacts on the geologic resources and oceanographic processes at this location on the seafloor. Additionally, because the open-water intake and brine disposal structures in Monterey Bay would be anchored on the slopes of the Monterey Submarine Canyon, the potential for future slope instability and underwater

landslide would be increased compared to the proposed project. Also, placement of an open water intake and brine disposal system on the seabed of MBNMS could affect seabed substrate and alter oceanographic processes such as sediment transport in the vicinity of Monterey Submarine Canyon. Although mitigation would be required, measures have not been defined and their efficacy cannot be guaranteed. Therefore, impacts on slope stability, landslides, and alteration of geologic resources or marine processes in the Monterey Bay within MBNMS would be an ***increased impact conclusion*** compared to the proposed project, and are considered to be significant and unavoidable.

In summary, Alternative 3 would avoid impacts related to coastal erosion at the proposed project slant wells at CEMEX, but because of significant and unavoidable impacts related to degradation of marine geologic resources or oceanographic processes as a result of the intake and brine discharge structures on the slopes of the Monterey Submarine Canyon within MBNMS, Alternative 3 would result in an ***increased impact conclusion*** compared to the proposed project.

Cumulative Analysis

Cumulative impacts resulting from the components of Alternative 3 that are common with the proposed project would be the same as those described for the proposed project in Section 4.2.6. In summary, these components could have a cumulatively considerable contribution to potentially significant impacts related to loss of topsoil, but after implementation of mitigation measures, these components would not have a cumulatively considerable contribution to a cumulative impact. Alternative 3 would avoid impacts related to coastal erosion, and so would avoid a contribution to cumulative coastal erosion effects.

The geographic scope of analysis for cumulative geology, soils, and seismicity impacts for Alternative 3 is defined by the location of the Alternative 3 components. Although the geographic scope generally covers a large area, geologic impacts are localized and site-specific. Section 4.2.6 describes that because of the site-specific nature of these impacts, and because the proposed project and projects within the geographic scope would be subject to the same requirements related to erosion control and adherence to building codes, the components common to the proposed project would not have a cumulatively considerable contribution to significant cumulative impacts related to erosion and soil-related and seismic hazards, and that after implementation of **Mitigation Measure 4.6-2b** and **4.16-1**, these components would not have a cumulatively considerable contribution to cumulative impacts related to the loss of topsoil. The Moss Landing Community Plan (No. 37 in **Table 4.1-2** in Section 4.1) and the GWR Project (No. 59) are the only additional projects located geographically near or overlapping the components unique to Alternative 3. Design and construction of these projects would be required to comply with the same requirements as Alternative 3. Therefore, the cumulative impacts related to erosion and geologic impacts on land would be less than significant.

Alternative 3 would result in the placement of structures (intake and outfall) in Monterey Bay that would be anchored on the slopes of the Monterey Submarine Canyon, resulting in a significant and unavoidable impact relative to underwater slope stability and landslides. However, no

reasonably foreseeable cumulative projects would include additional structures in this location. Therefore, a cumulative analysis is not applicable to this impact for Alternative 3.

Overall, the project-level significant and unavoidable impact underwater slope stability and landslides notwithstanding (because no cumulative analysis is applicable to this impact), with implementation of mitigation measures identified in Section 4.2, Alternative 3's contribution to significant cumulative impacts would be reduced to a level that is not cumulatively considerable. Therefore, Alternative 3 would result in the ***same impact conclusion*** as the proposed project for cumulative effects related to geology, soils, and seismicity, less than significant with mitigation.

5.5.2.7 Direct and Indirect Effects of Project Alternative 4 – People's Moss Landing Water Desalination Project (People's Project)

Alternative 4 includes the construction and operation of an open ocean intake, a brine discharge system and pipelines, and supporting ballast rock located on the seafloor in Monterey Bay within MBNMS, as well as a 12 mgd desalination plant and associated facilities to provide 13,400 afy of water supply to meet the current and future needs of the Monterey Peninsula. Several components would be identical to the proposed project: the new Transmission Main, new desalinated water pipeline south of the "Connection to CalAm" Point on **Figure 5.4-4**, ASR-5 and -6 wells and ASR pipeline, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be as described in Chapter 3, Description of the Proposed Project. Because this alternative would have an open water intake that would eliminate the need for returning source water drawn from the Salinas Valley Groundwater Basin, the proposed project Castroville Pipeline, Pipeline to CSIP Pond, and operational components related to delivering water to CCSD would not be implemented. The desalination plant, open water intake system, brine discharge system, and the additional 6.5 miles of desalinated water pipeline are the components unique to Alternative 4 (see **Figure 5.4-4**). Therefore, the geologic impact analysis of Alternative 4 focuses primarily on these components; however, impact conclusions are made for the whole of Alternative 4.

Construction Impacts

Similar to the proposed project, construction would involve localized, short-term ground disturbance activities (e.g., grading, excavation, trenching, and drilling). The potential for soil erosion during construction activities would be minimal because project facilities and all conveyance pipelines would be located in relatively flat areas with little topographic relief. The construction of an additional 6.5 miles of desalinated water pipeline could increase the potential for erosion. However, like the proposed project, Alternative 4 construction activities would be subject to numerous existing State and local regulations that ensure erosion is minimized. Thus, combining the impacts of the proposed project components with the Alternative 4 intake, discharge, and desalination plant and addition of 6.5 miles of desalinated water pipeline and the open water intake system, construction would result in the ***same impact conclusion*** as the proposed project, less than significant.

There is no farmland at the intake, discharge, or desalination plant sites and the disturbed nature of the area means that loss of topsoil would not be an issue. Similar to the proposed project,

however, pipeline construction activities could disturb vegetated areas adjacent to designated farmland. Grading, excavation, and backfill activities in these areas could result in the loss of topsoil during excavation and backfilling. Like the proposed project, the potential significant impact from loss of topsoil on agricultural lands would be reduced to a less-than-significant level with implementation of **Mitigation Measure 4.16-1** (**Minimize Disturbance to Farmland**). Thus, combining the impacts of the Alternative 4 components, construction is expected to result in the ***same impact conclusion*** the proposed project with respect to topsoil impacts, less than significant with mitigation.

Operational and Facility Siting Impacts

Impacts from components that are common with the proposed project would be identical to the impacts identified for these components in Section 4.2. The location of the intake, discharge, desalination plant and the additional 6.5 miles of desalinated water pipeline are the components unique to Alternative 4 (see **Figure 5.4-4**) and they are not located on or near an active fault; therefore, the components of Alternative 4 located on land would result in the ***same impact conclusion*** as the proposed project related to exposure of people or structures to fault rupture or other ground failure, liquefaction, spreading or settlement resulting from seismic events and groundshaking, less than significant. The potential for groundshaking- and liquefaction-related impacts from underwater components of Alternative 4 is discussed below.

Only the Main System-Hidden Hills Interconnection Improvements, common with the proposed project, would be located in an area characterized as having a moderate to high susceptibility to earthquake-induced landslides. There are no existing active landslides in the study area and the components of Alternative 4 located on land do not include activities that would exacerbate an otherwise unstable slope condition. Therefore, Alternative 4 would result in the ***same impact conclusion*** as the proposed project relative to exposure of people or structures to landslides or other slope failures, less than significant. The potential for underwater landslide and slope failure related to underwater components of Alternative 4 is discussed below.

In addition to the Carmel Valley Pump Station, the Main System-Hidden Hills Interconnection Improvements, and the Ryan Ranch-Bishop Interconnection Improvements, the intake/discharge system and the desalinated water pipeline for Alternative 4 north of Nashua Road/Highway 1 intersection would be located on or in expansive soils with moderate to high corrosion potential that can corrode underground metal pipes, electrical conduits, and concrete. Like the proposed project, this alternative would be subject to existing building requirements and standards to minimize effects of expansive or corrosive soils. Therefore, the presence of expansive or corrosive soils would result in the ***same impact conclusion*** as the proposed project, less than significant.

Like the proposed project, Alternative 4 would extract water from the Seaside Groundwater Basin through the ASR-5 and -6 wells but would not extract groundwater from the Salinas Valley Groundwater Basin; as described for the proposed project, this extraction from the ASR wells would have no potential to cause subsidence. This would result in the ***same impact conclusion*** as the proposed project for subsidence, no impact.

Alternative 4 would produce the same amount and type of well development water during development of the ASR-5 and -6 wells but would not produce well development water associated with the subsurface slant wells. The high permeability of the sandy materials would be suitable for the infiltration of water; therefore, Alternative 4 would result in the ***same impact conclusion*** as the proposed project related to the suitability of the locations for wastewater disposal, less than significant.

Alternative 4 intake and outfall pipelines would be located on and under the seafloor, and would extend inland to the desalination facility from the existing caisson on the beach at the end of Sandholdt Road. The caisson itself is currently being subjected to coastal erosion (ESA, 2014) and would be removed at some point soon, re-located inland or reinforced in place with coastal armoring. A new pump house proposed for on top of the caisson would extend the use of the caisson and postpone the need to remove it. The Coastal Act provides that seawalls and other forms of construction that alter natural shoreline processes "shall be permitted when required to serve coastal-dependent uses or to protect existing structures or public beaches in danger from erosion, and when designed to eliminate or mitigate adverse impacts on local shoreline sand supply." The Coastal Act also requires that "new development ... assure stability and structural integrity, and neither create nor contribute significantly to erosion ... or destruction of the site or surrounding area or in any way require the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs." The continued use of the caisson on the beach could result in accelerated erosion, could alter the existing landforms along the coast and could expose adjacent properties to coastal flooding.

However, the application of shoreline protective measures at the existing caisson could be permitted under the Coastal Act if: (1) there is an existing structure, public beach, or coastal-dependent use that is; (2) in danger from erosion; and (3) the shoreline protection is both required to address the danger (the least environmentally-damaging, feasible alternative) and (4) designed to eliminate or mitigate impacts on sand supply. While the applicant may propose such a measure to protect the caisson during the operations of Alternative 4, the details of the proposed mitigation are unknown and therefore, their efficacy cannot be determined. The impacts identified here would result in an ***increased impact conclusion*** compared to the proposed project and impacts would be significant and unavoidable.

The underwater features of Alternative 4 would have the potential to degrade the physical structure of a geologic resource or alter oceanographic processes, such as sediment transport, such that the result would be measurably different from pre-existing conditions. The Alternative 4 seawater intake and brine disposal systems would be located in Moss Landing in Monterey Bay within MBNMS on the slopes of the Monterey Submarine Canyon. No active faults are known to occur in the local area; however, the seawater intake and brine disposal system would be expected to experience seismic shaking during the project lifetime, similar to the proposed project, and could be subject to damage from seismic shaking or seismically induced liquefaction, known to have occurred in the local area. Repairs would be necessary, potentially resulting in impacts on the geologic resources and oceanographic processes at this location on the seafloor. Additionally, because the open-water intake and brine disposal structures in Monterey Bay would be anchored on the slopes of the Monterey Submarine Canyon, the potential for future slope instability and

underwater landslide would be increased compared to the proposed project. Also, placement of an open water intake and brine disposal system on the seabed of MBNMS could affect seabed substrate and alter oceanographic processes such as sediment transport in the vicinity of Monterey Submarine Canyon. Although mitigation measures would be required, they have not been defined and their efficacy cannot be guaranteed. Therefore, impacts on slope stability, landslides, and alteration of geologic resources or marine processes within the Monterey Bay within MBNMS would be an ***increased impact conclusion*** compared to the proposed project, and are considered to be significant and unavoidable.

In summary, Alternative 4 would result in significant and unavoidable impacts related to coastal erosion and degradation of marine geologic resources or oceanographic processes. Therefore, Alternative 4 would result in an ***increased impact conclusion*** compared to the proposed project.

Cumulative Analysis

Cumulative impacts resulting from the components of Alternative 4 that are common with the proposed project would be the same as those described for the proposed project in Section 4.2.6. In summary, these components could have a cumulatively considerable contribution to potentially significant impacts related to loss of topsoil, but after implementation of mitigation measures, the contribution of these components to a cumulative impact would not be cumulatively considerable.

The geographic scope of analysis for cumulative geology, soils, and seismicity impacts for Alternative 4 is defined by the location of the Alternative 4 components. Although the geographic scope generally covers a large area, geologic impacts are localized and site-specific. Section 4.2.6 describes that because of the site-specific nature of these impacts, and because the proposed project and projects within the geographic scope would be subject to the same requirements related to erosion control and adherence to building codes, the components common to the proposed project would not have a cumulatively considerable contribution to significant cumulative impacts related to erosion and soil-related and seismic hazards, and that after implementation of **Mitigation Measure 4.6-2b** and **4.16-1**, these components would not have a cumulatively considerable contribution to cumulative impacts related to the loss of topsoil. The DeepWater Desal Project (No. 34) and the Moss Landing Community Plan (No. 37), described in **Table 4.1-2** in Section 4.1, are the only additional projects located near or overlapping the components unique to Alternative 4. Design and construction of these projects would be required to comply with the same requirements as Alternative 4. Therefore, the cumulative impacts related to erosion and geologic impacts on land would be less than significant.

Alternative 4 would result in an increased risk of coastal erosion compared to the proposed project. However, no reasonably foreseeable cumulative projects would include additional structures in this location. Therefore, a cumulative analysis is not applicable to this impact for Alternative 4.

Both Alternative 4 and the DeepWater Desal project would result in the placement of structures (intakes and outfalls) in Monterey Bay that would be anchored on the slopes of the Monterey Submarine Canyon. Therefore, the cumulative potential for future slope instability and

underwater landslide would be increased compared to either project alone, and would be significant. Even with mitigation, cumulative impacts from the risk of underwater landslide would remain significant and unavoidable, and the open-water intake component of Alternative 4 would have a cumulatively considerable contribution to that significant cumulative impact. Therefore, Alternative 4 would result in an ***increased impact conclusion*** compared to the proposed project for cumulative effects related to geology, soils, and seismicity, significant and unavoidable.

5.5.2.8 Direct and Indirect Effects of Alternative 5 – Reduced Desal Project 5a (CEMEX) and 5b (Potrero Road)

Alternative 5a would include the seawater intake system at the CEMEX site (the same location as the proposed project), but would include only seven subsurface slant wells (the converted test well and six new wells) and the same source water pipeline as the proposed project. Alternative 5b would include seven new wells at the western end of Potrero Road (the same location as Alternative 1) and the same source water pipeline as Alternative 1. Both Alternatives 5a and 5b would include a reduced-capacity desalination plant (6.4 mgd), and all other components would be the same as the proposed project.

Construction Impacts

The construction of the components of Alternative 5a and 5b would result in erosion impacts similar to those described and analyzed for the proposed project and Alternative 1, respectively, but reduced in scale due to the construction of fewer slant wells, resulting in a decreased potential for soil erosion in proportion to the decreased amount of ground disturbance necessary to construct fewer wells, but with compliance with relevant State and local regulations, Alternatives 5a and 5b would result in the ***same impact conclusion*** as the proposed project, less than significant.

The potential significant impact associated with loss of topsoil on agricultural lands is associated with several components that would be the same as the proposed project (i.e., Source Water Pipeline, new Desalinated Water Pipeline, and Castroville Pipeline), and so would result in the same effect after implementation of **Mitigation Measure 4.16-1** (**Minimize Disturbance to Farmland**) and the ***same impact conclusion*** as the proposed project; less than significant with mitigation.

Operational and Facility Siting Impacts

For the same reasons described previously for the proposed project and Alternative 1, although components of Alternative 5a and 5b are not located on or near an active fault, they would be expected to experience seismic shaking during the project lifetime. Like the proposed project, the structural elements of these alternatives would be required to undergo appropriate design-level geotechnical evaluations prior to final design and construction. Alternatives 5a and 5b would result in the ***same impact conclusion*** as the proposed project relative to exposure of people or structures to fault rupture or other ground failure, liquefaction, spreading, or settlement; less than significant.

For both Alternative 5a and 5b, only the Main System-Hidden Hills Interconnection Improvements, common with the proposed project, would be located in an area characterized as having a moderate to high susceptibility to earthquake-induced landslides. There are no existing active landslides in the area and the alternatives do not propose activities that would exacerbate an otherwise unstable slope condition. Therefore, Alternatives 5a and 5b would result in the ***same impact conclusion*** as the proposed project; less than significant.

Impacts related to expansive and corrosive soils would be the same as described for the proposed project or Alternative 1 because the potentially susceptible facilities would be the same. Therefore, the presence of expansive or corrosive soils would result in the ***same impact conclusion*** as the proposed project; less than significant.

The slant wells for both Alternative 5a and 5b, like the proposed project and Alternative 1 slant wells, would be screened in aquifer units composed predominantly of sand and gravel, which are less prone to subsidence because of their granular structure. Seawater would replace the water pumped from the slant wells and the continuous replacement of water would keep the pore spaces between the grains filled with water, further supporting the granular structure. Consequently, the soil structure above the slant wells would be unable to subside as a result of pumping resulting in the ***same impact conclusion*** as the proposed project on subsidence; no impact.

As described previously for the subsurface slant wells at CEMEX under the proposed project and at Potrero Road under Alternative 1, the Alternatives 5a and 5b subsurface slant wells would each require an alternative wastewater disposal system for infiltration of development water, each of which would have a less-than-significant impact. The total amount of development water generated would be reduced in proportion to the reduced number of slant wells. Additionally, both Alternatives 5a and 5b would produce the same amount and type of well development water as the proposed project during development of the ASR 5 and 6 wells. The high permeability of the sandy materials would be suitable for the infiltration of water; therefore, Alternatives 5a and 5b would result in the ***same impact conclusion*** related to the suitability of the locations for wastewater disposal as the proposed project; less than significant.

Under Alternative 5a, the existing test slant well that would be converted to a permanent well would be the same as under the proposed project. It is possible that this well might become exposed on the beach during its operational life, potentially accelerating and/or exacerbating natural rates of coastal erosion, scour, and dune retreat. This potentially significant impact would be reduced to a less-than-significant level with implementation of **Mitigation Measure 4.2-9 (Slant Well Abandonment Plan)**, and therefore would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation. Under Alternative 5b, unlike the proposed project but similar to Alternative 1, the slant wells at Potrero Road would not be exposed to coastal retreat during the project lifetime and would have no impact related to coastal erosion because of their location inland of the dunes. Alternative 5b would therefore result in a ***reduced impact conclusion*** compared to the proposed project relative to coastal erosion, no impact.

In summary, Alternatives 5a and 5b would result in less-than-significant impacts with mitigation for geology, soils, and seismicity, similar to the proposed project. As with the proposed project, these alternatives would not result in impacts related to underwater slope stability and landslides or the degradation of marine geologic resources or oceanographic processes. Unlike Alternative 5a and the proposed project, Alternative 5b would not be affected by coastal erosion during the project lifetime.

Cumulative Analysis

Combined Impacts with GWR Project

The components of the GWR Project (No. 59 in **Table 4.1-2** in Section 4.1) would overlap with components of Alternatives 5a and 5b, including pipelines and well facilities. As described in the GWR Project EIR Section 4.8.4.3 (MRWPCA and MPWMD, 2016), standard construction practices to prevent and minimize construction-related erosion would be included in GWR Project contract documents and SWPPPs that are required pursuant to NPDES regulations and permits for construction on 1 acre or more (GWR Impact GS-1). Recommendations of the preliminary geotechnical investigations prepared for the GWR Project will be incorporated into the final design and construction specifications, and construction will comply with applicable codes and requirements of the CBC and applicable ordinances (GWR Impact GS-2). Because the GWR Project will comply with these requirements, and because geologic impacts tend to be localized and site-specific, and most GWR Project components would not overlap geographically with the Alternative 5 components, the combined impacts related to erosion and geologic impacts on land would result in the ***same impact conclusion*** as the proposed project, less than significant. The GWR Project would not contribute to combined impacts related to the loss of topsoil (GWR Impact GS-2); therefore, impacts would be as described for Alternative 5, and would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Alternative 5 and the GWR Project would not create increased combined impacts related to seismic, liquefaction, and expansive and corrosive soil issues; landslides; land subsidence; or wastewater disposal (GWR Impacts GS-3, GS-4, GS-6, and GS-7); therefore, the combined impacts would have the ***same impact conclusion*** as the proposed project, less than significant.

As described in the GWR Project EIR, a segment of the Monterey Pipeline along Del Monte Boulevard could become exposed due to projected sea level rise and associated coastal erosion (GWR Impact GS-5), and **Mitigation Measure GS-5** is required to bury the pipeline at a depth below the 2060 100-year lower profile erosion envelope. Because it would not be located in the same locations that Alternative 5 would experience coastal erosion, this impact would not combine with impacts of Alternative 5 related to coastal erosion to create increased combined impacts; and with implementation of applicable mitigation for the GWR Project and for Alternative 5a (**Mitigation Measure 4.2-9**; not applicable to Alternative 5b), this combined impact would have the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Impacts of Full Cumulative Scenario

The geographic scope of analysis for cumulative geology, soils, and seismicity impacts for Alternatives 5a and 5b is the same as that for the proposed project and Alternative 1, respectively. Although the geologic setting generally covers a large area, geologic impacts tend to be localized and site-specific. The DeepWater Desal Project (No. 34 in **Table 4.1-2** in Section 4.1) is proposed to be located north of Potrero Road at Moss Landing and neither the facilities nor their associated impacts would geographically overlap with the impacts of Alternative 5a or 5b. As described above, some components of the GWR Project would overlap with components of Alternatives 5a and 5b. Various other cumulative projects are located throughout the area. Alternatives 5a and 5b would result in contributions to cumulative impacts that would be similar to the proposed project and Alternative 1, respectively. The cumulative projects would be required to comply with the same requirements as Alternatives 5a and 5b, such as the state Construction General Permit and its required SWPPP that would control and minimize erosion during construction activities. The design of the cumulative projects would be required to comply with the CBC and County ordinances that would require implementation of the recommendations of required geotechnical investigations. Therefore, the cumulative impacts related to erosion and geologic impacts on land would be less than significant.

As described for the proposed project in Section 4.2.6, the components affecting topsoil (listed above under Construction Impacts) would have a cumulatively considerable contribution to a significant cumulative loss of topsoil; however, no additional projects in the geographic scope would further contribute to this cumulative impact. The contribution of Alternatives 5a and 5b would be reduced to a level that is not cumulatively considerable with implementation of **Mitigation Measure 4.16-1**.

Alternatives 5a and 5b would have no impact on land subsidence, and therefore would not contribute to cumulative subsidence-related impacts. No other projects would overlap with the footprints of Alternatives 5a and 5b to contribute to cumulative impacts related to seismic, liquefaction, and expansive and corrosive soil issues, landslides, or wastewater disposal.

For impacts related to coastal erosion, under Alternative 5a, none of the cumulative projects would combine with the effects of Alternative 5a to result in a cumulative impact; therefore, a cumulative analysis is not applicable to this impact for Alternative 5a. Alternative 5b would not be subject to coastal erosion and so would not contribute to a cumulative coastal erosion-related impact.

In summary, Alternatives 5a and 5b could result in cumulatively considerable contributions to significant cumulative impacts relative to geology, soils, and seismicity, but these contributions would be reduced to a level that is not cumulatively considerable after implementation of applicable mitigation measures, thus resulting in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

5.5.2.9 References

Environmental Science Associates (ESA), 2014. *Technical Memorandum, Monterey Peninsula Water Supply Project: Analysis of Historic and Future Coastal Erosion with Sea Level Rise*, March 19, 2014.

MPWMD, 2016. Addendum to the Aquifer Storage and Recovery Project Environmental Impact Report/Environmental Assessment and the Pure Water Monterey/Groundwater Replenishment Project Environmental Impact Report for the Hilby Avenue Pump Station. http://www.mpwmd.net/asd/board/boardpacket/2016/20160620/16/Item-16-Exh-A.pdf.

MRWPCA and MPWMD, 2016. Consolidated Final Environmental Impact Report for the Pure Water Monterey Groundwater Replenishment Project, Volume IV, Exhibit B. http://purewatermonterey.org/wp/wp-content/uploads/Volume-IV-EIR-Certification-and-Project-Approval-Jan-2016.pdf.

NRCS, 2015. Soil Map Monterey County, California. July8, 2016.

5.5.3 Surface Water Hydrology and Water Quality

The evaluation criteria used to assess surface water hydrology and water quality impacts from implementation of the alternatives are the same as those used to assess impacts of the proposed project (see Section 4.3.3) and include specific thresholds related to: the degradation of water quality, including impacts on ocean waters within MBNMS from operational discharges; the alteration of drainage patterns in a manner that may result in erosion or flooding; stormwater conveyance capacity; and, flooding and flood risks.

5.5.3.1 Setting/Affected Environment

The study area relevant to the evaluation of surface water hydrology and water quality impacts for all alternatives is the same as that described for the proposed project in Section 4.3.1 and comprises the Salinas River watershed, Carmel River watershed, and the southern portion of the Monterey Bay south of Elkhorn Slough, which is a part of Monterey Bay National Marine Sanctuary (MBNMS). Water quality in the lower Salinas River is impaired by pesticides and nutrients. Excess sediment, which occurs due to various land uses and road designs, is a key issue in the Carmel River. The seawater in Monterey Bay is a mixture of water masses from different parts of the Pacific Ocean and water quality in Monterey Bay is a function, in part, of different constituents present in the water, as well as the seasonal ocean climate which affects ocean temperature and salinity. The waters of Monterey Bay contain numerous legacy pesticides such as organochlorine pesticides, Dieldrin and dichloro-diphenyl-trichloroethane (DDT), as well as chemical products in current use such as organophosphate pesticides, polynuclear aromatic hydrocarbons (PAHs), and polychlorinated biphenyls (PCBs). The waters of Monterey Bay exceeded the Ocean Plan 30-day average PCB water quality objective of 1.9 $x10^{-5}$ micrograms per liter (µg/L)[2] for most of the years between 2004 and 2013. Monterey Bay also receives point source discharges from pipelines and other structures. Such permitted discharges into Monterey Bay are subject to prohibitions under NPDES permit regulations and water quality requirements established by the Central Coast RWQCB. Flooding and flood hazard risks, including those from tsunami, dam failure, and sea level rise, vary throughout the study area depending on location. FEMA 100-year flood hazard zones in the study area are shown in **Figure 4.3-2**. Areas that are subject to coastal flooding and sea level rise are shown in **Figure 4.3-3**.

5.5.3.2 Summary of Direct and Indirect Effects of the Proposed Project (Slant Wells at CEMEX)

As described in detail in Chapter 3, Description of the Proposed Project, the proposed project (see **Figure 3-2**) would include construction of a desalination plant on 25 acres along Charles Benson Road northeast of the City of Marina that would create approximately 15 acres of impervious surfaces, up to nine new subsurface slant wells at the CEMEX active mining area and conversion of the existing test slant well to a permanent well. The slant well construction at the CEMEX site would result in 9 acres of disturbance during construction with approximately 0.7 acres of

[2] This objective for protection of human health is listed in the Ocean Plan and is discussed further in Section 4.3.2.1, State Regulatory Framework.

permanent land alteration associated with the wells. The proposed project would also include improvements to the existing Seaside Groundwater Basin aquifer storage and recovery (ASR) system, pump stations, storage tanks, and about 21 miles of new water conveyance pipelines. No construction or placement of facilities on the seafloor would occur.

The direct and indirect effects of the proposed project have been grouped and summarized below, in the context of the project construction phase, the operational phase and effects resulting from facility siting. For a more detailed analysis and discussion of the following summarizes refer to Section 4.3.5. Overall, the surface hydrology and water quality related impacts of the proposed project would be less than significant with mitigation.

Construction Impacts

Construction activities have the potential to degrade water quality as a result of soil erosion as a result of soil disturbance from grading and excavation as well as the accidental release of hazardous chemicals; from the discharge of dewatering effluent associated with excavations and drilling, and; from discharges associated with cleaning/flushing newly installed pipelines. Construction activities can also permanently or temporarily result in altered drainage patterns that can result in on- and off-site erosion, siltation, and flood risk increases.

Impact 4.3-1: Degradation of water quality associated with increased soil erosion and inadvertent releases of hazardous chemicals during general construction activities.

Soil disturbing activities could result in soil erosion and the migration of soil and sediment in stormwater runoff to downgradient water bodies and storm drains. The temporary storage and use of construction chemicals such as adhesives, solvents, fuels, and petroleum lubricants could, if not managed appropriately, result in an accidental release or spills. For all project facilities, mandatory compliance with NPDES Construction General Permit requirements would involve implementation of erosion and stormwater and water quality control measures, which would prevent substantial adverse effects on water quality during construction. The impact would be less than significant for all project components.

Impact 4.3-2: Degradation of water quality from construction-related discharges of dewatering effluent from open excavations and from water extracted during drilling and development of the subsurface slant wells, the ASR-5 and ASR-6 Wells.

The majority of general construction dewatering effluent associated with excavations would be disposed of in accordance with the General Waste Discharge Requirements (Central Coast RWQCB Order R3-2011-0223). However, discharges of dewatering effluent exceeding the water quality limitations in the General WDRs would result in a significant impact. This impact would be reduced to a less-than-significant level with implementation of the **Mitigation Measure 4.7-2b (Soils and Groundwater Management Plan)**. Water produced during the drilling and development of the slant wells and ASR-5 and 6 Wells would be disposed of in accordance with the MRWPCA's NPDES permit (for discharges via the ocean outfall) and General Waiver. All discharges of water produced during well drilling and development would occur in compliance with regulatory requirements that are protective of the receiving waters. Therefore, the impact associated with

discharges of water produced during drilling and development of the subsurface slant wells and ASR-5 and ASR-6 Wells would be less than significant. Overall, impacts associated with discharges of dewatering effluent during construction would be less than significant with mitigation.

Impact 4.3-3: Degradation of water quality from discharges of treated water and disinfectant from existing and newly installed pipelines during construction.

Prior to constructing the connections between existing and new pipelines, segments of existing pipelines would need to be drained and disinfected before being returned to service. Newly installed pipelines (i.e., Source Water Pipeline, Pipeline to CSIP Pond, Castroville Pipeline, Brine Discharge Pipeline, new Desalinated Water Pipeline, new Transmission Main, ASR pipelines, Ryan Ranch-Bishop Interconnection Improvements, and Main System-Hidden Hills Interconnection Improvements) would also be disinfected before being put into service. Adherence to the General Waste Discharge Requirements (WDRs) would ensure this impact would be less than significant.

Impact 4.3-8: Alteration of drainage patterns such that there is a resultant increase in erosion, siltation, or the rate or amount of surface runoff resulting in flooding on- or offsite or the exceeding of the stormwater drainage system capacity.

For all project facilities, mandatory compliance with NPDES Construction General Permit requirements and local regulations would involve implementation of erosion and stormwater control measures to minimize and avoid erosion, siltation, and increased runoff on- and off-site. Implementation of the proposed facilities would not result in substantially altered drainage patterns or increased stormwater runoff as a result of increased impervious surfaces. The subsurface slant wells, MPWSP Desalination Plant, and Terminal Reservoir (above ground option) would be required to implement Low Impact Development elements into the final site design, ensuring stormwater runoff is not increased and that flood risks on- or offsite are avoided and that stormwater conveyance structure capacity is not exceeded. The impact would be less than significant. No changes in drainage patterns would result from implementation of the proposed pipelines because they would be underground. Changes in drainage patterns associated with the Terminal Reservoir (buried tank option) would be localized, subject to grading, excavation, and erosion ordinances detailed in the Monterey County Code and would not result in increased runoff, and would not increase flooding, erosion, or siltation on- or offsite. This negligible increase in impervious surfaces would not result in substantial impacts related to changes in drainage patterns, erosion or siltation, flooding, or flows in excess of the stormwater drainage system.

Operational Impacts

Operational activities that would result in potential water quality related impacts would include the discharge of desalination brine (either alone, or blended with varying volumes of secondary-treated wastewater depending on the time of year) into the waters of MBNMS. Discharges related to well maintenance activities could degrade the water quality of receiving waters. Summaries of the water quality impacts are provided below.

Impact 4.3-4: Violate water quality standards or waste discharge requirements or degrade water quality from increased salinity as a result of brine discharge from the operation of the MPWSP Desalination Plant.

The modeling and analysis of salinity concentrations, mixing, and dilution at the outfall indicates that for all operational scenarios, and assuming a continuous brine discharge stream, the brine-only discharges and discharges of brine blended with varying volumes of wastewater will meet Ocean Plan salinity and dissolved oxygen standards and will not result in salinity related toxicity or hypoxia on the ocean floor. Specifically, the discharges would result in salinity levels that would not exceed 2 ppt above ambient salinity levels at the edge of the ZID (located 10 feet to 29 feet from the diffuser depending on discharge scenario). The proposed project, therefore, would not exceed or violate the Ocean Plan salinity standards or degrade water quality in terms of salinity. Therefore, operational discharges from the MPWSP would not increase salinity levels or impact Dissolved Oxygen (hypoxia) in a manner that violates water quality standards or waste discharge requirements or otherwise degrades the water quality of receiving waters in MBNMS. Impacts would be less than significant. While impacts related to water quality from increased salinity have been determined to be less than significant based on model analyses, and although it is likely that monitoring would occur based on the Ocean Plan requirements and associated NPDES permit requirements, implementation of **Mitigation Measure 4.3-4 (Operational Discharge Monitoring, Analysis, Reporting, and Compliance)** would ensure compliance with the Ocean Plan monitoring requirements as well as consistency with MBNMS guidelines for operation of desalination facilities that are protective of the beneficial uses (including aquatic wildlife and habitat) of Monterey Bay.

Impact 4.3-5: Violate water quality standards or waste discharge requirements or otherwise degrade the water quality of receiving waters in Monterey Bay as a result of brine discharge from the operation of the MPWSP Desalination Plant.

The model-based analyses of water quality constituent concentrations, mixing, and dilution at the outfall diffuser for all operational scenarios concluded constituent concentrations would not exceed the Ocean Plan numeric water quality objectives. However, a compliance determination could not be made for numerous constituents due to insufficient available data. Water quality testing and analysis required under the NPDES permit process, would determine whether operational discharges under the proposed project would fully comply with all Ocean Plan water quality objectives. Therefore, in the absence of such data, it was conservatively concluded that the proposed project could result in exceedances of Ocean Plan objectives, resulting in a significant impact related to water quality standards, waste discharge requirements and water quality of receiving waters in Monterey Bay within MBNMS. Significant impacts would be reduced to a less-than-significant level by implementing **Mitigation Measure 4.3-5 (Implement Protocols to Avoid Exceeding Water Quality Objectives)**.

Impact 4.3-6: Degrade water quality due to discharges associated with maintenance of the subsurface slant wells and the ASR-5 and ASR-6 Wells.

Routine maintenance activities of the subsurface slant wells would disrupt roughly 6 acres at the CEMEX active mining area for 9 to 18 weeks every 5 years. Further, the effluent produced during

slant well cleaning could carry sediment or other contaminants that, if discharged directly to the beach area, could adversely affect water quality in Monterey Bay. As part of routine maintenance of the ASR-5 and ASR-6 Wells, CalAm facility operators would regularly backflush accumulated sediment and turbid water from the two wells. Water produced during routine backflushing would be conveyed to the existing Phase I ASR Pump-to-Waste System. Discharges and land disturbance activities related to periodic maintenance of the subsurface slant wells and routine maintenance of the ASR-5 and ASR-6 Wells would be conducted in accordance with regulatory requirements, such as the General Waiver and the Construction General Permit, designed to protect water quality. Any water quality related impacts would be avoided or minimized to a less-than-significant level.

Facility Siting Impacts

The addition of impervious surfaces or the alteration of drainage patterns (such as through grading) can increase peak stormwater flows, causing erosion or siltation onsite or downstream, increase flood potential, and exceed the capacity of stormwater systems. The subsurface slant wells and portions of the Source Water Pipeline, Castroville Pipeline, and new Transmission Main would be constructed in a 100-year flood hazard area. The near-shore margins of Monterey County, including coastal portions of Marina, Seaside, and Monterey, are subject to flooding in the event of a tsunami. Siting facilities in flood hazard areas can increase the risk of exposing people or structures to loss, injury, or death. The subsurface slant wells, the northernmost portion of the MPWSP Desalination Plant site, and portions of the Source Water Pipeline would be located in areas that could be subject to sea level rise.

Impact 4.3-7: Alteration of drainage patterns such that there is a resultant increase in erosion, siltation, or the rate or amount of surface runoff or an increase in flooding on- or offsite or the exceeding of storm drain capacity.

Implementation of the subsurface slant wells at the CEMEX active mining area would result in a total increase in impervious surface area of approximately 0.7 acres (30,000 square feet). The proposed MPWSP Desalination Plant site would disturb approximately 25 acres of a 46-acre undeveloped parcel, and would add approximately 15 acres (653,400 square feet) of impervious surfaces. The proposed ASR-5 and ASR-6 Wells at the Fitch Park military housing area would add a total or approximately 0.05 to 0.06 acres (2,000 to 2,500 square feet) of impervious surface. The Terminal Reservoir above ground option would add 0.75-acre (30,500 square feet) of impervious surface; the buried tanks option would not include a concrete pad and would not increase impervious surfaces. The subsurface slant wells, MPWSP Desalination Plant, ASR-5 and ASR-6 Wells, and Terminal Reservoir would be subject to the post-construction stormwater management requirements of the municipal stormwater permit and CalAm would be required to implement post-construction stormwater BMPs into the final site designs. With adherence to the post-construction requirements, the existence and operation of these facilities would result in a less than significant impact related to drainage pattern alteration, storm runoff volume, stormwater conveyance capacity, increased soil erosion, and siltation. The Carmel Valley Pump Station would add approximately 600 feet of impervious surfaces and would result in a less than significant impact. No impact would result from implementation of the proposed pipelines.

Impact 4.3-9: Impedance or redirection of flood flows following construction due to the siting of project facilities in a 100-year flood hazard area.

Portions of the Source Water Pipeline, new Transmission Main, and Castroville Pipeline would be constructed in a 100-year flood hazard area. However, these facilities would be placed underground and would not impede or redirect flood flows. The electrical control cabinet at the slant wells would divert flood flows to the sandy areas immediately surrounding the cabinet, still within the CEMEX active mining area, and would not affect other properties or structures. No impact would result from implementation of all other proposed facilities because none of the other components would be located within a 100-year flood hazard area. Therefore, the impact would be less than significant.

Impact 4.3-10: Exposure of people or structures to a significant risk of loss, injury, or death from flooding due to a tsunami.

The subsurface slant wells at CEMEX, and the Castroville Pipeline would be located in areas subject to flooding from a tsunami. Because the presence of onsite personnel would be minimal, operation of the subsurface slant wells and pipeline operations and maintenance would not expose personnel or structures to significant risks from flooding in the event of a tsunami. The impact would be less than significant.

Impact 4.3-11: Exposure of people or structures to a significant risk of loss, injury, or death from flooding due to sea level rise.

The subsurface slant wells, the northernmost portion of the MPWSP Desalination Plant site, and portions of the Source Water Pipeline would be located in areas that could be subject to sea level rise. However, because the subsurface slant wells and the two pipelines would be constructed underground and designed to withstand inundation, these facilities would not be subject to a significant risk of damage from flooding due to sea level rise. The aboveground facilities at the proposed Desalination Plant site would be constructed on the upper terrace of the site, at an elevation higher than the predicted year 2100 sea level. It would not expose people or structures to a significant risk of loss, injury, or death from flooding due to sea level rise. The impact would be less than significant for the subsurface slant wells, MPWSP Desalination Plant, and Source Water Pipeline, and Castroville Pipeline. All other proposed facilities would have no impact.

Cumulative Impacts

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 4.1-2** and shown in **Figure 4-1**.

Nearly every project in the cumulative scenario would be subject to the construction general permit, General Waiver, General WDRs, and other local regulations. 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 projects in the cumulative scenario to cause a significant cumulative impact. Therefore, with implementation of mitigation, the proposed project's contribution to any cumulative impact would not be cumulatively considerable.

The requirements of NPDES permits, which incorporate the Ocean Plan water quality objectives in the case of operational discharges from the MRWPCA outfall, are designed and intended to protect beneficial uses of receiving waters (i.e., Monterey Bay) from the effects of numerous potential sources of pollution, and are therefore protective against significant adverse cumulative impacts. With mandatory compliance with the regulatory requirements and the NPDES effluent limitations, and implementation of **Mitigation Measure 4.3-4 (Operational Discharge Monitoring, Analysis, Reporting, and Compliance)** and **Mitigation Measure 4.3-5 (Implement Protocols to Avoid Exceeding Water Quality Objectives)**, the cumulative impact from the discharges resulting from MPWSP and the projects in **Table 4.1-2** is considered less than significant. Additionally, with implementation of mitigation measures, the proposed project's contribution to any cumulative water quality impact in Monterey Bay would be reduced to a level that is not cumulatively considerable.

Regional alterations to site drainage from multiple projects in the region 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. 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. Further, 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 that the alteration of drainage patterns would not cause a significant cumulative impact and the proposed project would not result in a cumulatively considerable contribution to any cumulative impact.

5.5.3.3 Direct and Indirect Effects of No Project Alternative

Under the No Project Alternative, no construction would occur and no desalination facility would be built and operated. As such, there would be no construction related hydrology and water quality impacts, such as erosion or dewatering discharges. Also, no brine would be discharged from the MRWPCA outfall and no impacts related to water quality standards, waste discharge requirements, or water quality would occur as a result of operational discharges. Because no facilities would be constructed, there would be no facility siting impacts related to altered drainage patterns, impervious surfaces, flooding, and flood risks.

Under the No Project Alternative, current diversions from the Carmel River would continue consistent with existing conditions in the short-term. However, under the No Project Alternative, CalAm would not meet Milestone 3 by September 30, 2018 (receipt of a CPCN from the CPUC), nor would it meet the subsequent annual milestones associated with the construction and

implementation of the MPWSP. CalAm's Effective Diversion Limit (EDL) from the Carmel River would be reduced under the terms of the Cease and Desist Order (CDO) by 1,000 afy in October 2018, and by an additional 1,000 afy in each subsequent year until October 2021. Beginning in January 2022, as with the Proposed Project, CalAm would only be allowed to divert its legal entitlement of 3,376 afy from the Carmel River. See Section 5.4.2 for details on the amounts of water allowed by the CDO to be diverted each year until the CDO expiration. Therefore, under the No Project Alternative, diversions from the Carmel River would be reduced sooner than under the proposed project and Carmel River flows would be restored with a total of an additional 10,000 acre-feet compared to the proposed project, over the period of October 2018 through 2021. The increases to Carmel River flows under the No Project Alternative compared to the proposed project would be beneficial to Carmel River hydrology, water quality, and aquatic habitat (as determined by the RWQCB as part of Order 95-10). For a more detailed discussion regarding the benefits to Carmel River aquatic habitat and species see Section 5.5.6, Terrestrial Biology.

Cumulative Analysis

In addition to the beneficial effect of increased streamflows in the Carmel River that would occur under the No Project Alternative compared to existing conditions, the GWR Project (No. 59 in **Table 4.1-2**) would provide water supply to CalAm that would further reduce CalAm's diversions from the Carmel River, per the terms of the CDO (SWRCB, 2016a). Specifically, for every acre-foot of GWR Project water supply that CalAm is able to deliver to the Monterey District, CalAm must reduce its Carmel River system diversions by one acre-foot. Therefore, if GWR Project water becomes available to CalAm prior to 2022 (when Carmel River diversions would be limited to the 3,376 afy legal limit regardless of other water sources), CalAm's diversions from the Carmel River would be reduced compared to those described in **Table 5.4-3**, leaving more streamflow in the Carmel River than under the No Project Alternative alone. This would be a cumulative beneficial effect on streamflows in the Carmel River.

5.5.3.4 Direct and Indirect Effects of Alternative 1 – Slant Wells at Potrero Road

Alternative 1 would supply seawater to the proposed 9.6 mgd desalination plant located at the Charles Benson Road site using the same type of subsurface intake system as the proposed project, but at a different location (described in Section 5.4.3). The desalination plant, brine discharge pipeline, Castroville Pipeline, Pipeline to CSIP Pond, new Desalinated Water Pipeline, new Transmission Main, Terminal Reservoir, ASR components, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be identical to the proposed project described in Chapter 3, Description of the Proposed Project. The location of the slant wells at Potrero Road and the additional 5.5 miles of source water pipeline are the components unique to Alternative 1 (see **Figure 5.4-1**). Therefore, the surface water hydrology and water quality impact analysis of Alternative 1 focuses primarily on the intake system and source water pipeline that are different from the proposed project; however, impact conclusions are made for the whole of Alternative 1. Components that are common to both Alternative 1 and the proposed project are assessed in Section 4.3, Surface Water Hydrology and Water Quality.

Construction Impacts

Components unique to Alternative 1 would have a smaller disturbance area at the Potrero Road parking lot (1 acre) as compared to the proposed project at CEMEX (9 acres), but Alternative 1 would also include an additional 5.5 miles of source water pipeline. Overall, based on the additional 5.5 miles of pipeline under Alternative 1, the construction footprint would be increased as compared to the proposed project. Therefore, Alternative 1 would result in an increased potential for soil erosion and risk of inadvertent releases of hazardous chemicals during general construction activities. Alternative 1 would also have an increased potential for eroded soil and sediment to be transported down gradient via stormwater runoff and degrade the water quality of receiving water bodies, including the Salinas River and Monterey Bay. Mandatory compliance with NPDES Construction General Permit and local grading requirements would involve implementation of a SWPPP, including stormwater BMPs as well as erosion and stormwater control measures, which would prevent substantial adverse effects on water quality during construction. Alternative 1 construction impacts related to the degradation of water quality associated with increased soil erosion and inadvertent releases of hazardous chemicals during general construction activities would result in the ***same impact conclusion*** as the proposed project, less than significant.

Construction-related discharges of dewatering effluent from open excavations and water produced during well drilling of the slant wells would be increased under Alternative 1 because of the increased number of new wells at Potrero Road compared to the proposed project (10 new wells versus 9 new wells and the converted test well at CEMEX) and the 5.5 miles of additional source water pipeline. Most of the dewatering effluent produced during construction excavation is considered a low threat and would be discharged to land or the stormwater drainage system provided it complies with the *General WDRs for Discharges with a Low Threat to Water Quality*. The development water produced during well installation would be pumped to holding tanks to allow sediment to settle out and effluent would be discharged to a buried diffuser system in the parking lot for percolation into underlying beach sands in accordance with the requirements of the General Waiver of WDRs (General Waiver). Impacts from discharges of contaminated dewatering effluent from open excavations and well development that do not meet General Waiver requirements would be reduced to a less-than-significant level with implementation of the same mitigation prescribed for the proposed project, **Mitigation Measure 4.7-2b: Soil and Groundwater Management Plan.** Alternative 1 construction impacts related to the degradation of water quality from construction-related discharges of dewatering effluent from open excavations and water produced during well drilling and development would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Degradation of water quality from discharges of treated water and disinfectant during construction of Alternative 1 could be increased compared to the proposed project because of the additional 5.5 miles of new pipeline. Like the proposed project however, adherence to the General Waste Discharge Requirements would ensure the degradation of water quality from discharges of treated water and disinfectant from existing and newly installed pipelines during construction would result in the ***same impact conclusion*** as the proposed project, less than significant.

During construction of Alternative 1, the potential for grading and earthmoving operations to alter local drainage patterns and redirect or concentrate stormflows would be increased due to the additional 5.5 miles of pipeline. Such an increased potential for altered drainage patterns could result in increased risks related to onsite and/or downstream (offsite) erosion, siltation, and flooding, especially if stormwater conveyance capacity is exceeded. Mandatory compliance with NPDES Construction General Permit requirements and local regulations would involve implementation of erosion and stormwater control measures which would ensure the potential for impacts related to altered drainage patterns during construction would result in the ***same impact conclusion*** as the proposed project, less than significant.

Operational Impacts

Operation and maintenance of Alternative 1 would include the same activities as the proposed project. The source water would be the same as the proposed project in terms of water quality characteristics. The brine discharge system and volume of discharge would be the same as the proposed project, and, therefore, impacts would be the same as described in Section 4.3. Discharges would not increase salinity levels in violation of water quality standards or waste discharge requirements, nor otherwise degrade the water quality of receiving waters in Monterey Bay as a result of increased salinity.

Alternative 1 would be subject to the same mitigation as defined for the proposed project, which requires development and approval of a monitoring and reporting plan, consistent with the requirements of the Ocean Plan and MBNMS guidelines, prior to construction and operation. **Mitigation Measure 4.3-4** (**Operational Discharge Monitoring, Analysis, Reporting, and Compliance**) would ensure compliance with the monitoring requirements and regulatory standards that are protective of the beneficial uses (including aquatic wildlife and habitat) of Monterey Bay. The monitoring and reporting plan would set forth appropriate response thresholds as well as corrective actions (defined in **Mitigation Measure 4.3-5**) that would be required if the acquired data indicated deleterious effects on receiving water quality or marine resources from discharges. **Mitigation Measure 4.3-4** would minimize or avoid any potential adverse effects from increased salinity (including hypoxia); therefore, Alternative 1 would result in the ***same impact conclusion*** related to increased salinity as the proposed project, less than significant with mitigation.

Like the proposed project, no heating mechanism or process would increase the temperature of the source water as it passes through the desalination process. Alternative 1 would not increase the temperature of the discharged effluent in a manner inconsistent with the requirements of the SWRCB Thermal Plan and impacts relating to temperature would be the same as the proposed project. However, as described for the proposed project, because other Ocean Plan-regulated constituent concentrations could become elevated and a compliance determination cannot be made for all regulated constituents, operational discharges could cause an exceedance of Ocean Plan water quality objectives. With the implementation of **Mitigation Measure 4.3-5** (**Implement Protocols to Avoid Exceeding Water Quality Objectives**) impacts related to the violation of regulatory standards and discharge requirements or the degradation of water quality

under Alternative 1 would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

As described for the proposed project, the routine maintenance of subsurface slant wells and the ASR-5 and ASR-6 Wells would be conducted in accordance with regulatory requirements, such as the General Waiver and Construction General Permit, designed to protect water quality. Alternative 1 impacts related to the degradation of water quality due to discharges associated with maintenance of wells would result in the ***same impact conclusion*** as the proposed project, less than significant.

Facility Siting Impacts

Under Alternative 1, the disturbance area for maintenance of the slant wells at Potrero Road would be less than that of the proposed project (less than 1 acre at Potrero Road compared to 6 acres at CEMEX) and impervious surfaces for the slant wells would also be reduced (1,250 square feet compared to approximately 30,000 square feet for the proposed project). Therefore, Alternative 1 impacts related to the alteration of drainage patterns such that there is a resultant increase in erosion, siltation, flooding on- or offsite or the exceeding of storm drain capacity would result in a slightly reduced level of impact as compared to the proposed project. With adherence to post-construction stormwater management requirements and post-construction stormwater BMPs, Alternative 1 would result in the ***same impact conclusion*** as the proposed project, less than significant.

Under Alternative 1, impacts related to flooding and flood risks, including those from tsunami and sea level rise would result in a slightly reduced level of impact than the proposed project due to the slant wells at Potrero Road not being located in a 100-year flood hazard area (whereas the proposed project slant wells at CEMEX would be within the 100-year flood zone) and also being set further inland behind the coastal dunes. Alternative 1 would result in the ***same impact conclusion*** associated with flooding and flood risks compared to the proposed project, less than significant.

Cumulative Analysis

Cumulative impacts from construction and operation of Alternative 1 would be the same as those described for the proposed project (which includes consideration of the Deep Water Desal Project), as analyzed in Section 4.3.6, Surface Water Hydrology and Water Quality. Like the proposed project, Alternative 1 could contribute to significant cumulative surface water hydrology and water quality impacts, but with implementation of **Mitigation Measures 4.7-2b**, **4.3-4** and **4.3-5**, would not have a cumulatively considerable contribution to such cumulative impacts (*less than significant with mitigation*).

5.5.3.5 Direct and Indirect Effects of Alternative 2 – Open-Water Intake at Moss Landing

Alternative 2 would supply seawater to the proposed 9.6 mgd desalination plant located at the Charles Benson Road site using a screened open-water intake system consisting of an intake structure located offshore on the seafloor in MBNMS and southwest of the Moss Landing Harbor

entrance, a subsurface intake pipeline, and an intake pump station that would be constructed on 3,600 square feet at Dolan Road (described in Section 5.4.4). The desalination plant, brine discharge pipeline, new Desalinated Water Pipeline, new Transmission Main, Terminal Reservoir, ASR components, Highway 68 interconnection improvements, and the Carmel Valley Pump Station would be identical to the proposed project described in Chapter 3, Description of the Proposed Project. Because the open water intake would eliminate the need for returning source water drawn from the Salinas Valley Groundwater Basin, the Castroville Pipeline, the Pipeline to CSIP Pond, and operational components related to delivering water to Castroville Community Services District would not be implemented. The open water intake system and the additional 6.5 miles of source water pipeline are the components unique to Alternative 2 (see **Figure 5.4-2**). Therefore, the analysis of Alternative 2 hydrology and water quality impacts focuses primarily on the locations for the intake system and source water pipelines that are different from the proposed project; however, impact conclusions are made for the whole of Alternative 2. Components that are common to both Alternative 2 and the proposed project are assessed in Section 4.3, Surface Water Hydrology and Water Quality.

Construction Impacts

Components unique to Alternative 2 would have a reduced onshore construction disturbance area compared to the proposed project. While the open-water intake system and an additional 6.5 miles of source water pipeline are proposed under Alternative 2, pipelines required for the return of source water that originated in the Salinas Valley Groundwater Basin would not be implemented. Like the proposed project, Alternative 2 would have 21 miles of total pipeline. Further, the land-based construction area of the intake system pump station (0.08 acres) would be less than the 9 acres associated with the slant wells at CEMEX. For land-based construction, mandatory compliance with NPDES Construction General Permit and local grading requirements, including implementation of a SWPPP and stormwater BMPs as well as erosion and stormwater control measures, would prevent substantial adverse effects on water quality during land-based construction. Alternative 2 construction impacts related to the degradation of water quality associated with soil erosion and inadvertent releases of hazardous chemicals during general land-based construction activities would result in the ***same impact conclusion*** as the proposed project, less than significant.

Construction of the open-water intake on the seafloor (versus the proposed project's subsurface intake system) would result in an increased level of impact for construction related water quality impacts within MBNMS because the proposed project would not involve any construction on the seafloor. Water quality impacts associated with construction of the open water intake would include direct disturbance of the seafloor and associated water quality degradation in the form of increased turbidity and the potential release of drilling fluids where the Horizontal Directional Drilling technique of the intake pipeline breaks through the seafloor, and where the seafloor is prepared/graded for the placement of the intake structure. However, any disturbance of the seafloor and resulting increased turbidity would be temporary and short-term in nature (i.e. not chronic or ongoing), occurring only during the construction period, and would be highly localized in extent, occurring only within and immediately adjacent to the construction area at the intake pipeline terminus and where the seafloor is prepared for the intake structure. Any drilling fluids released

would be environmentally inert and biodegradable. Water quality would return to ambient conditions following completion of construction activities as a result of the settling of suspended sediment and mixing and dilution driven by wave action and tidal current. Therefore, Alternative 2 would result in an increased level of impact compared to the proposed project because the proposed project would not have any in-water construction. However, because of the temporary and localized nature of the in water construction impacts, Alternative 2 would result in an ***increased impact conclusion*** compared to the proposed project, less than significant.

Construction-related discharges of dewatering effluent from open excavations would be the same under Alternative 2 as the proposed project since the 21 total miles of pipeline constructed would be the same (the additional 6.5 additional miles of source water pipeline and the elimination of the pipelines related to return water). Most of the dewatering effluent produced during construction excavation would be discharged to land or the stormwater drainage system in compliance with the *General WDRs for Discharges with a Low Threat to Water Quality.* Impacts from discharges of contaminated dewatering effluent from open excavations that do not meet requirements of the General WDRs would be reduced to a less-than-significant level with implementation of the same mitigation prescribed for the proposed project, **Mitigation Measure 4.7-2b: Soil and Groundwater Management Plan.** Alternative 2 impacts related to the degradation of water quality from construction-related discharges of dewatering effluent from open excavations would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Degradation of water quality from discharges of treated water and disinfectant during construction of Alternative 2 would be the same as the proposed project. Like the proposed project, adherence to the General WDRs would ensure impacts related to the degradation of water quality from discharges of treated water and disinfectant from existing and newly installed pipelines during construction would result in the ***same impact conclusion*** as the proposed project, less than significant.

During construction of Alternative 2, the potential for grading and earthmoving operations to alter local drainage patterns and redirect or concentrate stormflows would be reduced due to the intake pump station resulting in less land disturbance than the 9 acres for the slant wells under the proposed project. As with the proposed project, mandatory compliance with NPDES Construction General Permit requirements and local regulations would involve implementation of erosion and stormwater control measures which would ensure the potential for impacts related to altered drainage patterns during construction would result in the ***same impact conclusion*** as the proposed project, less than significant.

Operational Impacts

Under Alternative 2, the salinity of the brine would be the same as that described for the proposed project and the brine would be mixed with MRWPCA wastewater, when available, in the same volumes as described for the proposed project. Operational discharges would be discharged via the existing diffuser and subject to the same mixing and dilution dynamics as described for the proposed project.

Alternative 2 would be subject to the same mitigation as defined for the proposed project, which requires development and approval of a monitoring and reporting plan, consistent with the requirements of the Ocean Plan and MBNMS guidelines, prior to construction and operation. **Mitigation Measure 4.3-4** (**Operational Discharge Monitoring, Analysis, Reporting, and Compliance**) would ensure compliance with the monitoring requirements and regulatory salinity standards that are protective of the beneficial uses (including aquatic wildlife and habitat) of Monterey Bay. The monitoring and reporting plan would set forth appropriate response thresholds as well as corrective actions (defined in **Mitigation Measure 4.3-5**) that would be required if the acquired data indicated deleterious effects on receiving water quality or marine resources from discharges. **Mitigation Measure 4.3-4** would minimize or avoid any potential adverse effects from increased salinity (including hypoxia); therefore, Alternative 2 would result in the ***same impact conclusion*** related to increased salinity compared to the proposed project, less than significant with mitigation.

As with the proposed project, no heating mechanism or process would increase the temperature of the source water as it passes through the desalination process, and Alternative 2 would not increase the temperature of the discharged effluent in a manner inconsistent with the requirements of the SWRCB Thermal Plan and impacts relating to temperature would be the ***same*** as the proposed project; no impact.

As described for the proposed project, because other Ocean Plan-regulated constituent concentrations could become elevated and a compliance determination cannot be made for all regulated constituents, operational discharges could cause an exceedance of Ocean Plan water quality objectives. Furthermore, as described in Section 4.3, Surface Water Hydrology and Water Quality, the concentration of polychlorinated biphenyls (PCBs) in Monterey Bay currently exceeds Ocean Plan water quality objectives under baseline conditions. Unlike the proposed project's use of subsurface slant wells, the open water intake under Alternative 2 would not pre-filter the PCBs through the seafloor and concentrations of the existing PCB-levels would expectedly increase in the brine discharge as compared to the proposed project. Because brine-only discharges form a dense sinking plume with low minimum dilution, increased concentrations of PCBs in the brine discharges would result in an increased level of impact compared to the proposed project. Unlike the proposed project, Alternative 2 could potentially exceed the Ocean Plan water quality objective for PCBs at the edge of the ZID. However, with the implementation of **Mitigation Measure 4.3-5** (**Implement Protocols to Avoid Exceeding Water Quality Objectives**) impacts related to the violation of regulatory standards and discharge requirements or the degradation of water quality under Alternative 1 would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Under Alternative 2, maintenance activities would be the same as those described for the proposed project, except for the new open-water intake in MBNMS. Maintenance of the new open-water intake structure and pipeline would be conducted annually and would result in a temporary short-term disturbance to the seafloor in the area immediately surrounding the intake structure, resulting in localized increases in turbidity. The material removed during intake screen cleaning and pipeline maintenance would be released into the ocean at the well screens and at the end of the intake pipeline, and could also contribute to temporary and localized increased

turbidity. Water quality would return to ambient conditions following completion of maintenance activities as a result of the settling of suspended sediment and mixing and dilution driven by wave action and tidal current. Therefore, this would result in an increased level of impact compared to the proposed project because the proposed project proposes no in-water maintenance activities. However, while the impact on water quality would be localized and temporary, Alternative 2 would result in an ***increased impact conclusion*** compared to the proposed project, less than significant.

Facility Siting

Under Alternative 2, the total impervious area would be reduced compared to the proposed project (0.08 acres for the Dolan Road intake pump station compared to 9 acres for slant wells at CEMEX). Therefore, Alternative 2 would result in a reduced level of impact compared to the proposed project on the alteration of drainage patterns such that there is a resultant increase in erosion, siltation, flooding on- or offsite or the exceeding of storm drain capacity. With adherence to post-construction stormwater management requirements and post-construction stormwater BMPs, Alternative 2 would result in the ***same impact conclusion*** compared to the proposed project, less than significant.

Under Alternative 2, impacts related to flooding and flood risks, including those from tsunami and sea level rise would have a similar level of impact to the proposed project due to the intake pump station being located in the coastal zone, similar to the slant wells at CEMEX. Subsurface pipelines would have the same level of impact as the proposed project regarding flood hazards. Impacts associated with flooding and flood risks under Alternative 2 would result in the ***same impact conclusion*** as the proposed project, less than significant.

Cumulative Analysis

Cumulative impacts from construction of Alternative 2 would be the same as those described for the proposed project, with the exception of the construction of the open-water intake facility and longer source water pipeline. The DeepWater Desal Project (No. 34 in **Table 4.1-2** in Section 4.1) also would include construction of an open-water intake and outfall pipelines that would result in the type of localized water quality degradation described for Alternative 2. It is unlikely that both open water intake facilities would be constructed at the same time, but conservatively assuming this would occur, it is unlikely that in-water construction activities could result in a significant cumulative impact on surface water quality. Like Alternative 2, the DeepWater Desal Project would result in elevated turbidity and disturbance of the sea floor in a localized area (i.e. the area comprising the construction footprint and immediate surroundings). Further, any disturbance of the sea floor and increased associated turbidity would be temporary and short-term in nature (i.e. not chronic or ongoing), occurring only during the construction period, and would be highly localized in extent, occurring only within and immediately adjacent to the construction area at the intake pipeline terminus and where the seafloor is prepared for the intake structure. Water quality would return to ambient conditions following completion of construction activities as a result of the settling of suspended sediment and mixing and dilution driven by wave action and tidal current. The potential contribution to cumulative surface water quality impacts from construction of Alternative 2 would be increased compared to the proposed project, but Alternative 2 would

not have a cumulatively considerable contribution to a potential significant cumulative impact (*less than significant).*

The increased concentration of PCBs in the brine discharge from Alternative 2 may exceed the Ocean Plan water quality objective for PCBs at the edge of the ZID; however, as described for the proposed project, all existing and proposed outfalls associated with the cumulative projects (same as listed in Section 4.3.6) are greater than 0.26 mile from the MRWPCA outfall. Therefore, the likelihood of discharge plumes from different outfalls or their ZIDs intersecting (the ZID for the proposed project extends up to 29 feet from the outfall, as would occur under Alternative 2) or merging and resulting in exceedances of Ocean Plan defined water quality objectives and adversely affecting beneficial uses of receiving waters (Monterey Bay) is very low. Similar to the proposed project, Alternative 2 could have a cumulatively considerable contribution to a potential significant cumulative impact, but this contribution would be minimized to a level that is not cumulatively considerable with implementation of **Mitigation Measure 4.3-4 (Operational Discharge Monitoring, Analysis, Reporting, and Compliance)** and **Mitigation Measure 4.3-5 (Implement Protocols to Avoid Exceeding Water Quality Objectives)** (*less than significant with mitigation*).

The contribution to cumulative surface water quality impacts from maintenance of Alternative 2 would be increased compared to the proposed project. Maintenance of the open-water intake would contribute to temporary and localized increased turbidity. Similarly, maintenance of the DeepWater Desal Project open water intake could result in additional turbidity. However, given the size and volume of Monterey Bay, any temporary increases in turbidity associated with maintenance activities would not result in a significant cumulative impact (*less than significant*).

5.5.3.6 Direct and Indirect Effects of Alternative 3 – Monterey Bay Regional Water Project (MBRWP or DeepWater Desal Project)

Alternative 3 includes the construction and operation of a screened open ocean intake system and a brine discharge system located on the seafloor in Monterey Bay within MBNMS, subsurface pipelines connecting to these intake and discharge systems, a seawater desalination facility and co-located data center, and associated components to provide up to 25,000 afy of potable water and data transmission and storage services. Under Alternative 3, a new 22 mgd desalination plant and co-located data center (110 acres) at “East Tank Farm Parcel” off Dolan Road would be constructed. The pipelines for the intake and brine discharge systems would be installed using HDD. The alternative would also include 6.5 miles of desalinated water pipeline to connect with the CalAm system and up to an additional 25 miles of pipelines to convey the desalinated water to other areas (total of 31.5 miles of additional pipeline). Several components would be identical to the proposed project: the new Transmission Main, new desalinated water pipeline south of the “Connection to CalAm” Point on **Figure 5.4-3**, ASR-5 and 6 wells and ASR pipelines, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be as described in Chapter 3, Description of the Proposed Project. Because the open water intake would eliminate the need for returning source water drawn from the Salinas Valley Groundwater Basin, the proposed project Castroville Pipeline, Pipeline to CSIP Pond, and operational components related to delivering water to CCSD would not be implemented. The desalination plant and data center, open water intake system, brine discharge system, and the additional 31.5 miles of desalinated

water pipeline are the components unique to Alternative 3 (see **Figure 5.4-3**). Therefore, the surface water hydrology and water quality impact analysis of Alternative 3 focuses primarily on these components; however, impact conclusions are made for the whole of Alternative 3. Components that are common to both Alternative 3 and the proposed project are assessed in Section 4.3, Surface Water Hydrology and Water Quality.

Construction Impacts

Components unique to Alternative 3 would have a larger disturbance area as compared to the proposed project (110 acres for the desalination facility and data center with 31.5 miles of additional pipeline compared to 25 acres for the proposed project desalination facility and 21 miles of pipeline). Therefore, construction of Alternative 3 would have an increased potential for soil erosion and risk of inadvertent releases of hazardous chemicals during general construction activities. Alternative 3 would also have an increased potential for eroded soil and sediment to be transported down gradient via stormwater runoff and degrade the water quality of receiving water bodies, including Monterey Bay. As with the proposed project, mandatory compliance with NPDES Construction General Permit and local grading requirements would involve implementation of a SWPPP, including stormwater BMPs as well as erosion and stormwater control measures, which would prevent substantial adverse effects on water quality during construction. Therefore, although impacts would be increased compared to the proposed project, Alternative 3 would result in the ***same impact conclusion*** compared to the proposed project related to the degradation of water quality associated with increased soil erosion and inadvertent releases of hazardous chemicals during general construction activities, less than significant.

Offshore in MBNMS, Alternative 3 would result in approximately 16,700 square feet (about 0.4 acre) of disturbance on the seafloor from construction of an open-ocean intake (3,300 square feet) and brine discharge pipeline and diffusers (13,400 square feet); this would be an increased level of impact compared to the proposed project which proposes no construction on the seafloor. Further, since Alternative 3 would include four pipes, intake structures, and a brine discharge structure, the volume of drilling fluids required for HDD installation would be increased compared to the proposed project (which proposes no in-water construction activities) and Alternative 2 (which proposes only one pipe and one intake structure). Discharges of water produced during installation of the open-water intake would be conducted in accordance with the General Construction Waiver. Due to the substantial size of the Alternative 3 in-water seafloor construction area compared to Alternative 2 (16,700 square feet including an intake and a brine discharge structure versus 3,300 square feet for an intake structure; the proposed project would have no seafloor construction), the two subsurface brine and two subsurface intake pipelines that break through the seafloor in MBNMS (compared to none for the proposed project), and the current lack of available details regarding construction methods, techniques designed to avoid or minimize the degradation of water quality and timing of construction, Alternative 3 would result in an ***increased impact conclusion*** compared to the proposed project, significant and unavoidable.

Construction-related discharges of dewatering effluent from open excavations would be increased under Alternative 3 because of the larger disturbance area associated with the desalination facility

(110 acres versus 25 for the proposed project) and increased pipeline length (31.5 miles in addition to the 21 miles for the proposed project). Most of the dewatering effluent produced during construction excavation is considered a low threat and would be discharged to land or the stormwater drainage system provided it complies with the *General WDRs for Discharges with a Low Threat to Water Quality.* Impacts from discharges of contaminated dewatering effluent from open excavations and well development that do not meet General Waiver requirements could be reduced to a less-than-significant level with implementation of mitigation similar to that prescribed for the proposed project, **Mitigation Measure 4.7-2b: Soil and Groundwater Management Plan.** Therefore, Alternative 3 would result in the ***same impact conclusion*** related to construction impacts and degradation of water quality from construction-related discharges of dewatering effluent from open excavations as the proposed project, less than significant with mitigation.

Degradation of water quality from discharges of treated water and disinfectant during construction of Alternative 3 would be increased compared to the proposed project because of the additional miles of new pipeline (31.5 miles in addition to 21 miles for the proposed project). Like the proposed project however, adherence to the General Waste Discharge Requirements would ensure the degradation of water quality from discharges of treated water and disinfectant from existing and newly installed pipelines during construction. Therefore, Alternative 3 would result in the ***same impact conclusion*** as the proposed project, less than significant.

During construction of Alternative 3, the potential for grading and earthmoving operations to alter local drainage patterns and redirect or concentrate stormflows would be increased compared to the proposed project due to the larger disturbance area associated with the desalination facility (110 acres versus 25 for the proposed project) and increased pipeline length (31.5 additional miles). Such an increased potential for altered drainage patterns could result in increased risks related to onsite and/or downstream (offsite) erosion, siltation, and flooding, especially if stormwater conveyance capacity is exceeded. Mandatory compliance with NPDES Construction General Permit requirements and local regulations would involve implementation of erosion and stormwater control measures which would ensure the potential for impacts related to altered drainage patterns during construction would result in the ***same impact conclusion*** as the proposed project, less than significant.

Operational Impacts

Operational discharges would be released into MBNMS through a new diffuser structure without blending with wastewater. Discharge volumes would be greater than the proposed project (26 mgd versus 14 mgd) and the co-located data center would increase the temperature of the brine by about $+10^0$ C (the discharge from the proposed project would not gain heat). Impacts on water quality were assessed for salinity, temperature, and other Ocean Plan constituents.

Salinity Impacts

Alternative 3 would operate a 25-mgd desalination facility with a 46 percent recovery rate; it would need 55-mgd of source water and would produce a maximum of 27-mgd of brine with a maximum salinity of 66 ppt (compared to 58 ppt for the propose project). The brine would be discharged via a

new outfall diffuser with five high velocity duckbill diffuser nozzles (**Appendix D1** provides a discussion of diffuser nozzles). Operational discharges from Alternative 3 would locally increase salinity levels within the BMZ and could violate water quality standards or waste discharge requirements or otherwise degrade the water quality of receiving waters (including hypoxia) in Monterey Bay. The result would be an increased level of impact compared to the proposed project that could be mitigated to less than significant.

Approach to Analysis

Jenkins (2016) assessed the potential impacts of the DeepWater Desal Project from increased salinity against Ocean Plan water quality objectives. The analysis of brine dilution and characterization of salinity increases from discharges was performed using two models: a near field mixing zone model certified by the U.S. Environmental Protection Agency for use in ocean outfall design (detailed in Section 4.3, Surface Water Hydrology and Water Quality); and a 3-dimensional far field dispersion model. These models were used to characterize dilution and salinity, based on the mixing dynamics of a single discharge nozzle, to predict the trajectory of the brine plume following initial dilution in the nearfield of the diffuser, and to assess dilution and salinity increases from the interaction of brine plumes simultaneously discharged through five proposed outfall diffuser nozzles. The salinity increases determined by the modeling are worst-case and would occur only along the seabed (the location of the highest and most conservative salinity levels) as a reflection of the negatively buoyant discharge (discussed in detail in Section 4.3, Surface Water Hydrology and Water Quality); salinity levels decrease with height in the water column. Therefore, the model analysis completed by Jenkins (2016) represents conservative (i.e., worst-case) salinity increases from operational discharges associated with Alternative 3; in the majority of the water column, incremental salinities would be much less than the reported values.

The models used long-term records of water quality, ocean climate, bathymetry, and meteorological conditions to reflect baseline conditions and ambient receiving water quality appropriate to assessing impacts from operational discharges. Model analyses were conducted to determine salinity increases as short-term maximum values representative of periods of mixing and transport in the local ocean environment when brine dilution would be expected to occur at lowest rates. The low mixing conditions reflect the three ocean climates: upwelling period, relaxation period, and Davidson period (detailed in Section 4.3, Surface Water Hydrology and Water Quality). Additionally, model analysis determined average incremental salinity increases over the long-term (20+ years).

Salinity Impact Results and Discussion

The model analysis by Jenkins (2016) assumed discharges of brine via five diffuser nozzles, each discharging at 5.45 mgd for a combined discharge of 27.26 mgd with a maximum brine salinity of 66.15 ppt at the diffuser. Ambient ocean salinity was assumed to be 33.4 ppt based on the 20 year average salinity record. The dilution results determined that a single diffuser nozzle would dilute brine to within 2 ppt of natural background salinity at a distance of 105 feet from the point of discharge. Additionally, the analysis determined that a single 5.45 mgd diffuser nozzle would achieve dilution of the brine to within 0.1 percent over natural background salinity of 33.4 ppt at

the edge of the BMZ (a distance of 328 feet from the point of discharge); thus, discharges would be within the 2 ppt salinity standard defined in the Ocean Plan.

The 3-dimensional model analysis by Jenkins (2016) for each of the three ocean climates determined that the discharge plume characterized by salinity of 2 ppt or greater would extend to a distance of 312 to 315 feet from the diffuser, slightly less than the perimeter of the BMZ (328 feet). The 3-dimensional model analysis also determined that an area of up to 0.6 acres around the outfall diffuser along the seafloor would be characterized by salinities up to 42 ppt, representing an incremental increase of approximately 8.5 ppt.

Long-term model analysis was also conducted to determine average salinity increases and Ocean Plan compliance. Results determined that the median salinity at the edge of the BMZ would be 33.94 ppt assuming an ambient receiving water salinity of 33.39 ppt, within the Ocean Plan objective of 2 ppt. The model analysis determined that 99.9 percent of the time (based on 8,149 model simulations), salinity at the edge of the BMZ would be equal to or less than 35.39 ppt (representing the 2 ppt Ocean Plan objective). A maximum salinity of 35.54 (0.15 ppt above ambient) at the edge of the BMZ was determined to occur during the Davidson current period worst-case condition, when ambient ocean salinity exceeded the 20 year average (natural background) salinity. The probability of occurrence of this over-limit is less than 0.08 percent, or about 1 day in 3.4 years. As described above, while model simulations have identified short-term minor (0.15 ppt) exceedances of the 2 ppt threshold, such exceedances are based on worst-case model simulations and may not occur under actual operational conditions. Additionally, the salinity increases would occur only along the seabed (the location of the highest and most conservative salinity levels) as a reflection of the negatively buoyant dense operational discharges; salinity levels decrease with height in the water column and would be less than the reported values.

Salinity Impact Summary and Conclusion

Salinity increases would be greater under Alternative 3 compared to the proposed project. Under Alternative 3, a larger desalination facility (22 mgd as compared to 9.6 mgd for the proposed project) would discharge a greater volume of brine (27 mgd of brine as compared to 14 mgd of brine for the proposed project) with a higher maximum salinity (66.2 ppt as compared to 58.2 ppt for the proposed project). The area where salinity levels exceed 2 ppt around the Alternative 3 outfall diffuser would extend up to 315 feet, almost to the boundary of the BMZ (328 feet from the diffuser) and would be greater, as would the potential for hypoxia, than that described for the proposed project (salinity levels would be less than 2 ppt at a distance of up to 29 feet from the diffuser). Model analysis (Jenkins, 2016) identified discharges from Alternative 3 would occasionally (1 day out of 3.4 years) exceed the significance threshold of 2 ppt above natural background salinity at the BMZ boundary by a small margin (i.e., by 0.15 ppt).

As described in detail in Section 4.3.2.2 for the proposed project, the Ocean Plan includes monitoring and reporting requirements for the operation of new desalination facilities (Section III.M.4, “Monitoring and Reporting Program”; SWRCB, 2016b). A monitoring and reporting plan has not been defined and proposed as part of Alternative 3; as such and similar to the proposed project, Alternative 3 would not be consistent with the Plans, Policies, and

Regulations described in Section 4.3, Surface Water Hydrology and Water Quality. This would be a significant impact and would result in an increased level of impact compared to the proposed project, which could be reduced to less than significant with the implementation of **MM 4.3-4**. Therefore, Alternative 3 would result in the ***same impact conclusion*** for salinity compared to the propose project, less than significant with mitigation.

Temperature Impacts

As described in Section 4.3.2, the Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California (Thermal Plan) contains water quality objectives relevant to operational discharges that may elevate the temperature of receiving waters. The Thermal Plan specifies that the maximum temperature of discharges shall not exceed the natural temperature of receiving waters by more than 20°F, and the discharge of elevated temperature wastes shall not result in increases in the natural water temperature exceeding 4°F at: (a) the shoreline; (b) the surface of any ocean substrate; or (c) the ocean surface beyond 1,000 feet from the discharge system. The surface temperature limitation must be maintained at least 50 percent of the duration of any complete tidal cycle. This impact analysis uses the Thermal Plan's receiving water temperature limitations as significance thresholds.

Because the desalination source water would be used to cool a data center before entering the desalination facility, the temperature of the brine discharge would be increased up to 10°C (18°F) over ambient receiving ocean water temperature before being released into Monterey Bay (Jenkins, 2016). Based on model analysis, a median temperature difference of 0.11°C (0.2°F) would occur on the seabed at a distance of 328 feet from the outfall diffuser (Jenkins, 2016). The maximum temperature increase near the seabed at a distance of 328 feet from the outfall diffuser would be 0.96°C (1.73°F). The maximum modeled temperature increase is less than the natural temperature variations that occur daily at a depth of 65 feet. This would be an increased level of impact compared to the proposed project since the proposed project (or any other alternatives') discharge would not have any heat gain. Based on the temperature model results for the dispersion of the heated brine effluent, discharges would not exceed temperature related significance thresholds; therefore, impacts would be less than significant.

Other Ocean Plan Constituents

Brine discharges from Alternative 3 would not be combined with wastewater effluent, such as described for the proposed project. Therefore, Alternative 3 discharges are unlikely to exceed the numeric Ocean Plan objectives provided in **Table 4.3-3** for most of the listed water quality constituents because most of the listed constituents originate in wastewater. However, as described in Section 4.3, Surface Water Hydrology and Water Quality, the concentration of polychlorinated biphenyls (PCBs) in Monterey Bay exceeds Ocean Plan water quality objectives under baseline conditions. Unlike the proposed project's use of subsurface slant wells, the open water intake would not pre-filter the PCBs through the seafloor. As such, the source water for the desalination process would be out of compliance with the Ocean Plan numeric WQO for PCBs prior to processing at the desalination facility. The nature of reverse osmosis treatment results in the concentration of existing constituents (such as salinity). Therefore, the concentration of the

existing PCB-levels through the desalination process would be expected to further increase the PCB-levels in the brine discharge and therefore, exceed the Ocean Plan WQO upon discharge. Also, because brine discharges form a sinking plume and minimum dilution values are typically low, increased concentrations of PCBs in the brine would result in an increased level of impact compared to the proposed project and unlike the proposed project, Alternative 3 could potentially exceed the Ocean Plan water quality objective for PCBs at the edge of the ZID. The average concentration of PCBs observed in receiving the ocean waters of Monterey Bay is 2.32 nanograms per liter (ng/L) as determined through the CCLEAN program. This PCB concentration is already greater under baseline conditions than the Ocean Plan objective of 0.019 ng/L (**Table 4.3-4**). Assuming a concentration factor of 1.85, representing a recovery rate of 46 percent for the Alternative 3 desalination facility, an in-pipe brine PCB concentration of 4.29 ng/L was calculated. This concentration of PCB in the desalination brine would result in a concentration at the edge of the ZID of 2.68 ng/l based on a dilution factor of 20:1 (parts seawater to effluent). Therefore, Alternative 3 would have the potential of a 15.5 percent increase at the edge of the ZID compared to ambient ocean conditions, causing an exceedance of the Ocean Plan water quality objective for PCBs, resulting in an increased level of impact compared to the proposed action and a potentially significant impact. However, with implementation of **Mitigation Measure 4.3-5 (Implement Protocols to Avoid Exceeding Water Quality Objectives)** the significant impact would be reduced to a less-than-significant level and therefore, Alternative 3 would result in the ***same impact conclusion*** on other Ocean Plan constituents compared to the proposed project, less than significant with mitigation.

Maintenance Activities

Under Alternative 3, open water intake facility maintenance would involve regular cleaning from a boat using an automatic airburst connection and would not disturb the ocean floor. Periodic maintenance of the intake pipelines would temporarily increase turbidity in the immediate area surrounding the intake, but dilution, dispersion, and dynamic mixing by waves and tidal currents would result in turbidity levels rapidly reducing to ambient levels. Alternative 3 would therefore, have an increased potential to degrade of water quality due to discharges associated with maintenance of the intake. However, the impacts would be temporary and localized and Alternative 3 would result in the ***same impact conclusion*** as the proposed project; less than significant.

Facility Siting Impacts

Under Alternative 3, impervious surfaces would be increased by approximately 36 acres compared to the proposed project. Impacts related to the alteration of drainage patterns, the amount of surface runoff, increases in flooding, erosion, siltation, or exceed storm drain capacity on or off-site would result in an increased level of impact compared to the proposed project. As for the proposed project, Alternative 3 would be subject to the post-construction stormwater management requirements of the municipal stormwater permit and the applicant would be required to implement post-construction stormwater BMPs into the final site designs. With adherence to the post-construction requirements, impacts related to drainage pattern alteration, storm runoff volume, stormwater conveyance capacity, increased soil erosion, and siltation

associated with Alternative 3 would result in the ***same impact conclusion*** as the proposed project, less than significant.

Under Alternative 3, impacts related to flooding and flood risks, including those from tsunami and sea level rise would result in a slightly reduced level of impact compared to the proposed project due to the inland location of the desalination facility and data center. Impacts associated with flooding and flood risks under Alternative 3 would result in the ***same impact conclusion*** as the proposed project, less than significant.

In addition to physical impacts, Alternative 3 may be inconsistent with MBNMS Desalination Guidelines (NOAA, 2010), with regard to its lack of a combined discharge compared to the proposed project, which would use an existing outfall. One of the guidelines states: "project proponents should investigate the feasibility of diluting brine effluent by blending it with other existing discharges."

Cumulative Analysis

Construction of Alternative 3 would result in the same types of impacts as the proposed project (for onshore construction) and Alternative 2 (for offshore construction), but would have a larger construction-related disturbance area (both onshore and offshore) compared to the proposed project and Alternative 2. The cumulative impacts from onshore construction would be the same as those described for the proposed project, but the contribution of Alternative 3 would be incrementally greater. Onshore construction-related activities could have a cumulatively considerable contribution to a significant cumulative impact when combined with the water quality and hydrology effects of construction activities associated with the projects listed in **Table 4.1-2** in Section 4.1. However, as described for the proposed project, mandatory compliance with the NPDES Construction General Permit, General Waiver, and General WDRs as well as implementation of mitigation similar to the management plan described under **Mitigation Measure 4.7-2b**, would reduce the contribution of Alternative 3 to a level that is not cumulatively considerable (*less than significant with mitigation*).

For offshore construction, no other reasonably foreseeable projects would result in offshore disturbance. Therefore, although Alternative 3 would have a significant and unavoidable impact related to offshore construction, a cumulative analysis is not applicable to impacts of offshore construction disturbance for Alternative 3.

Maintenance of the open-water intake would contribute to temporary and localized increased turbidity. However, no other reasonably foreseeable projects in the cumulative scenario for Alternative 3 would contribute to such turbidity impacts. Therefore, although Alternative 3 would have a significant and unavoidable impact related to turbidity during maintenance of the open-water intake, a cumulative analysis is not applicable to impacts of intake maintenance for Alternative 3.

The geographic area associated with the assessment of cumulative water quality impacts from Alternative 3 operational discharges is Monterey Bay, and the cumulative projects include the Sand City Coastal Desalination Plant (No. 6), RUWAP Desalination Element (No. 31), RUWAP Recycled Water Project (No. 35), and Pure Water Monterey's GWR Project (No. 59). The Sand

City Coastal Desalination Plant was completed in 2010. The significance thresholds identified for the analysis of cumulative water quality impacts from cumulative projects are defined below. Alternative 3 would have a cumulatively considerable impact if operational discharges, in combination with other past, current, or future point discharges, would:

- Exceed the receiving water limitation for salinity of 2 ppt at the edge of the BMZ established in the Ocean Plan, or;
- Exceed water quality objectives established in the Ocean Plan at the edge of the zone of initial dilution (ZID).

Implementation of Alternative 3, or ocean discharges related to other projects, would require coverage under a NPDES permit that would be required to meet the Ocean Plan water quality objectives and limitations for salinity. Further, operation of cumulative projects would be required to adhere to all monitoring and reporting requirements prescribed in the Ocean Plan (described in Section 4.3.2) for discharges and receiving water characteristics and for impacts on all forms of marine life.

As discussed in Section 4.3, Surface Water Hydrology and Water Quality, future water quality testing and analysis, required as part of the NPDES permit process, would determine whether operational discharges under Alternative 3 could comply with Ocean Plan water quality objectives.

The most recent amendment to the Ocean Plan (SWRCB, 2016b) reflects the SWRCB's process of adapting to the need to regulate discharges from desalination projects. Ocean Plan water quality objectives are incorporated into NPDES permits in the form of specific water quality requirements. As discussed above, Alternative 3 discharges would exceed the 2 ppt salinity significance threshold by 0.15 ppt and could exceed Ocean Plan water quality objectives for PCBs. Because proponents of the DeepWater Desalination Project have not demonstrated methods of compliance with the Ocean Plan objectives that are protective of beneficial uses, and feasible mitigation strategies have not yet been identified, Alternative 3 in combination with other cumulative projects would result in significant and unavoidable cumulative impacts on ocean water quality and Alternative 3 would have a cumulatively considerable contribution to such effects (*significant and unavoidable*).

5.5.3.7 Direct and Indirect Effects of Alternative 4 – People's Moss Landing Water Desalination Project (People's Project)

Alternative 4 includes the construction and operation of an open ocean intake, a brine discharge system and pipelines, and supporting ballast rock located on the seafloor in Monterey Bay within MBNMS, as well as a 12 mgd desalination plant and associated facilities to provide 13,400 afy of water supply to meet the current and future needs of the Monterey Peninsula. Several components would be identical to the proposed project: the new Transmission Main, new desalinated water pipeline south of the "Connection to CalAm" Point on **Figure 5.4-4**, ASR-5 and -6 wells and ASR pipelines, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be as described in Chapter 3, Description of the Proposed Project. Because this alternative would have an open water intake that would eliminate the need for returning source water originating from the Salinas Valley Groundwater Basin, the proposed project Castroville Pipeline,

Pipeline to CSIP Pond, and operational components related to delivering water to CCSD would not be implemented. The desalination plant, open water intake system, brine discharge system, and the additional 6.5 miles of desalinated water pipeline are the components unique to Alternative 4 (see **Figure 5.4-4**). Therefore, the surface water hydrology and water quality impact analysis of Alternative 4 focuses primarily on these components; however, impact conclusions are made for the whole of Alternative 4. Components that are common to both Alternative 4 and the proposed project are assessed in Section 4.3, Surface Water Hydrology and Water Quality.

Construction Impacts

Components unique to Alternative 4 would have a reduced land-based disturbance area compared to the proposed project. Land-based construction activities would result in 16 acres of disturbance at the proposed desalination plant site (compared to 25 acres for the proposed project) and the installation of 20 total miles of pipeline (compared to 21 miles of pipeline for the proposed project). Therefore, construction of Alternative 4 would have a *reduced* potential for soil erosion and risk of inadvertent releases of hazardous chemicals during general construction activities. For the same reason, Alternative 4 would also have a reduced potential for eroded soil and sediment to be transported down gradient via stormwater runoff and degrade the water quality of receiving water bodies, including Monterey Bay, compared to the proposed project. As with the proposed project, mandatory compliance with NPDES Construction General Permit and local grading requirements would involve implementation of a SWPPP, including stormwater BMPs as well as erosion and stormwater control measures, which would prevent substantial adverse effects on water quality during construction. Alternative 4 would result in the ***same impact conclusion*** related to the degradation of water quality associated with increased soil erosion and inadvertent releases of hazardous chemicals during general construction activities compared to the proposed project, less than significant.

Offshore in MBNMS, Alternative 4 would result in approximately 43,200 square feet (approximately 1 acre) of disturbance on the seafloor from installation of the open ocean intake, outfall pipeline and diffuser, and laying of 1,100 feet of intake pipeline and 700 feet of brine discharge pipeline on the seafloor, ballasted with concrete collars and protected with riprap armoring. This would result in an increased level of impact on water quality from construction activities compared to the proposed project which proposes no construction on the seafloor. Due to the substantially increased size of the Alternative 4 in-water construction area and the lack of details available regarding construction techniques designed to avoid or minimize the degradation of water quality, Alternative 4 would result in an ***increased impact conclusion*** compared to the proposed project, significant and unavoidable.

Construction-related discharges of dewatering effluent from open excavations would be reduced under Alternative 4 because of the reduced disturbance area associated with the desal facility (16 acres versus 25 for the proposed project) and reduced total pipeline length (20 miles as compared to 21 for the proposed project). Most of the dewatering effluent produced during construction excavation is considered a low threat and would be discharged to land or the stormwater drainage system provided it complies with the *General WDRs for Discharges with a Low Threat to Water Quality*. Impacts from discharges of contaminated dewatering effluent from

open excavations and well development that do not meet General Waiver requirements could be reduced to a less-than-significant level with implementation of mitigation similar to that prescribed for the proposed project, **Mitigation Measure 4.7-2b: Soil and Groundwater Management Plan**. Therefore, Alternative 4 would result in the ***same impact conclusion*** related to the degradation of water quality from construction-related discharges of dewatering effluent from open excavations compared to the proposed project, less than significant with mitigation.

Degradation of water quality from discharges of treated water and disinfectant during construction of Alternative 4 would be slightly reduced compared to the proposed project because of the reduced length of new pipeline (20 miles as compared to 21 miles for the proposed project). Like the proposed project however, adherence to the General Waste Discharge Requirements would ensure the degradation of water quality from discharges of treated water and disinfectant from existing and newly installed pipelines during construction and Alternative 4 would result in the ***same impact conclusion*** as the proposed project, less than significant.

During construction of Alternative 4, the potential for grading and earthmoving operations to alter local drainage patterns and redirect or concentrate stormflows would be reduced compared to the proposed project due to the smaller disturbance area associated with the desalination facility (16 acres versus 25 for the proposed project) and decreased pipeline length (20 miles as compared to 21 miles for the proposed project). However, although reduced, altered drainage patterns associated with Alternative 4 could result in increased risks related to onsite and/or downstream (offsite) erosion, siltation, and flooding, especially if stormwater conveyance capacity is exceeded. Mandatory compliance with NPDES Construction General Permit requirements and local regulations would involve implementation of erosion and stormwater control measures which would ensure the potential for impacts related to altered drainage patterns during construction would result in the ***same impact conclusion*** as the proposed project, less than significant.

Operational Impacts

Operational discharges associated with Alternative 4 would be released to Monterey Bay through a rehabilitated diffuser structure without blending with wastewater; there would be no heat gain in the brine. Discharge volumes would be increased (17.5 mgd) compared to the proposed project (14 mgd). Operational impacts on MBNMS water quality are assessed below for salinity and other Ocean Plan constituents.

Salinity Impacts

Alternative 4 would operate a 12 mgd desalination facility at a 45 percent recovery rate (based on 30 mgd of source water), producing a maximum of 17.5 mgd of brine (compared to 14 mgd for the proposed project) with a maximum salinity of 62.5 ppt (compared to 58.2 ppt for the proposed project). Brine would be discharged via an existing outfall, proposed to be rehabilitated and fitted with two, 16-inch diameter diffuser ports that the applicant states would be designed to meet Ocean Plan objectives for receiving water salinity limitations.

The Ocean Plan (SWRCB, 2016b) identifies multiport diffusers as the best method for disposing of brine when the brine cannot be diluted by wastewater and they are described as an end-of-pipe system that can be installed on submerged marine outfalls to discharge effluent through numerous ports or openings to enable rapid turbulent mixing that disperses and dilutes brine within a relatively small area. However, no studies or other information have been provided to support the conclusion that two 16-inch diameter diffuser ports proposed by the Alternative 4 proponent would meet the Ocean Plan objectives, and therefore, the areal extent of potentially increased salinity levels around the proposed diffuser is unknown. Discharges from Alternative 4 could locally increase salinity levels and could violate water quality standards, waste discharge requirements or otherwise degrade the water quality (including hypoxia) in Monterey Bay. Similar to the proposed project, a monitoring and reporting plan, consistent with the requirements of the Ocean Plan has not been defined and proposed. As such, Alternative 4 would not be consistent with the Plans, Policies, and Regulations described in Section 4.3, Surface Water Hydrology and Water Quality.

It is feasible that impacts relating to salinity could be reduced to less-than-significant levels and a monitoring and reporting plan, consistent with the requirements of the Ocean Plan could be proposed; with such measures, impacts could be less than significant. However, while the applicant may propose such measures and provide model analyses to demonstrate compliance with Ocean Plan objectives, compliance with the Ocean Plan objectives cannot be assumed at this time. Therefore, impacts related to operational discharges and impacts to water quality associated with Alternative 4 would have an increased salinity impact and would result in an ***increased impact conclusion*** compared to the proposed project; significant and unavoidable.

Other Ocean Plan Constituents

As described for Alternative 3, above, brine discharges from Alternative 4 would not be comingled with wastewater effluent, such as described for the proposed project. Therefore, Alternative 4 discharges are unlikely to exceed the numeric Ocean Plan objectives provided in **Table 4.3-3** for most of the listed water quality constituents since most of the listed constituent originate in wastewater. However, as described in Section 4.3, Surface Water Hydrology and Water Quality, the concentration of PCBs in Monterey Bay exceeds Ocean Plan water quality objectives under baseline conditions. Unlike the proposed project's use of subsurface slant wells, the open water intake would not pre-filter the PCBs through the seafloor. As such, the source water for the desalination process would be out of compliance with the Ocean Plan numeric WQO for PCBs, the desalination process would concentrate the PCB-levels and the brine discharge would exceed the Ocean Plan WQO. Also, as described in Section 4.3, brine-only discharges are dense and form a sinking or negatively buoyant plume. Such dense plumes are characterized by low dilution and mixing with receiving waters (as compared to brine that is comingled with municipal secondary treated waste water). Therefore, Alternative 4 operational discharges would be characterized by increased concentrations of PCBs in the brine as compared to the proposed project. This increase would result in an increased level of impact compared to the proposed project and unlike the proposed project, Alternative 4 could potentially exceed the Ocean Plan water quality objective for PCBs at the edge of the ZID.

It is feasible that impacts relating to exceedances of Ocean Plan objectives could be reduced to less-than-significant levels with mitigation similar to **Mitigation Measure 4.3-5 (Implement Protocols to Avoid Exceeding Water Quality Objectives)**. However, while the applicant may propose such measures or provide model analyses to demonstrate compliance with Ocean Plan objectives, the effectiveness of the diffuser design is currently unknown and feasible mitigation cannot be designed without additional information related to facility design, operational protocols, and diffuser dynamics. Therefore, Alternative 4 would result in an ***increased impact conclusion*** related to operational discharges and water quality for other Ocean Plan constituents compared to the proposed project, significant and unavoidable.

Maintenance Activities

The screened open water intake facility would involve regular maintenance cleaning from a boat using an automatic airburst connection and would not disturb the ocean floor. Periodic maintenance of the intake would increase turbidity temporarily in the immediate area surrounding the intake compared to the proposed project, but dilution, dispersion, and dynamic mixing by waves and tidal currents would result in turbidity levels rapidly reducing to ambient levels. Therefore, Alternative 4 would result in a the ***same impact conclusion*** related to the degradation of water quality due to discharges associated with maintenance of wells and the open water intake compared to the proposed project, less than significant.

Facility Siting Impacts

Under Alternative 4, impervious surfaces would be reduced by approximately 7.5 acres at the desalination facility and by approximately 24 acres for all components as compared to the proposed project. Impacts related to the alteration of drainage patterns, the amount of surface runoff, increases in flooding, erosion, siltation, or exceed storm drain capacity on or off-site would result in a reduced level of impact compared to the proposed project. As for the proposed project, Alternative 4 would be subject to the post-construction stormwater management requirements of the municipal stormwater permit and the applicant would be required to implement post-construction stormwater BMPs into the final site designs. With adherence to the post-construction requirements, Alternative 4 would result in the ***same impact conclusion*** related to drainage pattern alteration, storm runoff volume, stormwater conveyance capacity, increased soil erosion, and siltation compared to the proposed project, less than significant.

Impacts related to flooding due to the siting of Alternative 4 in a 100-year flood hazard area would result in an increased level of impact compared to the proposed project and all alternatives because a substantial portion of the 16.5-acre desalination plant site is located within a 100-year flood hazard zone. This area is designated as Zone A, indicating the base flood elevations have not been determined (FEMA, 2009). Based on the limited information available at this time regarding project design and flood hazard mitigation, the impact associated with the siting of project facilities in a 100-year flood hazard zone and the impedance or redirection of flood flows, Alternative 4 would result in an ***increased impact conclusion*** related to flooding and flood risks from tsunami and sea level rise compared to the proposed project due to the location of the desalination facility, significant and unavoidable.

The existing caisson, proposed to be rehabilitated for the seawater intake and brine disposal system, is located at the coastline, within the surf zone and within the anticipated extent of ongoing coastal erosion (**Appendix C2**). It can be reasonably expected that the existing caisson would continue to be exposed to ongoing coastal erosion, and would at some point be either removed or armored from the ongoing effects sea level rise. A new pump house on the existing caisson, as proposed by this alternative, would require the caisson to remain in place, potentially exposing adjacent properties to flooding from sea level rise. Mitigation would be required to address the flooding, including a coastal retreat strategy or a plan to armor the caisson, and in so doing, the applicant must demonstrate that flooding will not occur. However, while the applicant may propose such measures or provide model analyses to demonstrate compliance with Coastal Act requirements related to armoring, erosion, and sea level rise resilience, the final design is currently unknown and the feasibility of any proposed mitigation cannot determined at this time. Therefore, impacts related to coastal erosion from facility siting would have an increased level of impact as compared to the proposed project and Alternative 4 would result in an ***increased impact conclusion*** compared to the proposed project; significant and unavoidable.

In addition to physical impacts, Alternative 4 may be inconsistent with MBNMS Desalination Guidelines (NOAA, 2010), with regard to its lack of a combined discharge compared to the proposed project, which would use an existing operating outfall. One of the guidelines states: "project proponents should investigate the feasibility of diluting brine effluent by blending it with other existing discharges." Alternative 4 would utilize an existing outfall, but the brine discharge would not be combined with other existing discharges.

Cumulative Analysis

The cumulative impacts from onshore construction would be the same as those described for the proposed project, but the contribution of Alternative 4 would be incrementally greater. Onshore construction-related activities could have a cumulatively considerable contribution to a significant cumulative impact when combined with the water quality and hydrology effects of construction activities associated with the projects listed in **Table 4.1-2** in Section 4.1. However, as described for the proposed project, mandatory compliance with the NPDES Construction General Permit, General Waiver, and General WDRs as well as implementation of mitigation similar to the management plan described under **Mitigation Measure 4.7-2b**, would reduce the contribution of Alternative 4 to a level that is not cumulatively considerable (*less than significant with mitigation*).

The DeepWater Desal Project (No. 34 in **Table 4.1-2** in Section 4.1) also would include construction of an open-water intake and outfall pipelines that would result in the type of localized water quality degradation described for Alternative 4. The proximity of these two projects' in-water construction activities could result in a significant cumulative impact on surface water quality. Like Alternative 4, the DeepWater Desal Project would be required to adhere to MBNMS regulations and requirements to ensure the protection of the beneficial uses of Sanctuary waters to prevent significant impacts on water quality in the Monterey Bay. However, until those provisions are defined and demonstrated to ensure compliance with the construction-related recommendations detailed in the MBNMS Desalination Guidelines, the cumulative impact

would be significant and unavoidable, and the contribution of Alternative 4 to this impact would be cumulatively considerable (*significant and unavoidable*).

The contribution to cumulative surface water quality impacts from operation of Alternative 4 would be increased compared to the proposed project. Maintenance of the open-water intake would contribute to temporary and localized increased turbidity. Similarly, maintenance of the DeepWater Desal Project open water intake could result in additional turbidity, potentially resulting in a significant cumulative impact. Like Alternative 4, the DeepWater Desal Project would be required to adhere to MBNMS regulations and requirements to ensure the protection of the beneficial uses of Sanctuary waters to prevent significant impacts on water quality in the Monterey Bay. However, until those provisions are defined and demonstrated to ensure compliance with the construction-related recommendations detailed in the MBNMS Desalination Guidelines, the cumulative impact would be significant and unavoidable, and the contribution of Alternative 4 to this impact would be cumulatively considerable (*significant and unavoidable*).

The increased concentration of PCBs in the brine discharge from Alternative 4 may exceed the Ocean Plan water quality objective for PCBs at the edge of the ZID. The proposed outfall location for Alternative 4 is near the proposed outfall location for the DeepWater Desal project. Therefore, the discharge plumes from these two outfalls or their ZIDs could intersect or merge and result in exceedances of Ocean Plan defined water quality objectives, thereby adversely affecting beneficial uses of receiving waters (Monterey Bay). This would be a significant cumulative impact, and the contribution of Alternative 4 would be cumulatively considerable. Because proponents of the People's Project have not demonstrated methods of compliance with the Ocean Plan objectives that are protective of beneficial uses, and feasible mitigation strategies have not yet been identified, Alternative 4 in combination with other cumulative projects would result in significant and unavoidable cumulative impacts to ocean water quality and Alternative 4 would have a cumulatively considerable contribution to such effects (*significant and unavoidable*).

5.5.3.8 Direct and Indirect Effects of Alternative 5 - Reduced Desal Project 5a (CEMEX) and 5b (Potrero Road)

Alternative 5a would include the seawater intake system at the CEMEX site (the same location as the proposed project), but would include only seven subsurface slant wells (the converted test well and six new wells) and the same source water pipeline as the proposed project. Alternative 5b would include seven new wells at the western end of Potrero Road (the same location as Alternative 1) and the same source water pipeline as Alternative 1. Both Alternatives 5a and 5b would include a reduced-capacity desalination plant (6.4 mgd), and all other components would be the same as the proposed project.

Construction Impacts

Components unique to Alternative 5a and 5b would have a smaller disturbance area at the CEMEX site (the converted test well and six new wells) and the Potrero Road Site (seven new wells) for proposed slant wells as compared to the proposed project (the converted test well plus

nine new wells and ten new wells at CEMEX and Potrero Road respectively). Therefore, the overall construction area for Alternatives 5a and 5b would be reduced compared to the proposed project. However, Alternatives 5a and 5b would still have a potential for soil erosion and risk of inadvertent releases of hazardous chemicals during general construction activities. Under Alternatives 5a and 5b, the potential for eroded soil and sediment to be transported down gradient via stormwater runoff and degrade the water quality of receiving water bodies, including the Salinas River and Monterey Bay, would remain. Mandatory compliance with NPDES Construction General Permit and local grading requirements would involve implementation of a SWPPP, including stormwater BMPs as well as erosion and stormwater control measures, which would prevent substantial adverse effects on water quality during construction. Alternatives 5a and 5b would result in the ***same impact conclusion*** related to the degradation of water quality associated with increased soil erosion and inadvertent releases of hazardous chemicals during general construction activities, less than significant.

Construction-related discharges of dewatering effluent from open excavations and water produced during well drilling of the slant wells would be decreased under Alternatives 5a and 5b because of the reduced number of proposed new wells at CEMEX and Potrero Road compared to the proposed project. Dewatering effluent produced during construction excavation would likely be considered a low threat and would be discharged to land or the stormwater drainage system provided it complies with the *General WDRs for Discharges with a Low Threat to Water Quality*. The development water produced during well installation would be pumped to holding tanks to allow sediment to settle out and effluent would be discharged to the beach sands (Alternative 5a) or into a buried diffuser system in the parking lot for percolation into underlying beach sands (Alternative 5b) in accordance with the requirements of the General Waiver of WDRs (General Waiver). Impacts from discharges of contaminated dewatering effluent from open excavations and well development that do not meet General Waiver requirements would be reduced to a less-than-significant level with implementation of the same mitigation prescribed for the proposed project, **Mitigation Measure 4.7-2b: Soil and Groundwater Management Plan.** Alternative 5a and 5b would result in the ***same impact conclusion*** related to the degradation of water quality from construction-related discharges of dewatering effluent from open excavations and water produced during well drilling and development compared to the proposed project, less than significant with mitigation.

Degradation of water quality from discharges of treated water and disinfectant during construction of Alternative 5a and 5b would be the same as the proposed project and Alternative 1 because proposed pipelines would be the same. Adherence to the General Waste Discharge Requirements would ensure Alternatives 5a and 5a would result in the ***same impact conclusion*** as the proposed project and Alternative 1 and the degradation of water quality from discharges of treated water and disinfectant from existing and newly installed pipelines during construction would be less than significant.

During construction of Alternative 5a and 5b, the potential for grading and earthmoving operations to alter local drainage patterns and redirect or concentrate stormflows would be decreased slightly compared to the proposed project due to the reduced number of proposed wells. Although reduced, the potential for altered drainage patterns could result in increased risks

related to onsite and/or downstream (offsite) erosion, siltation, and flooding, especially if stormwater conveyance capacity is exceeded, as compared to existing conditions. Mandatory compliance with NPDES Construction General Permit requirements and local regulations would involve implementation of erosion and stormwater control measures which would ensure the potential for impacts related to altered drainage patterns during construction would be less than significant, which would result in the ***same impact conclusion*** as the proposed project.

Operational Impacts

Impacts on water quality related to discharges of brine would result in a decreased level of impact compared to the proposed project because of the reduced volumes of brine produced from the smaller desalination plant. Under Alternatives 5a and 5b, a 6.4 mgd desalination plant would be constructed at Charles Benson Road (as compared to a 9.6 mgd facility for the proposed project). The reduced-capacity desalination plant would treat 15.5 mgd of source water at a 42 percent recovery rate and would generate approximately 9 mgd of brine (as compared to 14 mgd of brine for the proposed project) that would be discharged through the MRWPCA's existing ocean outfall. Similar to the proposed project, discharges from Alternative 5a and 5b would meet the Ocean Plan objective for salinity but would degrade the water quality in Monterey Bay in a very localized area, discussed below. Because no heating mechanism or process would increase the temperature of the source water as it passes through the treatment units, thermal impacts on receiving waters are not discussed further.

Salinity Impacts

This analysis of impacts related to increased salinity from operational discharges incorporates the significance thresholds, approach to analysis, and methodologies described in detail under Impact 4.3-4 in Section 4.3, Surface Water Hydrology and Water Quality.

Plant Operation and Discharge Scenarios

The reduced-capacity desalination plant proposed under both Alternatives 5a and 5b would treat 15.5 mgd of source water at a 42 percent recovery rate and would generate approximately 9 mgd of brine (as compared to 14 mgd of brine for the proposed project) that would be discharged through the MRWPCA's existing ocean outfall. During the non-irrigation season (November through March), only brine would be discharged. During the irrigation season, brine would be combined and discharged with varying degrees of secondary treated wastewater.

As discussed in detail under Impact 4.3-4, the treated wastewater flow from the MRWPCA Regional Wastewater Treatment Plant varies throughout the year (**Table 4.3-9**). The highest wastewater flows occur during the non-irrigation season (November through March) and the lowest flows during the irrigation season (April through October) when the secondary treated wastewater is processed through the SVRP for tertiary treatment and distributed to irrigators through the CSIP. During the irrigation season, on some days, all of the wastewater flows could be provided to irrigators, and only the brine would be discharged into Monterey Bay through the outfall. The following discharge scenarios are assessed for salinity related water quality impacts (**Table 5.5-2**):

- **Scenario V1, Brine-only**: 8.99 mgd of brine would be discharged alone through the MRWPCA outfall. This operating scenario would occur during the irrigation season.
- **Scenarios V2 toV5, Brine-with-Wastewater**: 8.99 mgd of brine would be discharged with varying volumes of treated wastewater from the MRWPCA Regional Wastewater Treatment Plant. These operating scenarios would occur when treated wastewater is available during the non-irrigation season.

TABLE 5.5-2
ALTERNATIVE 5 DISCHARGE SCENARIOS MODELED

No.	Scenario	Discharge flows (mgd)	
		Secondary Effluent	Desal Brine
V1	Brine only	0	8.99
V2	Brine and low (1) SE	1	8.99
V3	Brine and low (2) SE	2	8.99
V4	Brine and moderate SE	5.8 (Davidson)	8.99
V5	Brine and high SE	19.78	8.99

NOTES: SE = MRWPCA secondary effluent wastewater

SOURCE: Roberts, 2016.

Approach to Analysis

The approach to analysis for assessing discharges is consistent with the approach described under Impact 4.3-4 for the proposed project (Section 4.3, Surface Hydrology and Water Quality). A detailed description of the model methodology and conservative assumptions applied for calculating discharge dilution and salinity at the outfall diffuser is provided under Impact 4.3-4, with further details provided in **Appendix D1** and **D2**.

To model the discharge scenarios, Roberts (2016) combined the ambient conditions for Monterey Bay, the operational scenarios from **Table 5.5-2**, and the effluent water quality characteristics of the brine and the MRWPCA wastewater to calculate flow, salinity, and density for all assessed discharge scenarios (**Table 5.5-3**). The calculated values were then used to compute minimum dilution ratios (Dm) at the edge of the ZID, estimate the gradient of salinity between the diffuser ports and the edge of the ZID, and calculate the salinity beyond the ZID but within the BMZ (see **Appendix D1** for details).

Salinity Impact Results and Discussion

The potential for a water quality impact to occur was analyzed from the diffuser port to the edge of the BMZ (328 feet). Discharge scenarios comprised of only brine (Scenario V1) and brine with low to moderate volumes of wastewater (Scenarios V2 to V4) were determined to be dense (i.e., with salinity levels in excess of ambient conditions) and, thus, negatively buoyant. When the brine is mixed with high volumes of wastewater (Scenario V5), the plume would be positively buoyant because the salinity and density of the effluent is substantially lower than that of receiving waters (**Table 5.5-3**).

TABLE 5.5-3
ALTERNATIVE 5 OPERATIONAL DISCHARGE FLOW, SALINITY AND DENSITY

		Background			Brine			Secondary effluent			Combined discharge		
Scenario	**Season**	**Temp. (°C)**	**Salinity (ppt)**	**Density (kg/m^3)**	**Flow (mgd)**	**Temp. (°C)**	**Salinity (ppt)**	**Flow (mgd)**	**Temp. (°C)**	**Salinity (ppt)**	**Flow (mgd)**	**Salinity (ppt)**	**Density (kg/m^3)**
V1	Upwelling	11.48	33.89	1,025.8	8.99	9.9	58.23	0	24.0	0.8	8.99	58.23	1,045.2
V2	Upwelling	11.48	33.89	1,025.8	8.99	9.9	58.23	1.00	24.0	0.8	9.99	52.48	1,040.5
V3	Upwelling	11.48	33.89	1,025.8	8.99	9.9	58.23	2.00	24.0	0.8	10.99	47.78	1,036.6
V4	Davidson	14.46	33.34	1,024.8	8.99	11.6	57.40	5.80	20.0	0.8	14.79	35.20	1,026.4
V5	Upwelling	11.48	33.89	1,025.8	8.99	9.9	58.23	19.78	24.0	0.8	28.77	18.75	1,012.7

The results of modeled salinity predictions and minimum dilution values for each discharge scenario, and the distance from the diffuser port at which the dense discharge plume makes contact with the seabed, is shown in **Table 5.5-4** for all dense discharge scenarios. The worst case modeled, as expected, was the brine-only scenario during the irrigation season (Scenario V1). The salinity increment in Scenario V1 at the edge of the ZID (approximately 9 feet from the diffuser port) and at the BMZ was modeled to be 1.53 ppt and 1.27 ppt above ambient, respectively. All other discharge scenarios evaluated are shown to have lower incremental salinities (and higher Dm) than Scenario V1. In all scenarios modeled, the Ocean Plan salinity limit of 2 ppt would be met within the ZID, the length of which ranges from approximately 9 to 24 feet from the outfall diffuser for the dense scenarios.

Positively buoyant discharge plumes (i.e., those with densities less than the receiving water) require different analytical procedures than are used for negatively buoyant plumes. Only one modeled discharge scenario resulted in a positively buoyant discharge: Scenario V5, consisting of brine and high volumes of wastewater (**Table 5.5-2**). The plume dynamics for this scenario were assessed using the same procedure as that described under Impact 4.3-4 (see Section 4.3, Surface Water Hydrology and Water Quality).

The modeling results for the buoyant plumes are presented in **Table 5.5-5** and indicate that the dilution would be higher for the four buoyant scenarios evaluated (wastewater-only under 3 oceanic climates, and a brine-with-wastewater) than for any of the dense plumes. The minimum initial dilution of 105:1 (parts seawater: effluent) for Scenario V5 would not exceed the significance threshold of 2 ppt at the BMZ.

Salinity Impact Summary and Conclusion

The analysis of salinity levels indicates that all discharge scenarios would result in salinity increases of less than 2 ppt above ambient levels at the edge of the ZID (up to 24 feet from the diffuser for Alternative 5a or 5b, as compared to 29 feet for the proposed project) and at the edge of the BMZ (328 feet from the diffuser). Therefore, Alternative 5 (either 5a or 5b) would not exceed or violate the salinity standards. The salinity increases presented here represent conservative values and would occur only along the seabed. For the majority of the water column, incremental salinities would be much lower than reported values. Therefore, Alternative 5 discharges would not violate water quality standards, waste discharge requirements, or otherwise degrade the water quality (including hypoxia) of receiving waters in Monterey Bay by increasing salinity levels, and would result in a slightly reduced level of impact compared to the proposed project due to the reduced volume of brine discharged (9 mgd as compared to 14 for the proposed project) and the reduced ZID extent of the ZID associated with operational discharges (24 feet from the diffuser as compared to 29 feet for the proposed project). However, as described in Section 4.3.2.2, the Ocean Plan includes monitoring and reporting requirements for operation of new desalination facilities (Section III.M.4, “Monitoring and Reporting Program”; SWRCB, 2016b). The Monitoring and Reporting Plan must include provisions for monitoring of effluent and receiving water characteristics and impacts on all forms of marine life. The implementation of **Mitigation Measure 4.3-4 (Operational Discharge Monitoring, Analysis, Reporting, and Compliance)** would ensure compliance with Ocean Plan objectives and requirements. Therefore,

TABLE 5.5-4
DILUTION MODEL RESULTS FOR ALTERNATIVE 5 DENSE DISCHARGE SCENARIOS

No.	Scenario	Background Conditions		Effluent Conditions		Model Results at Edge of ZID					Model Results at Edge of BMZ	
						SEA Results			VP Results			
							Salinity					
		Salinity (ppt)	Density (kg/m^3)	Salinity (ppt)	Density (kg/m^3)	Dilution (Dm)	At Contact (ppt)	Increment (ppt)	Dilution (Dm)	Contact Distance (ft)	Dilution (Dm)	Salinity Increment (ppt)
V1	Brine only	33.89	1,025.8	58.23	1,045.2	15.9	35.42	1.53	16.3	8.7	19.0	1.30
V2	Brine and low (1) SE	33.89	1,025.8	52.48	1,040.5	16.7	35.06	1.17	17.4	9.8	20.0	0.93
V3	Brine and low (2) SE	33.89	1,025.8	47.78	1,036.6	17.7	34.66	0.77	18.5	10.9	21.3	0.65
V4	Brine and moderate SE	33.34	1,024.8	35.20	1,026.4	34.5	33.39	0.04	32.5	24.0	41.4	0.04
V5	Brine and high SE[1]	33.89	1,025.8	18.75	1,012.7	-	-	-	-	-	-	-

NOTES: SE = MRWPCA secondary effluent wastewater
[1] See Table 5.5-5 for results of buoyant discharges.

SOURCE: Roberts, 2016

TABLE 5.5-5
DILUTION RESULTS FOR BUOYANT MPWSP VARIANT DISCHARGE SCENARIOS

No.	Scenario	Flow rate (mgd)	Effluent Density (kg/m^3)	Port diam. (in)	Ocean condition	UM3 simulations		NRFIELD simulations		
						Average dilution	Rise height (center-line) (ft)	Minimum dilution	Rise height (center line) (ft)	Rise Height (top) (ft)
1	Baseline	19.78	998.8	2.00	Upwelling	191	58	186	59	42
1	Baseline	19.78	998.8	2.00	Davidson	327	100 (Surface)	351	100	100
1	Baseline	19.78	998.8	2.00	Oceanic	240	82	239	50	72
V5	Brine and High SE	28.77	1012.7	2.18	Upwelling	122	47	105	41	43

NOTES: SE = MRWPCA secondary effluent wastewater

SOURCE: Roberts, 2016

Alternatives 5a and 5b would result in the ***same impact conclusion*** for salinity increases as the proposed project, less than significant with mitigation.

Other Ocean Plan Constituents

Consistent with the approach to analysis described under Impact 4.3-5 (see Section 4.3, Surface Water Hydrology and Water Quality), this impact analysis uses the Ocean Plan water quality objectives, applied at the edge of the ZID, as significance thresholds for determining whether or not the discharges would result in a significant impact related to water quality, water quality standards, and waste discharge requirements.

Approach to Analysis

The same approach to analysis was applied to Alternative 5 that was described for the proposed project under Impact 4.3-5 (Section 4.3, Surface Hydrology and Water Quality). Potential water quality impacts were identified by determining whether discharges would exceed the conservative threshold of 80 percent of the Ocean Plan objective. **Appendix D3** documents the data sources and provides further detail on the methodology used to perform the ocean water quality modeling analysis. **Table 4.3-3** provides the suite of constituents and their numeric Ocean Plan water quality objectives.

Results and Impact Discussion

The estimated concentrations for the full suite of Ocean Plan constituents are presented as concentrations at the edge of the ZID and as a percentage of the Ocean Plan numeric water quality objective in **Appendix D3** (**Tables A3** and **A4**). Consistent with the results discussed under Impact 4.3-5 for the proposed project, the model analysis determined that Alternative 5 discharges would not exceed Ocean Plan water quality objectives for the majority of constituents listed in **Table 4.3-3**. No exceedances or potential exceedances were determined to occur for discharge scenarios V1 through V5 (see **Appendix D3**, **Table 4**).

However, consistent with impacts assessed for the proposed project (see Impact 4.3-5), ten constituents were never detected above the analytical laboratory Method Reporting Limit (MRL) in the source waters, but the MRLs are higher than the Ocean Plan objective. Due to this insufficient analytical sensitivity, no compliance conclusion can be drawn for these ten constituents. This is a typical occurrence for ocean discharges since the MRL is higher than the Ocean Plan objective for certain constituents. Only future water quality testing and analysis, such as that required under the NPDES permit process, would determine whether discharges under Alternative 5 would fully comply with Ocean Plan water quality objectives. Therefore, it must be conservatively concluded that Alternative 5 could result in a significant impact that could be reduced to less than significant with the implementation of **Mitigation Measure 4.3-5. (Implement Protocols to Avoid Exceeding Water Quality Objectives)** which would require CalAm to perform an extensive water quality assessment prior to implementation; in addition, operational discharges that cannot be demonstrated to conform to the prescribed performance standards may only be released following implementation of additional design features, engineering solutions, and/or operational measures to ensure compliance with provisions of the National Marine Sanctuaries Act and the Ocean Plan.

Impact Summary and Conclusion – Ocean Plan Water Quality Constituents

The model-based analyses concluded that constituent concentrations would not become elevated under the assessed discharge scenarios to levels greater than 80 percent of the Ocean Plan objective (established as a conservative significance threshold for determining impacts). However, a compliance determination could not be made for ten constituents due to insufficient data. Therefore, it was conservatively concluded that Alternative 5 could result in a significant impact related to water quality standards, waste discharge requirements and water quality of receiving waters in Monterey Bay. Significant impacts would be reduced to a less-than-significant levels by implementing **Mitigation Measure 4.3-5 (Implement Protocols to Avoid Exceeding Water Quality Objectives)**.

Further, **Mitigation Measure 4.3-4 (Operational Discharge Monitoring, Analysis, Reporting, and Compliance)**, described under Impact 4.3-4 (Section 4.3, Surface Water Hydrology and Water Quality), would further reduce and minimize potential impacts by requiring CalAm to implement a comprehensive Monitoring and Reporting Plan (Plan), following approval by the RWQCB and MBNMS, to obtain field monitoring and marine biological resource data in the area affected by a project. The Plan would set forth appropriate response thresholds and trigger corrective actions (defined in **Mitigation Measure 4.3-5**) that would be required if the acquired data indicated deleterious effects to receiving water quality or marine resources from discharges. Therefore, although Alternatives 5a and 5b would produce less brine because of the reduced capacity desalination plant, they would each result in the ***same impact conclusion*** for meeting Ocean Plan water quality objectives for other constituents compared to the proposed project, less than significant with mitigation.

Facility Siting Impacts

Under Alternative 5a and 5b, the disturbance area for maintenance of the slant wells at the CEMEX site and the Potrero Road site would be slightly reduced as compared to proposed project due to the reduced number of wells at each location (7 wells under Alternatives 5a and 5b as compared to ten wells for the proposed project). Impervious surfaces would remain substantially similar to the proposed project in the context of storm runoff volume generation. Therefore, Alternative 5a and 5b impacts related to the alteration of drainage patterns such that there is a resultant increase in erosion, siltation, flooding on- or offsite or the exceeding of storm drain capacity would remain the same as compared to the proposed project. With adherence to post-construction stormwater management requirements and post-construction stormwater BMPs, Alternatives 5a and 5b would result in the ***same impact conclusion*** compared to the proposed project, less than significant.

Under Alternative 5a and 5b, impacts related to flooding and flood risks, including those from tsunami and sea level rise would remain the same as those described for the proposed project due to all project facilities being located at the same sites despite the reduced number of wells and the reduced desalination facility under Alternatives 5a and 5b as compared to the proposed project. Impacts associated with flooding and flood risks under Alternative 5a and 5b would result in the ***same impact conclusion*** compared to the proposed project, less than significant.

Cumulative Analysis

Combined Impacts with GWR Project

The GWR Project would produce 0.94 mgd of RO treated effluent that would be discharged into Monterey Bay through the MRWPCA's existing ocean outfall. GWR Project discharges could combine with discharges of Alternative 5 and potentially violate water quality standards or degrade water quality in the area immediately surrounding the outfall diffuser.

Salinity Impacts

The discharges of the 6.4 mgd desalination plant, combined with effluent from the GWR Project and varying volumes of treated wastewater from the existing MRWPCA Regional Wastewater Treatment Plant, would be discharged into Monterey Bay through the MRWPCA's existing ocean outfall and would locally increase salinity levels that could violate water quality standards, waste discharge requirements, or otherwise degrade the water quality in Monterey Bay, thus resulting in a significant water quality impact from these combined discharges. The analysis of impacts related to discharges that include GWR effluent presented here incorporates the significance thresholds, approach to analysis, and methodologies described in detail under Impact 4.3-4 in Section 4.3, Surface Water Hydrology and Water Quality, as well as above under the discussion of the operational impacts of Alternative 5.

Combined Desalination Plant and GWR Operation and Discharge Scenarios

Operation of Alternative 5 and the GWR project would result in discharges that would include brine from the Alternative 5 6.4 mgd desalination plant, effluent from the GWR Project, and treated wastewater from the existing MRWPCA Regional Wastewater Treatment Plant. During certain times of the year, a blend of brine and GWR effluent could be discharged. Additionally, the blend of brine and GWR effluent could be further combined with varying amounts of treated wastewater from the MRWPCA Regional Wastewater Treatment Plant, depending on the time of year (see **Table 4.3-8**). The following operational discharge scenarios are assessed for salinity-related water quality impacts (**Table 5.5-6**):

TABLE 5.5-6
MPWSP CUMULATIVE DISCHARGE SCENARIOS MODELED

No	Scenario	Discharge flows (mgd)		
		Desal Brine	GWR	Secondary Effluent
C1	Brine and GWR	8.99	0.94	0
C2	Brine and GWR and low (1) SE	8.99	0.94	1
C3	Brine and GWR and low (2) SE	8.99	0.94	3
C4	Brine and GWR and moderate SE	8.99	0.94	5.3 (Upwelling)
C5	Brine and GWR and high SE	8.99	0.94	15.92

NOTES: SE = MRWPCA secondary effluent wastewater

SOURCE: Roberts, 2016.

- **Scenario C1, Brine-with-GWR**: 8.99 mgd of brine generated from the Alternative 5 Desalination Plant would be discharged with 0.94 mgd of GWR effluent. This operating scenario would typically occur during the irrigation season when wastewater is not available.
- **Scenarios C2 to C5, Combined Discharge**: The brine and GWR discharge (8.99 mgd of brine and 0.94 mgd of GWR effluent) would be combined with varying volumes of treated wastewater from the MRWPCA Regional Wastewater Treatment Plant. This operating scenario would typically occur in the non-irrigation season when wastewater is available.

Additionally, potential discharge scenarios could include combinations of treated wastewater with GWR effluent or GWR effluent alone (i.e., without desalination brine). Such discharge scenarios could occur if the GWR Project comes on line before the Alternative 5 Desalination Plant, or if the Alternative 5 desalination plant periodically shuts down. These scenarios would not represent a contribution to combined impacts for Alternative 5, but have been modeled and impacts comprehensively assessed and documented under Impact HS-5 in Section 4.11.4.4 in the Final EIR for the GWR Project (MRWPCA and MPWMD, 2016; p. 4.11-78 *et seq*.). Further, for the salinity of discharges that do not include Alternative 5 Desalination Plant, brine would be substantially lower than that of ambient conditions and therefore would not exceed the significance threshold of 2 ppt at the BMZ, and impacts would be less than significant. Therefore, the impact analysis for such operational scenarios, as well as the results and impact conclusions relating to these scenarios, are not discussed further.

Approach to Analysis

The approach to analyzing the combined discharges of Alternative 5 and the GWR Project is consistent with the approach described under Impact 4.3-4 for the proposed project (Section 4.3, Surface Hydrology and Water Quality). A detailed description of the model methodology and conservative assumptions applied for calculating operational discharge dilution and salinity at the outfall diffuser is provided under Impact 4.3-4, with further details provided in **Appendix D1** and D2.

To revise the brine discharge model analysis for the Alternative 5 with GWR Project operational discharge scenarios, Roberts (2016) combined the site-specific conditions for Monterey Bay receiving waters, the combined discharge scenarios in **Table 5.5-6** and the effluent water quality characteristics of the brine, GWR effluent, and the MRWPCA wastewater to calculate flow, salinity, and density for all assessed combined discharge scenarios (**Table 5.5-7**). The calculated values (**Table 5.5-7**) were then utilized to compute minimum dilution ratios (Dm) at the edge of the ZID, estimate the gradient of salinity between the diffuser ports and the edge of the ZID, and calculate the salinity beyond the ZID but within the regulatory brine mixing zone (BMZ) (see **Appendix D1** for details). These results are presented and discussed below.

Results and Impact Discussion

Alternative 5 was analyzed for potential water quality impacts as a result of combined discharges from the diffuser port to the edge of the BMZ. Of the Alternative 5 combined discharge scenarios assessed (**Table 5.5-6**), discharges comprising brine and GWR effluent (Scenario C1), and

TABLE 5.5-7
ALTERNATIVE 5 COMBINED OPERATIONAL DISCHARGE FLOW, SALINITY, AND DENSITY

		Background			Brine			GWR			Secondary effluent			Combined discharge		
Scenario	**Season**	**Temp. (°C)**	**Salinity (ppt)**	**Density (kg/m^3)**	**Flow (mgd)**	**Temp. (°C)**	**Salinity (ppt)**	**Flow (mgd)**	**Temp. (°C)**	**Salinity (ppt)**	**Flow (mgd)**	**Temp. (°C)**	**Salinity (ppt)**	**Flow (mgd)**	**Salinity (ppt**	**Density (kg/m^3)**
C1	Upwelling	11.48	33.89	1,025.8	8.99	9.9	58.23	0.94	24.4	5.8	0	24.0	0.8	9.93	53.27	1,041.1
C2	Davidson	14.46	33.34	1,024.8	8.99	11.6	57.40	0.94	20.2	5.8	1.00	20.0	0.8	10.93	47.78	1,036.5
C3	Davidson	11.48	33.89	1,024.8	8.99	11.6	57.40	0.94	20.2	5.8	3.00	20.0	0.8	12.93	40.52	1,030.6
C4	Upwelling	11.48	33.89	1,025.8	8.99	9.9	58.23	0.94	24.4	5.8	5.30	24.0	0.8	15.23	35.01	1,026.1
C5	Davidson	14.46	33.34	1,024.8	8.99	11.6	57.40	0.94	20.2	5.8	15.92	20.0	0.8	25.85	20.67	1,014.7

combined flows comprising brine and GWR effluent as well as low to moderate volumes of wastewater (Scenarios C2 through C4) were determined to be dense (i.e., with salinity levels in excess of ambient conditions) and, thus, negatively buoyant. When the Alternative 5 brine is combined with GWR effluent and a high volume of wastewater (Scenario C5), the plume is positively buoyant because the salinity and density of the effluent is substantially lower than that of receiving waters (**Table 5.5-7**).

Model simulations were run for all of the combined discharge scenarios (discussed in detail in Appendices D1 and D2). The results of the salinity predictions and minimum dilution values, the distance between the diffuser port and the point where the plume contacts the seabed, and the incremental salinity increases above background conditions for each dense cumulative discharge scenario at the edge of the ZID and the BMZ are presented in **Table 5.5-8**.

All combined discharge scenarios under Alternative 5 are shown to have incremental salinities that would be lower than that assessed for the brine-only discharge (worst-case scenario, Scenario V1, **Table 5.5-5**). Dilution is increased and incremental salinity is reduced (as compared to the brine-only discharge scenario) as increasing fresh water in the form of GWR effluent and MRWPCA wastewater are co-mingled with the brine. For all combined discharge scenarios, the Ocean Plan salinity limit of 2 ppt is met within the ZID, the length of which ranges from approximately 10 to 42 feet from the outfall diffuser. Further, the computed salinities presented in **Table 5.5-8** would occur only along the seabed. Salinities decrease with height in the water column (see **Appendix D1** for details) and would only be above ambient close to the seabed. For most of the water column, incremental salinities would be much less than the conservative values in **Table 5.5-8**.

Positively buoyant plumes require different analytical procedures than are used for negatively buoyant plumes. Only one Alternative 5 combined scenario involves a positively buoyant discharge; Scenario C5, consisting of brine combined with GWR effluent and high volumes of wastewater. The plume dynamics for this scenario were assessed using the same procedure as that described under Impact 4.3-4 (see Section 4.3, Surface Water Hydrology and Water Quality). In summary, the internal hydraulics of the outfall diffuser was computed, and then the average diffuser port diameter and discharge flows were calculated. Model analyses were then run, accounting for effluent water quality characteristics and receiving water quality conditions (summarized in **Table 5.5-9**).

The results summarized in **Table 5.5-9** show the highest dilution would occur under baseline conditions (pure secondary effluent, the baseline condition for current operation of the MRWPCA wastewater treatment plant) with weak (Davidson) stratification, which would result in a surfacing plume (i.e., the plume rises to the top of the water column, the ocean surface). When brine is combined with GWR effluent and high volumes of wastewater (Scenario C5), dilution is high, the plume is positively buoyant and the Scenario C5 discharges would not exceed the significance threshold of 2 ppt at the BMZ. As shown in **Table 4.3-9**, these high volumes of wastewater flow occur during the non-irrigated season (November through March).

TABLE 5.5-8
DILUTION MODEL RESULTS FOR ALTERNATIVE 5 COMBINED DENSE DISCHARGE SCENARIOS

No.	Scenario	Background Conditions		Effluent Conditions		Model Results at Edge of ZID					Model Results at Edge of BMZ	
						SEA Results			VP Results			
							Salinity					
		Salinity (ppt)	Density (kg/m^3)	Salinity (ppt)	Density (kg/m^3)	Dilution (Dm)	At contact (ppt)	Increment (ppt)	Dilution (Dm)	Contact Distance (ft)	Dilution (Dm)	Salinity Increment (ppt)
C1	Brine and GWR	33.89	1,025.8	53.27	1,041.1	16.6	35.06	1.17	17.2	9.7	19.9	0.98
C2	Brine, GWR, low (1) SE	33.34	1,024.8	47.78	1,036.5	17.4	34.17	0.83	18.2	10.9	20.9	0.69
C3	Brine, GWR, low (3) SE	33.89	1,024.8	40.52	1,030.6	21.3	34.20	0.31	23.2	14.7	25.5	0.28
C4	Brine, GWR, moderate SE	33.89	1,025.8	35.01	1,026.1	77.1	33.90	0.01	55.4	42.1	92.5	0.01
C5	Brine, GWR, High SE[1]	33.34	1,024.8	20.67	1,014.7	-	-	-	-	-	-	-

NOTES: SE = MRWPCA secondary effluent wastewater
[1] See Table 5.5-9 for results of buoyant discharges.

SOURCE: Roberts, 2016

TABLE 5.5-9
DILUTION MODEL RESULTS FOR ALTERNATIVE 5 COMBINED BUOYANT DISCHARGE SCENARIOS

No.	Scenario	Flow Rate (mgd)	Effluent Density (kg/m^3)	Port Diam. (in)	Ocean Condition	UM3 Simulations		NRFIELD Simulations		
						Average Dilution	Rise Height (center-line) (ft)	Minimum Dilution	Rise Height (center-line) (ft)	Rise Height (top) (ft)
1	Baseline	19.78	998.8	2.00	Upwelling	191	58	186	59	42
1	Baseline	19.78	998.8	2.00	Davidson	327	100 (Surface)	351	100	100
1	Baseline	19.78	998.8	2.00	Oceanic	240	82	239	50	72
C5	Brine, GWR, High SE	25.85	1,014.7	2.13	Davidson	195	100 (Surface)	221	100	100

NOTES: SE = MRWPCA secondary effluent wastewater

SOURCE: Roberts, 2016

Impact Summary and Conclusion for Salinity Impacts under Combined Discharge Scenarios

The analysis of salinity levels indicates that all discharges associated with the Alternative 5 combined discharge scenarios would result in salinity less than 2 ppt above ambient levels at the edge of the ZID (up to 42 feet from the diffuser) and at the edge of the BMZ (328 feet from the diffuser). The Alternative 5 combined operational discharges from the MRWPCA outfall would therefore not exceed or violate the salinity standards or degrade water quality in terms of salinity. For all Alternative 5 combined discharge scenarios involving dense, negatively buoyant plumes (worst case scenarios), discharges would result in salinity increases of less than 2 ppt at the point where the discharge plume makes contact with the sea floor following discharge from the outfall diffuser ports and undergoes rapid mixing and dilution (edge of ZID). As discussed in detail under Impact 4.3-4, areas where salinity levels exceed 2 ppt would be confined to a relatively small area adjacent to each diffuser port and above the sea floor, after which the plumes attenuate rapidly with distance from each port. Also, the salinity increases presented here represent conservative values and would occur only along the seabed. For the majority of the water column, incremental salinities would be much lower than the reported values.

The current NPDES Permit (Order No. R3-2014-0013, NPDES Permit No. CA0048551) regulates the wastewater discharge from the existing outfall and would be amended to incorporate the specific effluent limitations, including salinity limitations for receiving waters. Further, implementation of **Mitigation Measure 4.3-4 (Operational Discharge Monitoring, Analysis, Reporting, and Compliance)** would ensure compliance with the monitoring requirements and regulatory standards protective of the beneficial uses of Monterey Bay.

Therefore, because all combined discharge scenarios involving GWR effluent under Alternative 5 would comply with salinity objectives after implementation of mitigation, the combined salinity-related water quality impact in Monterey Bay would result in the ***same impact conclusion*** compared to the proposed project, less than significant with mitigation.

Other Ocean Plan Constituents

Discharges through the existing MRWPCA outfall could violate water quality standards or waste discharge requirements, or otherwise degrade the water quality in Monterey Bay. Consistent with the approach to analysis described under Impact 4.3-5 (see Section 4.3, Surface Water Hydrology and Water Quality), this impact analysis uses the Ocean Plan water quality objectives, applied at the edge of the ZID, as significance thresholds for determining whether or not the discharges associated with Alternative 5 in combination with discharges from the GWR Project would result in a significant water quality impacts in Monterey Bay.

Based on the analysis, operational discharges under the combined discharge scenario would result in specific exceedances of Ocean Plan water quality objectives for a number of constituents. Exceedances of Ocean Plan water quality objectives were identified to occur for discharge scenarios that include brine-with-GWR effluent without MRWPCA wastewater, and brine-with-GWR effluent combined with low volumes of MRWPCA wastewater (Scenarios C2, C3, and C4). The constituents that would exceed the Ocean Plan water quality objective (or the conservative 80 percent threshold) are ammonia, chlordane, PCBs, and TCDD equivalents. Additionally, as

described in detail under Impact 4.3-5, due to gaps in the available water quality data, a compliance determination could not be made for ten constituents listed in **Table 4.3-3** and, as such, it must be conservatively assumed that an exceedance of Ocean Plan water quality objectives could occur as a result of discharges under the cumulative scenario and is discussed below.

Combined Desalination Plant and GWR Operation and Discharge Scenarios

The combined discharge scenarios including brine and GWR effluent are summarized in **Table 5.5-8** and are assessed in this EIR/EIS. Additionally, potential discharge scenarios could include combinations of treated wastewater with GWR effluent or GWR effluent alone (i.e., without desalination brine). Specifically, it is possible that a GWR-only discharge of 0.94 mgd of effluent could be discharged alone or discharged with varying volumes of treated wastewater from the MRWPCA Regional Wastewater Treatment Plant without brine from the Alternative 5 Desalination Plant. These scenarios have been previously modeled and impacts comprehensively assessed and documented under Impact HS-5 in Section 4.11.4.4 in the Final EIR for the GWR Project (MRWPCA and MPWMD, 2016; p. 4.11-78 *et se*q.). The GWR Project EIR concluded that discharges comprising GWR effluent and varying amounts of MRWPCA wastewater (i.e., discharges without brine present) would comply with the Ocean Plan water quality objectives and would have a less-than-significant impact on water quality in the Monterey Bay and Pacific Ocean. Further, the GWR Project EIR concluded there would be a beneficial impact on Monterey Bay since pollutant loads would be reduced compared to baseline discharges due to diversions of GWR source waters of marginal quality to the Regional Treatment Plant for treatment and disposal that would have otherwise flowed into Monterey Bay. A portion of the pollutants in the new source waters would be removed from the wastewater streams through the treatment processes and disposed of as solids to the adjacent landfill where they would no longer adversely affect Monterey Bay water quality. Therefore, the impact analysis for such discharge scenarios, as well as the results and impact conclusions relating to these scenarios, are not discussed further.

Approach to Analysis

Potential water quality impacts were identified by determining whether cumulative operational discharges would exceed the conservative threshold of 80 percent of the Ocean Plan water quality objective. **Figure 5.5-1** illustrates the approach to analysis and summarizes the water quality data sources for assessing cumulative discharge scenarios associated with Alternative 5.

Results and Impact Discussion

The estimated concentrations for the full suite of Ocean Plan constituents are presented as concentrations at the edge of the ZID and as a percentage of the Ocean Plan numeric water quality objective in **Appendix D3** (**Tables A3** and **A4**, p. 33) for the combined discharge scenarios assessed under Alternative 5. The model analysis determined that discharges would not exceed Ocean Plan water quality objectives for the majority of constituents listed in **Table 4.3-3**. Most of the constituents in the desalination brine, GWR effluent, and MRWPCA wastewater were detected at levels sufficiently below the Ocean Plan objectives (i.e., were not detected in any of the component discharge source waters) that the operational discharges would pose no risk of exceeding the objectives for these constituents under the assessed discharge scenarios (**Appendix D3**, **Table 4**).

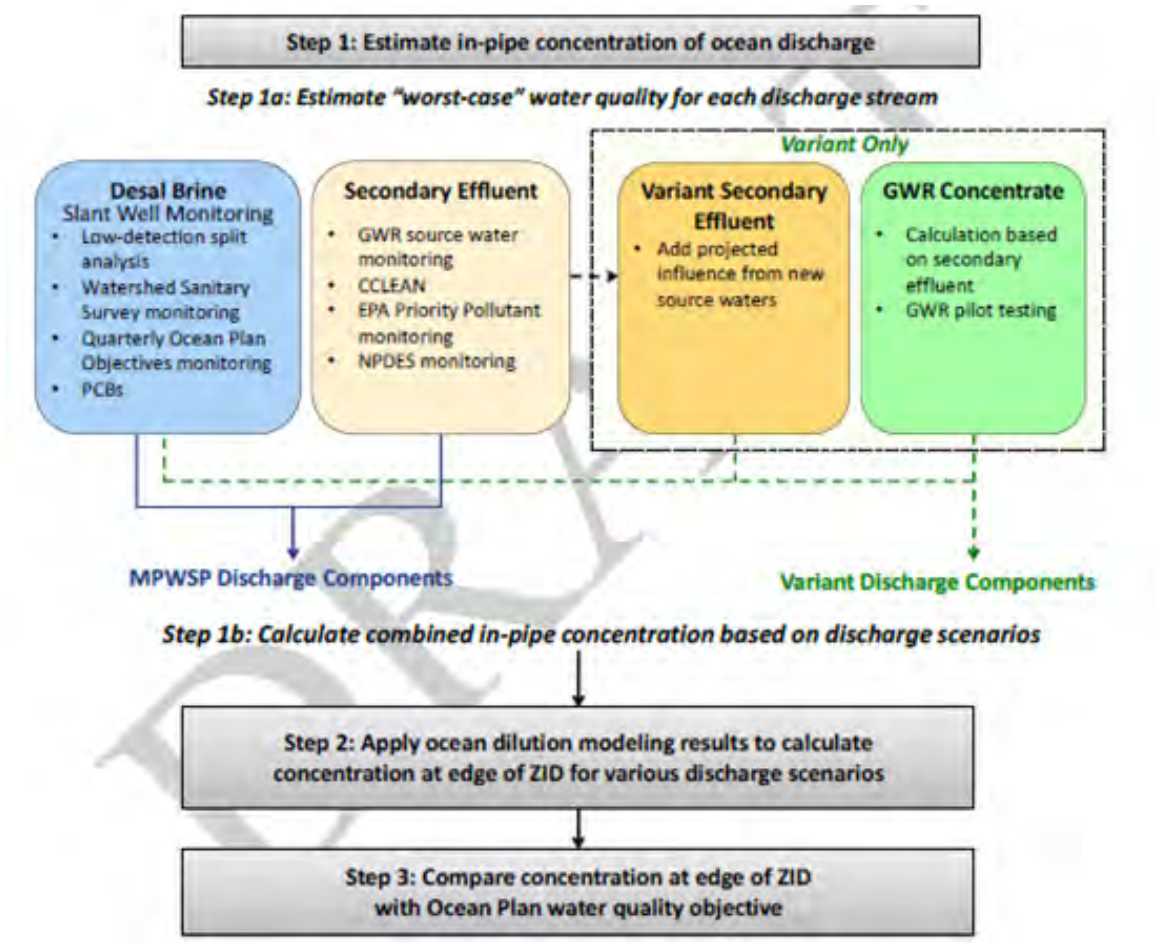


Figure 5.5-1
Summary of Approach to Analysis for Determining Ocean Plan Compliance for Alternative 5 and GWR Combined Discharge Scenarios

A number of constituents were identified at concentrations that have the potential to exceed the conservative threshold of 80 percent of the Ocean Plan objective (the significance threshold for this analysis) under the combined discharge scenario. The identified constituents of concern detected in the source waters are: ammonia, chlordane, PCBs, TCDD equivalents, and toxaphene. **Table 5.5-10** presents these constituents along with the calculated concentration of each constituent at the edge of the ZID for each discharge scenario. **Table 5.5-11** presents these five constituents along with the calculated constituent concentration at the edge of the ZID expressed as a percentage of the Ocean Plan objective. Water quality constituents would exceed, or have the potential to exceed, the Ocean Plan objective when brine-with-GWR effluent would be discharged without MRWPCA wastewater or combined with low wastewater flows (Scenarios C1, C2, and C3). When combined discharges included moderate to high flows of wastewater, no exceedances or potential exceedances were determined to occur (Scenarios C4 and C5). Ammonia was determined to be the constituent with the highest exceedance, being 1.92 times the Ocean Plan objective in Scenario C2.

TABLE 5.5-10
ALTERNATIVE 5 COMBINED OPERATIONAL DISCHARGE SCENARIOS: PREDICTED CONCENTRATIONS AT THE EDGE OF THE ZID FOR OCEAN PLAN CONSTITUENTS OF CONCERN

Constituent	Units	Ocean Plan Objective	Estimated Concentration at Edge of ZID by Discharge Scenario				
			C1	C2	C3	C4	C5
Objectives for protection of marine aquatic life - 6-month median limit							
Ammonia (as N) – 6-mo median[a]	µg/L	600	1111	1154	1060	445	151
Objectives for protection of human health - carcinogens - 30-day average limit[c]							
Chlordane	µg/L	2.3E-05	2.15E-5	2.22E-5	2.03E-5	8.49E-6	2.86E-6
PCBs	µg/L	1.9E-05	2.77E-5	2.76E-5	2.40E-5	9.68E-6	3.05E-6
TCDD Equivalents[b]	µg/L	3.9E-09	4.30E-9	4.47E-9	4.11E-9	1.73E-9	5.87E-10
Toxaphene[c]	µg/L	2.1E-04	2.17E-4	2.25E-4	2.07E-4	8.68E-5	2.94E-5

NOTE: Shading indicates constituent is expected to be greater than 80 percent (orange shading) or exceed (red shading) the ocean plan objective for that discharge scenario.

[a] Ammonia (as N) represents the total ammonia concentration, *i.e.* the sum of unionized ammonia (NH_3) and ionized ammonia (NH_4).

[b] Acrylonitrile, beryllium, and TCDD equivalents represent a special case; they were detected in some source waters, but were also not detected above the MRL in others, and the MRL values were greater than the Ocean Plan objectives. For these constituents, a value of 0 was assumed when it was not detected in a source water and the MRL value was assumed where a non-detect occurred but the MRL was greater than the Ocean Plan objective. This assumption was made to show there is potential for the constituent to exceed the Ocean Plan objective in some flow scenarios, but there is not enough information to provide a complete compliance determination at this time. When only the detected values were considered, beryllium and acrylonitrile did not exceed the Ocean Plan objective by 80 percent or more and therefore was not included.

[c] Toxaphene was only detected using the low-detection techniques of the CCLEAN program. It was detected once (09/2011) out of 12 samples collected from the secondary effluent from 2010 through 2015, and during the 7-day composite sample from the test slant well.

SOURCE: Trussell, 2016 (**Appendix D3**)

TABLE 5.5-11
ALTERNATIVE 5 COMBINED OPERATIONAL DISCHARGE SCENARIOS: PREDICTED CONCENTRATIONS AT THE EDGE OF THE ZID EXPRESSED AS PERCENTAGE OF OCEAN PLAN OBJECTIVE FOR OCEAN PLAN CONSTITUENTS OF CONCERN

Constituent	Units	Ocean Plan Objective	Est. Percentage of Ocean Plan objective at Edge of ZID by Discharge Scenario				
			C1	C2	C3	C4	C5
Objectives for protection of marine aquatic life - 6-month median limit							
Ammonia (as N) – 6-mo median[a]	µg/L	600	185%	192%	177%	74%	25%
Objectives for protection of human health - carcinogens - 30-day average limit[c]							
Chlordane	µg/L	2.3E-05	94%	97%	88%	37%	12%
PCBs	µg/L	1.9E-05	146%	145%	126%	51%	16%
TCDD Equivalents[b]	µg/L	3.9E-09	110%	115%	105%	44%	15%
Toxaphene[c]	µg/L	2.1E-04	103%	107%	99%	41%	14%

NOTE: Shading indicates constituent is expected to be greater than 80 percent (orange shading) or exceed (red shading) the ocean plan objective for that discharge scenario.

[a] Ammonia (as N) represents the total ammonia concentration, *i.e.* the sum of unionized ammonia (NH_3) and ionized ammonia (NH_4).

[b] Acrylonitrile, beryllium and TCDD equivalents represent a special case; they were detected in some source waters, but were also not detected above the MRL in others, and the MRL values were greater than the Ocean Plan objectives. For these constituents, a value of 0 was assumed when it was not detected in a source water and the MRL value was assumed where a non-detect occurred but the MRL was greater than the Ocean Plan objective. This assumption was made to show there is potential for the constituent to exceed the Ocean Plan objective in some flow scenarios, but there is not enough information to provide a complete compliance determination at this time. When only the detected values were considered, beryllium did not exceed the Ocean Plan objective by 80 percent or more and therefore was not included.

[c] Toxaphene was only detected using the low-detection techniques of the CCLEAN program. It was detected once (09/2011) out of 12 samples collected from the secondary effluent from 2010 through 2015, and during the 7-day composite sample from the test slant well.

SOURCE: Trussell, 2016 (**Appendix D3**)

Ten constituents were never detected above the analytical laboratory Method Reporting Limit (MRL) in any of the source waters, but the MRLs are higher than the Ocean Plan objective. Due to this insufficient analytical sensitivity, no compliance conclusion can be drawn for these ten constituents. This is a typical occurrence for ocean discharges since the MRL is higher than the Ocean Plan objective for certain constituents.

Significant water quality impacts on Monterey Bay receiving waters would most likely occur under combined discharge scenarios C1, C2, and C3. Further, a compliance determination cannot be made for the ten constituents. Only future water quality testing and analysis, such as that required under the NPDES permit process, would determine whether discharges under the combined discharge scenarios associated with Alternative 5 would fully comply with Ocean Plan water quality objectives. Therefore, it must be conservatively concluded that, because the predictive models have shown that certain constituent concentrations would become elevated under combined discharge scenarios in excess of the conservative threshold of 80 percent of the Ocean Plan objective, the combination of Alternative 5 and the GWR Project could result in a significant water quality impact in Monterey Bay. However, as described below, the contribution of Alternative 5 to this impact would be mitigated through implementation of **Mitigation Measure 4.3-5 (Implement Protocols to Avoid Exceeding Water Quality Objectives)** to a less-than-significant level.

Impact Summary and Conclusion for Ocean Plan Constituents under Combined Discharge Scenarios

The analysis of potential water quality impacts evaluated a range of combined discharge scenarios. The model-based analyses concluded that unlike the proposed project, certain constituent concentrations would become elevated under a number of assessed discharge scenarios to levels greater than 80 percent of the Ocean Plan objective (ammonia, chlordane, PCBs, TCDD equivalents and toxaphene could exceed water quality objectives under low wastewater flow scenarios). Further, like the proposed project, a compliance determination could not be made for ten constituents due to insufficient data. Therefore, Alternative 5 in combination with the GWR Project could result in a significant impact related to water quality standards, waste discharge requirements, and water quality in Monterey Bay and could exceed Ocean Plan water quality objectives for certain constituents under low wastewater flow conditions. Impacts would be reduced to a less-than-significant level by implementing **Mitigation Measure 4.3-5 (Implement Protocols to Avoid Exceeding Water Quality Objectives)**. Further, **Mitigation Measure 4.3-4 (Operational Discharge Monitoring, Analysis, Reporting, and Compliance)**, described under Impact 4.3-4 (Section 4.3, Surface Water Hydrology and Water Quality), would further reduce and minimize potential impacts by requiring CalAm to implement a comprehensive Monitoring and Reporting Plan, following approval by the RWQCB and MBNMS, to obtain field monitoring and marine biological resource data in the area affected by a project.

With implementation of **Mitigation Measure 4.3-5**, combined discharges of Alternative 5 and the GWR Project would comply with regulatory standards that would ensure combined impacts would be reduced to a less-than-significant level. Therefore, the combined discharges of Alternative 5 and the GWR Project would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Impacts of Full Cumulative Scenario

Cumulative impacts on hydrology and water quality for construction of Alternatives 5a and 5b would be the same as those described and analyzed for the proposed project and Alternative 1, respectively. Construction activities associated with either Alternative 5a or 5b would not result in a cumulatively considerable contribution to any significant cumulative impact, after adherence to mandatory regulatory requirements and implementation of mitigation measures (*less than significant with mitigation*).

Alternative 5 (a and b) would have operation-related impacts on water quality similar to the proposed project, as analyzed in Section 4.3, Surface Water Hydrology and Water Quality), and Alternative 1. The cumulative projects whose water quality impacts could overlap with those of the combined discharges of Alternative 5 and the GWR Project include the same as those described for the proposed project (see Section 4.3.6 and **Table 4.1-2** for details). This analysis assumes that the GWR Project would be implemented and that operation of Alternative 5 would result in the combined discharge scenarios analyzed above under "Combined Impacts with GWR Project." Therefore, references to Alternative 5 operation in the following paragraph include operation of the GWR Project.

The contribution to cumulative impacts from operation of Alternative 5 would be similar, but reduced compared to those described for the proposed project due to the reduced volume of brine under Alternative 5. Nonetheless, cumulative impacts related to salinity and other water quality constituents in Monterey Bay would be significant, and the contribution of Alternative 5 to these impacts would be cumulatively considerable for the same reasons described for the proposed project. Implementation of **Mitigation Measures 4.3-4** (**Operational Discharge Monitoring, Analysis, Reporting, and Compliance**) and **4.3-5** (**Implement Protocols to Avoid Exceeding Water Quality Objectives**) would ensure that operational discharges associated with Alternative 5 would comply with Ocean Plan water quality objectives, reducing the contribution of Alternative 5 to a level that is not cumulatively considerable (*less than significant with mitigation*).

5.5.3.9 References

California Emergency Management Agency (CEMA), 2009. *Tsunami Inundation Map for Emergency Planning, State of California, County of Monterey, Moss Landing Quadrangle and Prunedale Quadrangle*. Prepared by California Emergency Management Agency, California Geological Survey, University of Southern California. July 1, 2009. http://www.conservation.ca.gov/cgs/geologic_hazards/Tsunami/Inundation_Maps/Monterey/Documents/Tsunami_Inundation_MossLandingPrunedale_Quads_Monterey.pdf.

Federal Emergency Management Agency (FEMA), 2009. *Flood Insurance Rate Map for Monterey County, California, and Incorporated Areas. Panel 70 of 2050. Map Number 6053C0070G*. Effective April 2, 2009.

Jenkins, S. and Wasyl, J., 2016. *Brine Dilution Analysis for DeepWater Desal, LLC, Monterey Bay Regional Water Project at Moss Landing, CA*. June 23, 2014; Revised March 18, 2016.

Monterey Peninsula Water Management District (MPWMD), 2016. *Addendum to the Aquifer Storage and Recovery Project Environmental Impact Report/Environmental Assessment and the Pure Water Monterey/Groundwater Replenishment Project Environmental Impact Report for the Hilby Avenue Pump Station*. Prepared by Denise Duffy and Associates, June 14, 2016.

Monterey Regional Water Pollution Control Agency and Monterey Peninsula Water Management District (MRWPCA and MPWMD), 2016. *Consolidated Final Environmental Impact Report for the Pure Water Monterey Groundwater Replenishment Project, Volume IV, Exhibit B.* Prepared by Denise Duffy and Associates, January 2016.

National Oceanic and Atmospheric Administration, 2010. *Guidelines for Desalination Plants in the Monterey Bay National Marine Sanctuary*. Prepared by NOAA's Monterey Bay National Marine Sanctuary and National Marine Fisheries Service. May 2010.

Roberts, P. J. W., 2016. *Modeling Brine Disposal into Monterey Bay*. Prepared for ESA May 27, 2016.

State Water Resources Control Board (SWRCB), 2016a. *Order WR 2016-0016. In the Matter of Application of California American Water Company to Amend State Water Board Order 2009-0060*. Adopted July 19, 2016.

State Water Resources Control Board (SWRCB), 2016b. *Water Quality Control Plan – Ocean Waters of California*. California Ocean Plan, 2015. Effective January 28, 2016.

Tenera Environmental, 2007. Assessing Power Plant Cooling Water Intake System Entrainment Impacts. Prepared by Tenera Environmental for the California Energy Commission. October.

5.5.4 Groundwater Resources

The evaluation criteria for groundwater resources address the depletion of groundwater quantity, and the degradation of groundwater quality as a result of construction activities, and from operations. All alternatives, including the proposed project, have the potential for limited water supply and quality impacts from the use and disposal of water during excavation, trenching, de-watering, well drilling and dust suppression activities. The proposed project, as well as alternatives that propose to draw source water through subsurface slant wells, have the potential for impacts during operations to groundwater supplies, groundwater levels and groundwater quality, that alternatives proposing open water intakes (Alternatives 2, 3, and 4) would not. This evaluation addresses the physical impacts to groundwater supplies, levels, and quality as a result of project construction and project pumping, and how potential effects of the project pumping might impact neighboring, active wells.

5.5.4.1 Setting/Affected Environment

The groundwater resources setting/affected environment for this alternatives analysis is similar to that described for the proposed project in Section 4.4, Groundwater Resources and generally includes the northern portion of the 150-mile-long Salinas Valley Groundwater Basin (SVGB), and the Seaside Groundwater Basin (SGB); specifically, the areas that could be affected by the installation and operation of the subsurface slant wells and the ASR wells (see **Figure 4.4-1**).

The proposed slant wells (at either the CEMEX or Potrero Road sites) would be located within the 84,400-acre, 132-square-mile subarea of the SVGB known as the 180/400 Foot Aquifer Subbasin (DWR, 2004),[3] the boundaries of which (Elkhorn Slough to the north, the East Side Area to the east, the SGB to the south, and the Pacific Ocean to the west, although the precise locations fluctuate depending on seasonal variations, longer-term climate changes and local groundwater pumping) generally coincide with those of the SVGB Pressure Area (or Subbasin) traditionally recognized by the Monterey County Water Resources Agency (MCWRA) and California Department of Water Resources.

The Pressure Area includes three prominent water supply aquifers, named for the average depth at which they occur: the 180-Foot Aquifer, the 400-Foot Aquifer, and the 900-Foot (Deep) Aquifer. Shallow groundwater is present directly over the 180-Foot Aquifer, in the Dune Sands Aquifer which is about 60 feet thick at the locations of the proposed slant wells at CEMEX. As shown in **Figure 4.4-2**, the Dune Sands Aquifer transitions into a similar shallow aquifer underlying the Moss Landing Area to the north, referred to as the Perched-A Aquifer. The Perched-A Aquifer differs from the Dune Sand Aquifer in that it is underlain by a defined layer of less permeable, fine-grained sediments (clay) known as the Salinas Valley Aquitard. Water quality of the Perched-A Aquifer and Dune Sand Aquifer is directly influenced and controlled by seawater, as verified by the saline chemistry of the groundwater samples collected from borings drilled along the coast. The SVGB is in overdraft, meaning the existing basin outflow of 555,000

[3] The 180/400-Foot Aquifer subbasin includes three water bearing units, the 180-Foot, the 400-Foot, and the 900-Foot Aquifers, named for the average depth of each aquifer (USGS, 2011).

afy exceeds the estimated 504,000 afy of inflow; this imbalance is documented by seawater intrusion which has been detected several miles inland in the 180-Foot and 400-Foot aquifers.

The ASR-5 and ASR-6 Wells would be located in the SGB. The SGB encompasses 24 square miles at the southwest corner of the Salinas Valley, adjacent to the Pacific Ocean and is divided into four subareas, with the northern two composing the Northern Subbasin and the southern two composing the Southern Subbasin. The proposed ASR injection/extraction wells would be located near the northern border of the Northern Subbasin. There is a groundwater depression in both the shallow and deep aquifers in the Northern Subbasin, resulting in some landward flow along the coast.

5.5.4.2 Direct and Indirect Effects of the Proposed Project (10 slant Wells at CEMEX)

As described in detail in Chapter 3, Description of the Proposed Project, the proposed project (see **Figure 3-2**) would include construction of a desalination plant on 25 acres along Charles Benson Road northeast of the City of Marina that would create approximately 15 acres of impervious surfaces, up to nine new subsurface slant wells at the CEMEX active mining area and conversion of the existing test slant well to a permanent well; the eight operating slant wells (two wells would be on stand-by) would extract a total of approximately 24 mgd of source water.

The proposed project would also include two new injection/extraction wells (ASR-5 and ASR-6 Wells) at the existing SGB aquifer storage and recovery (ASR) system, Terminal Reservoir, Carmel Valley Pump Station and about 21 miles of new water conveyance pipelines.

The following paragraphs briefly summarize the impacts of the proposed project with respect to groundwater resources. The detailed impact analysis of the proposed project is provided in Section 4.4.

Impact 4.4-1: Deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level during construction.

The proposed slant wells and ASR wells would be built using a dual-rotary drill rig that may require between 4 to 5 million gallons of water during the drilling, but could use much less, and perhaps none, depending on how the drilling proceeds. The water that may be required for ASR injection/extraction well construction would be less. If the proposed project requires well drilling water, it would be purchased from an outside water purveyor and delivered to the drill site by truck; water would not be extracted from local groundwater sources.

The proposed project pipelines and MPWSP Desalination Plant, Terminal Reservoir, and Carmel Valley Pump Station would be built using standard construction methods that would require water for dust suppression, concrete washouts, tire washing, and general site maintenance. Water for these operations would be purchased from a local water purveyor and delivered to each construction site by truck. No impacts on local groundwater supplies would occur.

Impact 4.4-2: Violate any groundwater quality standards or otherwise degrade groundwater quality during construction.

Construction of the slant wells would use drilling fluids, such as bentonite mud, which would not adversely affect groundwater quality. Construction of the ASR-5 and ASR-6 Wells would use additives that are non-corrosive and biodegradable and do not contain chemicals that would degrade groundwater quality. Construction of all other facilities would not occur in groundwater-bearing zones and would have low potential to degrade groundwater quality. Impacts associated with discharges to groundwater and impacts on groundwater quality during construction would be less than significant for all project components.

Impact 4.4-3: Deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level during operations so as to expose well screens and pumps.

The proposed slant wells would extract mostly seawater and some brackish groundwater from an area with documented seawater intrusion, and the groundwater drawdown would be localized in the Dune Sand and 180-FTE Aquifer. When water is returned to the Basin to replace the portion of the source water that originated in the Basin by providing desalinated water to Castroville Community Services District (CCSD) and/or to the Castroville Seawater Intrusion Project (CSIP) in lieu of an equal amount of groundwater pumping, groundwater levels in the 400-Foot Aquifer would improve. Localized depressed groundwater levels in the Dune Sands and 180-FTE aquifers would persist but the localized area affected by groundwater pumping would continue to consist of seawater, and brackish degraded groundwater. The impact on groundwater supplies would be less than significant.

A localized water level decline of between 1 and 5 feet is expected as a result of proposed project pumping at CEMEX. Neighboring groundwater supply wells that could be affected by proposed project pumping have well screens and pumps that are considerably deeper than the depths at which localized changes in water levels could occur due to proposed project pumping. Proposed project pumping therefore, would not expose screens, cause damage, or reduce yield in neighboring groundwater supply wells and the impact on nearby water supply wells would be less than significant. However, to ensure that a groundwater monitoring program is in place before and during commencement of groundwater pumping operations and to verify that the seawater intake system performs as expected, CalAm would implement **Applicant Proposed Mitigation Measure 4.4-3 (Groundwater Monitoring and Avoidance of Well Damage)** which would establish baseline groundwater levels and detect changes to local groundwater elevations and quality, evaluate whether those changes could damage neighboring active wells and require a remedy to mitigate any damage.

Management of the rates and volumes of ASR injection and extraction would ensure that operation of the proposed ASR Wells would remain constant and, therefore, would not cause groundwater mounding, change groundwater gradients, or lower groundwater levels. Operational impacts associated with ASR Wells would be less than significant.

Operation of the proposed Desalination Plant, Terminal Reservoir, pipelines, or pump station would not interfere with, extract from, or inject water into the groundwater aquifers in the SVGB or the SGB. Consequently, there would be no impact associated with these facilities.

Impact 4.4-4: Violate any groundwater quality standards or otherwise degrade groundwater quality during operations.

Operation of the proposed slant wells would not violate water quality standards or interrupt or eliminate the potable or irrigation groundwater supply available to other basin users since current groundwater quality is brackish and the affected area is used minimally for groundwater extraction. The impact on local groundwater degradation would be less than significant.

Proposed project slant well pumping would not exacerbate seawater intrusion because the slant wells would capture seawater as it crosses the coast and proposed project pumping is therefore, expected to retard future inland migration of the seawater/freshwater interface. The impact on seawater intrusion would be less than significant.

The slant well pumping could interfere with inland remediation activities at existing groundwater contamination sites, by pulling contaminated groundwater into currently uncontaminated areas and degrading the existing water quality. This would violate the state non-degradation policy of maintaining the existing water quality. The North Marina Groundwater Model simulations indicate that a decrease in groundwater elevations is possible and could affect a Carbon Tetrachloride Plume located about 2 miles from the proposed slant wells in the former Fort Ord, resulting in a potentially significant impact. This impact would be reduced to less than significant with the implementation of **Mitigation Measure 4.4-4 (Groundwater Monitoring and Avoidance of Impacts on Groundwater Remediation Plumes)**, which would require monitoring for changes in the groundwater surface elevation caused by proposed project pumping near the plume.

Operation of the ASR Wells would not interfere with groundwater remediation activities since there are no known contaminated sites undergoing groundwater remediation in the area between the ASR wells and the edge of the groundwater depression. The injection of treated desalinated groundwater into the Santa Margarita Sandstone underlying the ASR Wells would have the same benign reaction as injecting treated Carmel River water. Therefore, groundwater quality impacts would be less than significant for the ASR Wells. All other project components would have no impact on groundwater quality during operations.

Impact 4.4-C: Cumulative impacts related to Groundwater Resources.

The geographic scope of the cumulative analysis for groundwater resources includes portions of the SVGB and the SGB. The geographic scope also includes a vertical element, which includes the underground aquifers in the SVGB and the SGB. In the SVGB, the aquifers of concern are the Dune Sand Aquifer, 180-FTE Aquifer, 180-Foot Aquifer (inland and east of CEMEX), and 400-Foot Aquifer. In the SGB, the aquifer of concern is the surficial shallow aquifer, which is in the unconfined Paso Robles Formation and the underlying confined Santa Margarita Sandstone. The current and reasonably foreseeable future projects listed in **Table 4.1-2** that are within the

geographic scope and have the potential to combine with the groundwater-related impacts of the proposed project are the Salinas Valley Water Project Phase II (No. 1), the Interlake Tunnel (No. 24), and the Regional Urban Water Augmentation Project (RUWAP) Desalination Element (No. 31). These projects are located within the SVGB. The Interlake Tunnel project, which would produce additional surface water storage and supply for downstream groundwater recharge and reduction of saltwater intrusion in the SVGB, would not adversely affect groundwater resources. The proposed project, in combination with the other two identified cumulative projects, would not cause a significant adverse cumulative impact and the proposed project would not have a considerable contribution to cumulative groundwater quality and supply-related impacts; the proposed project, in combination with applicable cumulative projects, would have a cumulative beneficial effect on groundwater supply and quality.

5.5.4.3 Direct and Indirect Effects of the No Project Alternative

Under the No Project Alternative, no slant wells would be installed, resulting in no construction-related impacts and no operational drawdown/recharge effects in the Dune Sand Aquifer, the 180-Foot/180-FTE Aquifers or the 400-Foot Aquifer as a result of proposed project pumping. Because no water would be extracted by slant well pumping, no water that originated in the basin would be returned to the SVGB as in-lieu recharge; therefore, the projected beneficial groundwater response from that return water would not occur in the 400-Foot Aquifer. Seawater intrusion under the No Project Alternative would continue migrating inland as it does currently, and the SVGB would not benefit from the retardation of the inland migration afforded by the proposed project pumping. The ASR system would continue to operate as it does currently and the additional ASR wells would not be installed. CalAm would reduce its pumping from the SGB to 1,474 afy by 2021 per the terms of the CDO, and continue to extract its 1,474 afy adjudicated supply thereafter, rather than reducing pumping to 774 afy for 25 years. Therefore, the basin replenishment that would occur under the proposed project (17,500 af over the 25 years) would not occur under the No Project Alternative. Plumes of contaminated water beneath the former Fort Ord property would not be intersected or disrupted by proposed project pumping and ongoing remediation activities would continue. The No Project Alternative would not result in actions that would deplete groundwater supply or interfere with recharge, but also would not provide the beneficial effect of the proposed project on basin replenishment.

Although the No Project Alternative would have no adverse impact on groundwater compared to baseline conditions, because it would not have the benefit of retarding ongoing seawater intrusion compared to the proposed project, a brief discussion of the cumulative scenario under the No Project Alternative is included for purposes of comparison. Existing, ongoing regional groundwater pumping would continue throughout the Salinas Valley, as would efforts to develop a sustainable groundwater management plan. Projects such as the Pure Water Monterey GWR Project (No. 59 in **Table 4.1-2**) would be implemented. The GWR Project would provide additional irrigation water to the CSIP growers in the northern Salinas Valley that would raise groundwater levels in the 400-Foot Aquifer because of reduced groundwater pumping. This would be a beneficial effect of the GWR Project on groundwater levels in the SVGB; however, the No Project Alternative would not contribute to this cumulative beneficial effect.

5.5.4.4 Direct and Indirect Effects of Project Alternative 1 – Slant Wells at Potrero Road

Alternative 1 would supply seawater to the proposed 9.6 mgd desalination plant located at the Charles Benson Road site using the same type of subsurface intake system as the proposed project, but at a different location (described in Section 5.4.3). The desalination plant, brine discharge pipeline, Castroville Pipeline, Pipeline to CSIP Pond, new Desalinated Water Pipeline, new Transmission Main, Terminal Reservoir, ASR components, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be identical to the proposed project described in Chapter 3, Description of the Proposed Project. The location of the slant wells at Potrero Road and the additional 5.5 miles of source water pipeline are the components unique to Alternative 1 (see **Figure 5.4-1**). Alternative 1 includes one additional well compared to the proposed project, because the existing test well at CEMEX would be converted to a permanent well. Therefore, the groundwater impact analysis of Alternative 1 focuses primarily on the slant wells at Potrero Road and the source water pipeline; however, impact conclusions are made for the whole of Alternative 1.

Construction Impacts

Groundwater Supply

Construction of Alternative 1 would use the same water supply sources as the proposed project (see Section 4.4, Groundwater Resources) for drilling the slant wells and for dust suppression; water would be delivered by truck and would not be extracted from local groundwater sources. Alternative 1 would have one additional new well at Potrero Road, and 5.5 miles of additional source water pipeline, and therefore, Alternative 1 would use more water during construction than the proposed project. However, because none of the water used during construction would be drawn from the groundwater basin, Alternative 1 would result in the ***same impact conclusion*** as the proposed project on groundwater supply during construction; no impact.

Water Quality

Similar to the proposed project, the Alternative 1 slant wells would be drilled using a dual rotary drill rig that would use re-circulated drilling fluids through the first approximately 100 feet of dry dune sands. The remaining length of borehole would be drilled using water present in the sands and added potable water to circulate the drill cuttings if necessary. If potable water were added, drill cuttings would be removed after use, and the water would be clarified and percolated into the sands through the diffuser in the parking lot; the quality of that water would be better than the underlying brackish water, and therefore, would not result in groundwater degradation.

Construction of Alternative 1 would use the same construction techniques as the proposed project, and would include 10 new slant wells drilled in a parking lot inland of the dunes (compared to the 9 new wells at CEMEX), as well as an additional 5.5 miles of source water pipeline. Because the water used for slant well drilling would be re-circulated and then clarified and discharged into the parking lot, Alternative 1 would result in the ***same impact conclusion*** on groundwater quality as the proposed project, less than significant.

Operational and Facility Siting Impacts

Groundwater Supply

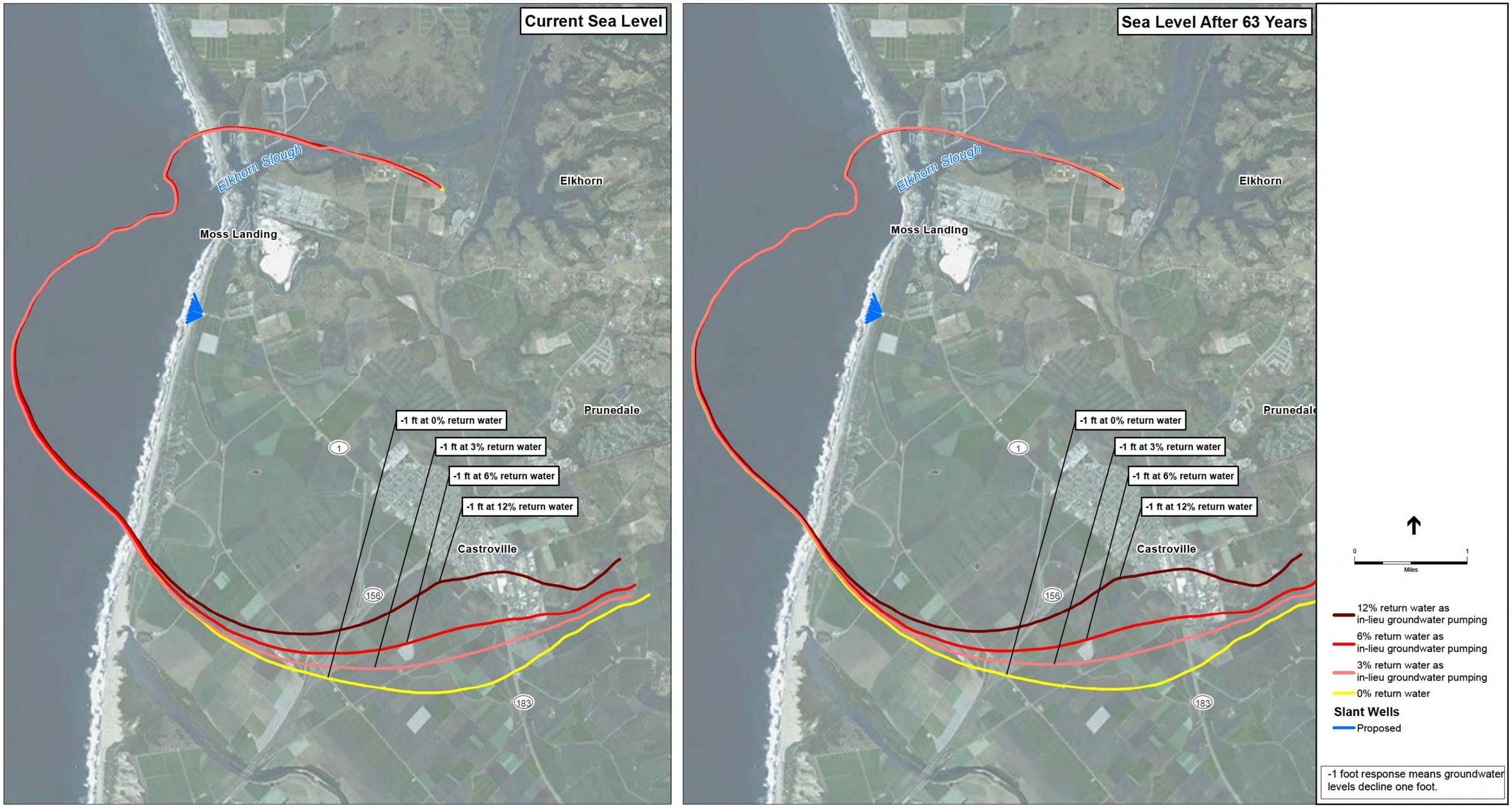
Modeled Pumping Effects

The potential effects of the proposed project on groundwater resources were modeled with the North Marina Groundwater Model (NMGWM, see **Appendix E2**); the results are presented in Section 4.4, Groundwater Resources. The same model was used to evaluate the impacts on groundwater resources for this alternative at Potrero Road (see **Appendix E2**). Slant wells at Potrero Road would be screened in the Perched-A Aquifer and would only capture water from that aquifer and Monterey Bay (within MBNMS) due in part to the existence and thickness of the underlying Salinas Valley Aquitard (see **Appendix C3**) at this location. This is in contrast to the slant wells at the CEMEX site that have a capture zone in the 180-Foot Equivalent Aquifer which does not have an underlying Salinas Valley Aquitard. Sea level rise over the 63 years of modeled groundwater pumping would not change the projected drawdown in the Perched-A aquifer as it is expected to do at the CEMEX site, because sea level rise would not erode the coastline at Potrero Road and the shoreline would not advance inland toward the slant wells. As a result, the output for all modeling scenarios for Potrero Road shows no changes (unlike the proposed project) between the drawdown contours for current and future sea levels.

Effects on the Perched-A Aquifer

Slant well pumping at Potrero Road would create a cone of depression in the Perched-A Aquifer that would extend up to 5 miles inland, as shown in **Figure 5.5-2**.[4] The extent of modeled drawdown in the Perched-A Aquifer is almost twice the inland distance modeled at CEMEX for the proposed project because: 1) the Perched-A Aquifer is not as thick as the Dune Sand Aquifer underlying the CEMEX site, and 2) the ocean water capture zone is restricted at Potrero Road to the Perched-A Aquifer (the wells would not also be screened in the 180/180-FTE Aquifers) because the underlying Salinas Valley Aquitard separates the Perched-A Aquifer from the 180-Foot Aquifer. The 1-foot drawdown response would be similar in the Perched-A Aquifer with and without modeled return water scenarios (0, 3, 6, and 12 percent), because the resulting in-lieu recharge in the 400-Foot Aquifer would have a negligible effect on recharge in the Perched-A Aquifer. Modeling indicates that pumping under Alternative 1 would influence the Perched-A Aquifer north of Potrero Road and the cone of depression would encompass the mouth of the Elkhorn Slough and about 1 mile inland up the slough (a portion of which is within MBNMS). This effect is shown by the 1-foot drawdown contour lines on **Figures 5.5-2** and **5.5-3** and these results suggest a direct or indirect effect of project pumping at Potrero Road on the surface water-groundwater interaction in the Elkhorn Slough. For example, the slant well pumping at Potrero Road could draw in groundwater that would otherwise flow to recharge the Slough, or draw surface water directly from the Slough that would not occur under the proposed project. However, quantification of such an effect is not feasible within the context of the model given the location of Elkhorn Slough relative to the northern boundary of the NMGWM.

[4] The full extent of the Dune Sand Aquifer cone of depression created by pumping 9.6 mgd under Alternative 1 is not shown because it extends out to and intersects a bedrock boundary condition near Prunedale.

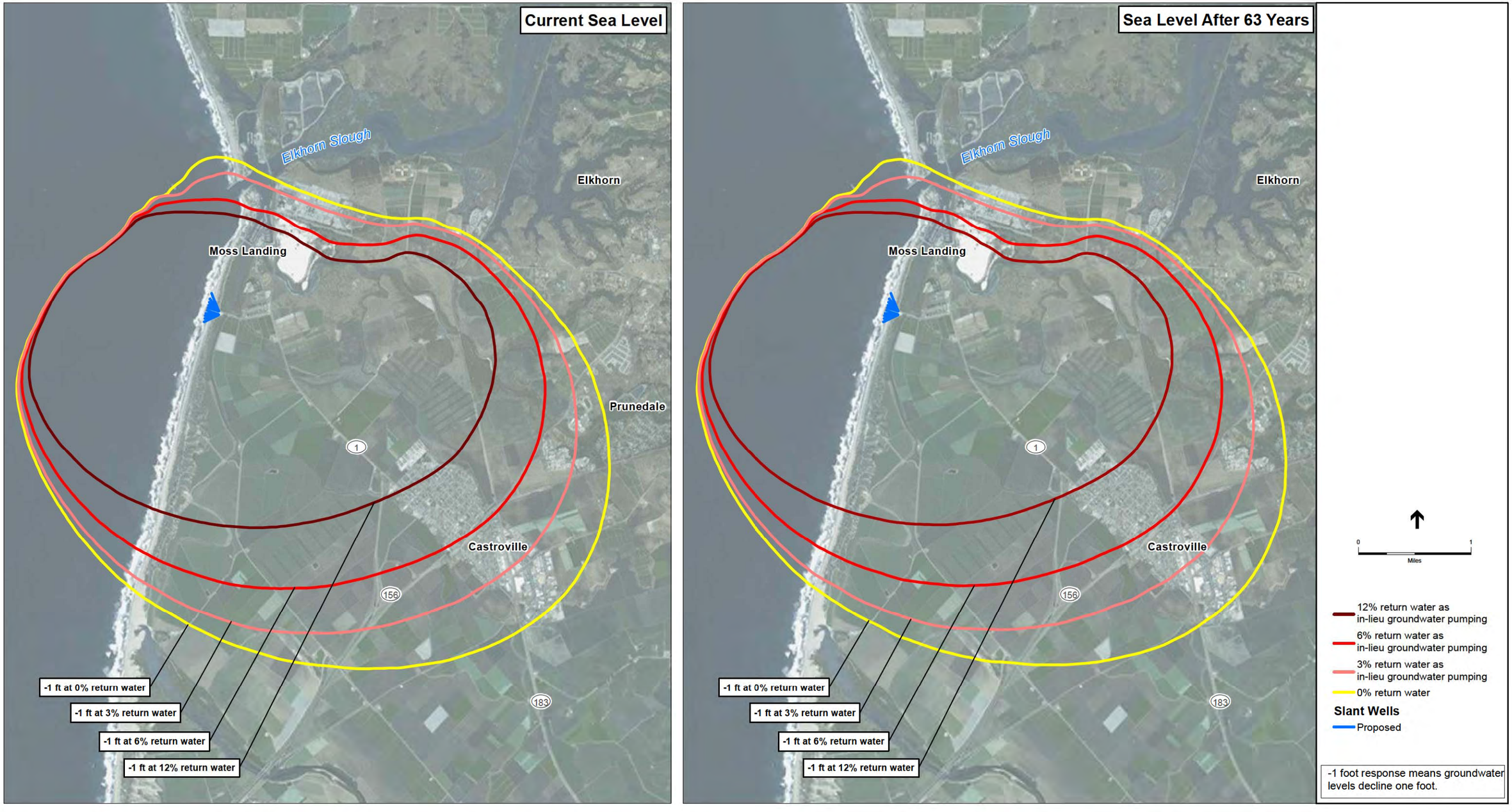


SOURCE:HydroFocus, 2016

205335.01 Monterey Peninsula Water Supply Project

Figure 5.5-2

Potrero Rd Slant Wells: 1-Foot Response in Dune Sand Aquifer under 24.1 MGD Pumping



SOURCE:HydroFocus, 2016

205335.01 Monterey Peninsula Water Supply Project

Figure 5.5-3

Potrero Rd Slant Wells: 1-Foot Response in 180-Foot Aquifer under 24.1 MGD Pumping

Effects on the 180-Foot Aquifer

Figure 5.5-3 shows the effects on the 180-Foot Aquifer from slant well pumping for Alternative 1, for varying percentages of Salinas Valley return water (0, 3, 6 and 12 percent return water). The modeled aquifer response shows a cone of depression that extends a maximum of about 4 miles inland with 0 percent return water, and the maximum extent of the cone is reduced by about 2 miles with increased percentages of return water. The modeled drawdown in the 180-Foot Aquifer is not directly due to project pumping because the slant wells at Potrero Road would not be screened in the 180-Foot Aquifer; rather, the water lost through extraction from the Perched-A Aquifer that would have otherwise infiltrated to and recharged the 180-Foot Aquifer may have been interpreted by the model as drawdown due to pumping. Similar to the effects on the Perched-A Aquifer, the response from slant well pumping (1-foot contour line at 0 percent and 3 percent return water) extends north to partially encompass the mouth of the Elkhorn Slough, indicating a possible surface water-groundwater interaction with the Slough. However, quantification of such an effect is not feasible within the context of the model given the location of Elkhorn Slough relative to the northern boundary of the NMGWM.

Pumping Response on 400-Foot Aquifer

Figure 5.5-4 shows the effects of the slant well pumping at Potrero Road on the 400-Foot Aquifer. The 1-foot drawdown contour, representing 0 percent return water, shows the largest area of drawdown extending about 2 miles inland and offshore about 0.75 mile. The 1-foot drawdown contour with 3 percent return water extends inland only about 1.5 miles and offshore about 0.5 mile. There is also a localized groundwater level increase in Castroville with 3 percent return water. The 1-foot contour resulting from 6 percent return water shows a groundwater level rise in Castroville, as does the 12 percent return water contour that is almost 5 miles in diameter. The response from slant well pumping, as shown by the 1-foot drawdown contour at 0 percent and 3 percent return water, extends north to partially encompass the mouth of the Elkhorn Slough. Given the depth of the 400-Foot Aquifer and the presence of the Salinas Valley Aquitard, it is unlikely that there would be a direct surface water-groundwater interaction between the Elkhorn Slough and the 400-Foot Aquifer. The water lost through extraction from the Perched-A Aquifer that would have otherwise infiltrated to and recharged the 400-Foot Aquifer was likely interpreted by the model as drawdown in the 400-Foot Aquifer and given the location of Elkhorn Slough relative to the northern boundary of the NMGWM, quantification is not feasible within the context of the model.

Analysis and Conclusion of Operational Impacts

Pumping of slant wells at Potrero Road under Alternative 1 would extract mostly seawater and inland brackish water from an area where groundwater is not extracted for beneficial uses by others. There would be some degree of water level increase in areas of the 400-Foot Aquifer as a result of the Salinas Valley return water. No groundwater supply wells are currently pumping within the area of influence of the affected aquifers; therefore, Alternative 1 would have a reduced potential for impact on supply at nearby wells compared to the proposed project. However, like the proposed project, and would result in the ***same impact conclusion*** as the proposed project, less than significant. However, like the proposed project, **Applicant-Proposed Mitigation Measure 4.4-3 (Groundwater Monitoring and Avoidance of Well Damage)** would be implemented under Alternative 1, in recognition of the need to provide continued verification that project pumping from

Alternative 1 would not impact groundwater levels in neighboring wells or contribute to seawater intrusion within the SVGB.

Water Quality

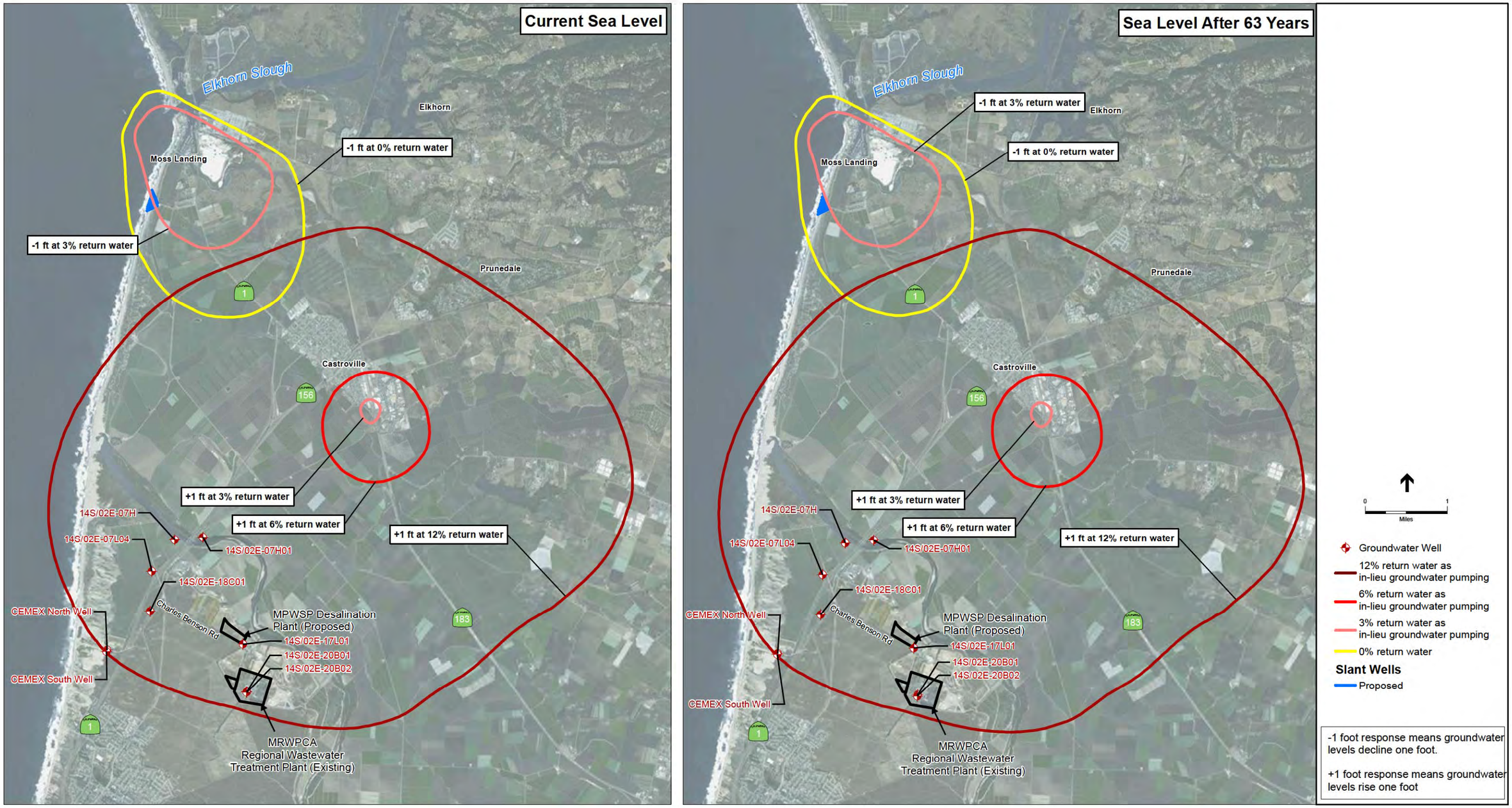
Similar to the proposed project, Alternative 1 would gradually and locally degrade groundwater quality from brackish to more saline as project pumping continues. However, this degradation would not violate water quality standards or interrupt or eliminate groundwater supply for other users. Groundwater modeling results show that Alternative 1 slant well pumping would hold back inland migration of the seawater intrusion front similar to the proposed project. However, because the effects of slant well pumping at Potrero Road would extend farther north than the proposed project, it would have a greater positive influence on the northern half of the seawater intrusion front compared to the proposed project.

Unlike the proposed project, Alternative 1 groundwater extraction would occur too far north to interfere with groundwater remediation systems currently operating at the former Fort Ord Army base. Therefore, the Alternative 1 intake system would not interfere with active remediation systems or contaminant plumes, the impact would be decreased compared to the proposed project and **Mitigation Measure 4.4-4 (Groundwater Monitoring and Avoidance of Impacts on Groundwater Remediation Plumes)** would not have to be implemented. Like the proposed project, operation of the ASR system would have a less-than-significant impact related to groundwater quality.

In summary, project pumping at Potrero Road, like the proposed project at CEMEX, would cause the brackish groundwater to locally turn more saline, but not in violation of water quality standards; it would hold back seawater intrusion similar to the proposed project but would have a greater positive effect on the northern portion of the intrusion front; and it would eliminate the potential interference with existing contaminant plumes and remediation systems at the former Fort Ord military base as a result of slant well operation, eliminating the need for mitigation. Therefore, Alternative 1 would result in a ***reduced impact conclusion*** on groundwater quality compared to the proposed project, less than significant.

Cumulative Analysis

The geographic scope of the cumulative groundwater analysis for Alternative 1 impacts on groundwater supply and quality is the Perched-A Aquifer and coastal area supporting future groundwater and seawater extraction in the Moss Landing/Elkhorn Slough Area. As stated above, Alternative 1 would draw seawater from the Monterey Bay through the coastal sediment of the Perched A Aquifer, resulting in a less-than-significant impact on the supply and quality of the water in this aquifer. However, no projects in **Table 4.1-2** in Section 4.1 are located in the same geographic area and have the potential to affect groundwater resources in the Perched-A Aquifer; thus, there would be no potential for cumulative impacts on this resource. Similarly, there are no known present or reasonably foreseeable future cumulative projects in the Santa Margarita Sandstone of the SGB; therefore, there would be no potential cumulative impacts on the SGB. Alternative 1 would have a ***reduced impact conclusion*** for cumulative impacts compared to the proposed project, no impact.



SOURCE:HydroFocus, 2016

205335.01 Monterey Peninsula Water Supply Project

Figure 5.5-4

Potrero Rd Slant Wells: 1-Foot Response in 400-Foot Aquifer under 24.1 MGD Pumping

This page intentionally left blank

5.5.4.5 Direct and Indirect Effects of Project Alternative 2 – Open-Water Intake at Moss Landing

Alternative 2 would supply seawater to the proposed 9.6 mgd desalination plant located at the Charles Benson Road site using a screened open-water intake system consisting of an intake structure located on the seafloor in MBNMS and southwest of the Moss Landing Harbor entrance, a subsurface intake pipeline, and an intake pump station (described in Section 5.4.4). The desalination plant, brine discharge pipeline, new Desalinated Water Pipeline, new Transmission Main, Terminal Reservoir, ASR components, Highway 68 interconnection improvements, and the Carmel Valley Pump Station would be identical to the proposed project described in Chapter 3, Description of the Proposed Project. Because the open water intake would eliminate the need for returning source water extracted by slant wells that originated in the SVGB, the Castroville Pipeline, the Pipeline to CSIP Pond, and operational components related to delivering water to CCSD would not be implemented. The open water intake system and the additional 6.5 miles of source water pipeline are the components unique to Alternative 2 (see **Figure 5.4-2**). Therefore, the groundwater resources impact analysis of Alternative 2 focuses primarily on the intake system and the source water pipeline; however, impact conclusions are made for the whole of Alternative 2.

Construction Impacts

Construction of Alternative 2 would use the same water supply sources as the proposed project (see Section 4.4, Groundwater Resources) for drilling the intake pipeline between the offshore intake structure and the new intake pump station on Dolan Road (as well as new two ASR wells). Alternative 2 would include 6.5 miles of additional source water pipeline, and therefore, would use more water during construction for dust suppression than the proposed project. Water would be delivered by truck and would not be extracted from local groundwater sources. Because none of the water used during construction would be drawn from the groundwater basin, Alternative 2 would result in the ***same impact conclusion*** as the proposed project on groundwater supply during construction; no impact.

The construction of the ASR injection/extraction wells would use the same techniques as the proposed project and would not result in groundwater quality degradation. The slant wells would not be drilled, but Alternative 2 would include a new subsurface intake pipeline and an additional 6.5 miles of source water pipeline which would increase the potential for impacts to groundwater quality compared to the proposed project. While pipeline trenches may encounter shallow groundwater, the construction operation of laying a pipeline and backfilling the trench would not release contaminants into the shallow groundwater zone. Therefore, impacts associated with discharges to groundwater and impacts on groundwater quality during construction of Alternative 2 would result in the ***same impact conclusion*** on groundwater quality compared to the proposed project, less than significant.

Operational and Facility Siting Impacts

Alternative 2 would include a screened open water intake, would not extract source water from groundwater aquifers, and would not include in-lieu recharge of the 400-Foot aquifer because Salinas Valley return water would not be required; the open water intake would not deplete groundwater supplies or interfere with groundwater recharge. Operation of Alternative 2 would have no impact on local groundwater levels in the SVGB, a reduced potential for impact compared to the proposed project. The ASR Wells, however, would be operated the same as the proposed project to prevent mounding and over-extraction. Therefore, Alternative 2 would result in the ***same impact conclusion*** on groundwater supplies compared to the proposed project, less than significant. **Applicant-Proposed Mitigation Measure 4.4-3** would not be relevant and therefore would not be implemented.

Operation of the screened open water intake would not adversely affect groundwater quality. In fact, unlike the proposed project and Alternative 1, the Alternative 2 screened open water intake would not capture seawater from the seawater-intruded aquifers that would otherwise migrate inland, and Alternative 2 therefore would not temper the continued inland migration of the seawater intrusion front. Unlike the proposed project, the Alternative 2 intake system would not affect the remediation of the contaminated plumes because it would not affect groundwater levels in the SVGB, and **Mitigation Measure 4.4-4 (Groundwater Monitoring and Avoidance of Impacts on Groundwater Remediation Plumes)** would not need to be implemented. Like the proposed project, operation of the ASR system would have a less-than-significant impact related to groundwater quality. Therefore, the operation of Alternative 2 would result in a ***reduced impact conclusion*** with respect to groundwater quality compared to the proposed project, less than significant.

Cumulative Analysis

Because Alternative 2 would not require the construction of subsurface slants wells for the intake system and would extract water directly from an open-water intake, it would have no impact within the SVGB, and could not contribute to a cumulative effect on groundwater supply or quality within the SVGB. There are no known present or reasonably foreseeable future cumulative projects in the Santa Margarita Sandstone of the SGB; therefore, a cumulative analysis is not relevant to the components of Alternative 2 affecting the SGB. Alternative 2 would have a ***reduced impact conclusion*** for cumulative impacts compared to the proposed project, no impact/not relevant.

5.5.4.6 Direct and Indirect Effects of Alternative 3 – Monterey Bay Regional Water Project (MBRWP or DeepWater Desal Project)

Alternative 3 includes the construction and operation of a screened open ocean intake system and a brine discharge system located on the seafloor in Monterey Bay within MBNMS, subsurface pipelines connecting to these intake and discharge systems, a seawater desalination facility and co-located data center, and associated components to provide up to 25,000 afy of potable water and data transmission and storage services. The pipelines for the intake and discharge systems would be installed using HDD. The alternative would also include 6.5 miles of desalinated water

pipeline to connect with the CalAm system and up to an additional 25 miles of pipelines to convey the desalinated water to other areas (total of 31.5 miles of additional pipeline). Several components would be identical to the proposed project: the new Transmission Main, new desalinated water pipeline south of the "Connection to CalAm" Point on **Figure 5.4-3**, ASR facilities, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be as described in Chapter 3, Description of the Proposed Project. Because the open water intake would eliminate the need for returning source water extracted by slant wells that originated in the SVGB, the proposed project Castroville Pipeline, Pipeline to CSIP Pond, and operational components related to delivering water to CCSD would not be implemented. The desalination plant and data center, open water intake system, brine discharge system, and the additional 31.5 miles of desalinated water pipeline are the components unique to Alternative 3 (see **Figure 5.4-3**).

Construction Impacts

Construction of Alternative 3 would use the same water supply sources as the proposed project (see Section 4.4, Groundwater Resources) for installing the intake and brine discharge pipelines between the offshore intake and brine discharge structures and the new pump station on Dolan Road (as well as the ASR-5 and -6 wells). Alternative 3 would include 31.5 miles of additional pipelines, and therefore, would use more water during construction for dust suppression than the proposed project. However, like the proposed project, water would be delivered by truck and would not be extracted from local groundwater sources. Because none of the water used during construction would be drawn directly from the groundwater basin, Alternative 3 would result in the ***same impact conclusion*** as the proposed project on groundwater supply during construction; no impact.

The construction of the ASR injection/extraction wells would use the same techniques as the proposed project and would not result in groundwater quality degradation. No slant wells would be drilled, but Alternative 3 would include new subsurface intake and discharge pipelines and an additional 31.5 miles of pipeline which would increase the potential for impacts to groundwater quality during construction compared to the proposed project. While pipeline trenches may encounter shallow groundwater, the construction operation of laying a pipeline and backfilling the trench would not release contaminants into the shallow groundwater zone. Therefore, impacts associated with discharges to groundwater and impacts on groundwater quality during construction of Alternative 3 would result in the ***same impact conclusion*** on groundwater quality as the proposed project, less than significant.

Operational and Facility Siting Impacts

Alternative 3 would include a screened open water intake, and thus would not extract source water from groundwater aquifers and would not include in-lieu recharge of the 400-Foot aquifer because Salinas Valley return water would not be required; the open water intake would not deplete groundwater supplies or interfere with groundwater recharge. Operation of Alternative 3 would have no impact on local groundwater levels in the SVGB, a reduced potential for impact compared to the proposed project. The ASR Wells, however, would be operated the same as the

proposed project to prevent mounding and over-extraction. Therefore, Alternative 3 would result in the ***same impact conclusion*** on groundwater supplies compared to the proposed project, less than significant. **Applicant-Proposed Mitigation Measure 4.4-3** would not be relevant and therefore would not be implemented.

Operation of the screened open water intake would not adversely affect groundwater quality. In fact, unlike the proposed project and Alternative 1, the Alternative 3 screened open water intake would not capture seawater from the seawater-intruded aquifers that would otherwise migrate inland, and Alternative 3 therefore would not temper the continued inland migration of the seawater intrusion front. Unlike the proposed project, Alternative 3 would not affect the remediation of the contaminated plumes because it would not affect groundwater levels in the SVGB, and **Mitigation Measure 4.4-4 (Groundwater Monitoring and Avoidance of Impacts on Groundwater Remediation Plumes)** would not need to be implemented. Like the proposed project, operation of the ASR system would have a less-than-significant impact related to groundwater quality. Therefore, the operation of Alternative 3 would result in a ***reduced impact conclusion*** with respect to groundwater water quality compared to the proposed project, less than significant.

Cumulative Analysis

Because Alternative 3 would not require the construction of subsurface slant wells for the intake system and would extract water directly from an open-water intake, it would have no impact within the SVGB, and could not contribute to a cumulative effect on groundwater supply or quality within the SVGB. There are no known present or reasonably foreseeable future cumulative projects in the Santa Margarita Sandstone of the SGB; therefore, a cumulative analysis is not relevant to the components of Alternative 3 affecting the SGB. Alternative 3 would have a ***reduced impact conclusion*** for cumulative impacts compared to the proposed project, no impact/not relevant.

5.5.4.7 Direct and Indirect Effects of Alternative 4 – People's Moss Landing Water Desalination Project (People's Project)

Alternative 4 includes the construction and operation of an open ocean intake, a brine discharge system and pipelines, and supporting ballast rock located on the seafloor in Monterey Bay within MBNMS, as well as a 12 mgd desalination plant and associated facilities to provide 13,400 afy of water supply to meet the current and future needs of the Monterey Peninsula. Several components would be identical to the proposed project: the new Transmission Main, new desalinated water pipeline south of the "Connection to CalAm" Point on **Figure 5.4-4**, ASR-5 and -6 wells and ASR pipeline, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be as described in Chapter 3, Description of the Proposed Project. Because the open water intake would eliminate the need for returning source water extracted by slant wells that originated in the SVGB, the proposed project Castroville Pipeline, Pipeline to CSIP Pond, and operational components related to delivering water to CCSD would not be implemented. The desalination plant, open water intake system, brine discharge system, and the additional 6.5 miles of desalinated water pipeline are the components unique to Alternative 4 (see **Figure 5.4-4**).

Construction Impacts

Construction of Alternative 4 would use the same water supply sources as the proposed project (see Section 4.4, Groundwater Resources) for installing the intake and brine discharge pipelines between the offshore intake and brine discharge structures and the existing caisson at the end of Sandholdt Road, and between the existing caisson and the desalination plant (as well the ASR-5 and -6 wells). Alternative 3 would include 6.5 miles of additional pipeline, and therefore, would use more water during construction for dust suppression than the proposed project. However, like the proposed project, water would be delivered by truck and would not be extracted from local groundwater sources. Because none of the water used during construction would be drawn directly from the groundwater basin, Alternative 4 would result in the ***same impact conclusion*** as the proposed project on groundwater supply during construction; no impact.

The construction of the ASR injection/extraction wells would use the same techniques as the proposed project and would not result in groundwater quality degradation. No slant wells would be drilled, but Alternative 4 would include rehabilitated as well as new intake and discharge pipelines and an additional 6.5 miles of pipeline which would increase the potential for impacts to groundwater quality compared to the proposed project. While pipeline trenches may encounter shallow groundwater, the construction operation of laying a pipeline and backfilling the trench would not release contaminants into the shallow groundwater zone. Therefore, impacts associated with discharges to groundwater and impacts on groundwater quality during construction of Alternative 4 would result in the ***same impact conclusion*** on groundwater quality as the proposed project, less than significant.

Operational and Facility Siting Impacts

Alternative 4 would include a screened open water intake, and thus would not extract source water from groundwater aquifers and would not include in-lieu recharge of the 400-Foot aquifer because Salinas Valley return water would not be required; the open water intake would not deplete groundwater supplies or interfere with groundwater recharge. Operation of Alternative 4 would have no impact on local groundwater levels in the SVGB, a reduced potential for impact compared to the proposed project. The ASR Wells, however, would be operated the same as the proposed project to prevent mounding and over-extraction. Therefore, Alternative 4 would result in the ***same impact conclusion*** on groundwater supplies compared to the proposed project, less than significant. **Applicant-Proposed Mitigation Measure 4.4-3** would not be relevant and therefore would not be implemented.

Operation of the screened open water intake would not adversely affect groundwater quality. In fact, unlike the proposed project and Alternative 1, the Alternative 4 screened open water intake would not capture seawater from the seawater-intruded aquifers that would otherwise migrate inland, and Alternative 4 therefore would not temper the continued inland migration of the seawater intrusion front. Unlike the proposed project, Alternative 4 would not affect the remediation of the contaminated plumes because it would not affect groundwater levels in the SVGB, and **Mitigation Measure 4.4-4 (Groundwater Monitoring and Avoidance of Impacts on Groundwater Remediation Plumes)** would not need to be implemented. Like the proposed project, operation of the ASR system would have a less-than-significant impact related to

groundwater quality. Therefore, the operation of Alternative 4 would result in a ***reduced impact conclusion*** with respect to groundwater water quality compared to the proposed project, less than significant.

Cumulative Analysis

Because Alternative 4 would not require the construction of subsurface slant wells for the intake system and would extract water directly from an open-water intake, it would have no impact within the SVGB, and could not contribute to a cumulative effect on groundwater supply or quality within the SVGB. There are no known present or reasonably foreseeable future cumulative projects in the Santa Margarita Sandstone of the SGB; therefore, a cumulative analysis is not relevant to the components of Alternative 4 affecting the SGB. Alternative 4 would have a ***reduced impact conclusion*** for cumulative impacts compared to the proposed project, no impact/not relevant.

5.5.4.8 Direct and Indirect Effects of Alternative 5 – Reduced Desal Project 5a (CEMEX) and 5b (Potrero Road)

Alternative 5a would include the seawater intake system at the CEMEX site (the same location as the proposed project), but would include only seven subsurface slant wells (the converted test well and six new wells) and the same source water pipeline as the proposed project. Alternative 5b would include seven new wells at the western end of Potrero Road (the same location as Alternative 1) and the same source water pipeline as Alternative 1. Both Alternatives 5a and 5b would include a reduced-capacity desalination plant (6.4 mgd), and all other components would be the same as the proposed project.

Construction Impacts

Construction of Alternatives 5a and 5b would use the same water supply sources as the proposed project (see Section 4.4, Groundwater Resources) and Alternative 1 for drilling the slant wells and for dust suppression; water would be delivered by truck and would not be extracted from local groundwater sources. Alternatives 5a and 5b would have fewer new wells than the proposed project or Alternative 1, and Alternative 5b would have 5.5 miles of additional source water pipeline and would use more water during construction than Alternative 5a or the proposed project. However, because none of the water used during construction would be drawn from the groundwater basin, Alternatives 5a and 5b would result in the ***same impact conclusion*** as the proposed project on groundwater supply during construction; no impact.

Similar to the proposed project and Alternative 1, slant wells would be drilled using a dual rotary drill rig that would use re-circulated drilling fluids through the first approximately 100 feet of dry dune sands. The remaining length of borehole would be drilled using water present in the sands and added potable water to circulate the drill cuttings if necessary. If potable water were added, drill cuttings would be removed after use, and the water would be clarified and percolated into the sands through the diffuser in the parking lot; the quality of that water would be better than the underlying brackish water, and therefore, would not result in groundwater degradation.

Construction of Alternatives 5a and 5b would use the same construction techniques as the proposed project, but would include 6 new slant wells at CEMEX (compared to 9 new wells for the proposed project) or 7 new slant wells drilled in the Potrero Road parking lot inland of the dunes (compared to 10 new wells for Alternative 1), as well as an additional 5.5 miles of source water pipeline for Alternative 5b. Because the water used for slant well drilling would be re-circulated and then clarified and discharged into the beach or parking lot, Alternatives 5a and 5b would result in the ***same impact conclusion*** on groundwater quality as the proposed project, less than significant.

Operational and Facility Siting Impacts

Like the proposed project, the operation of Alternative 5a (reduced wells at CEMEX) would create a modeled aquifer response in the Dune Sand Aquifer, 180-FTE Aquifer and 400-Foot Aquifer as shown in **Figures 5.5-5** through **5.5-7**. The size of the cone of depression created by Alternative 5a would be similar to or less pronounced than the modeled response (depending on the aquifer) for the proposed project, and similar to the proposed project, no existing active wells would be affected.

The cone of depression resulting from slant well pumping at Potrero Road in Alternative 5b (**Figures 5.5-8** through **5.5-10**), would be similar to or less pronounced than Alternative 1 and no existing wells would be affected. However, as a result of the surface water/groundwater interface, Alternative 5b pumping at Potrero Road, like Alternative 1, would result in loss of water at Elkhorn Slough (see also the potential implications of this effect, in Section 5.5.3, Surface Water Hydrology and Water Quality, and Section 5.5.5, Marine Biological Resources), the impacts of which cannot be quantified because of the location at the boundary of the model domain. However, Alternatives 5a and 5b would not affect neighboring well levels and would result in the ***same impact conclusion*** on groundwater supply compared to the proposed project, less than significant. CalAm would still implement **Applicant-Proposed Mitigation Measure 4.4-3 (Groundwater Monitoring and Avoidance of Well Damage)** in recognition of the need to provide continued verification that project pumping from Alternatives 5a and 5b would not impact groundwater levels in neighboring wells or contribute to seawater intrusion within the SVGB.

Like the proposed project and Alternative 1, reduced project pumping at CEMEX (Alternative 5a) at Potrero Road (Alternative 5b), would cause the brackish groundwater to locally turn more saline. Alternatives 5a and 5b would have less of an effect on seawater intrusion than the proposed project and Alternative 5b would have a greater positive effect on the northern portion of the intrusion front than Alternative 5a. Alternative 5b would eliminate the proposed project's potential interference with existing contaminant plumes and remediation systems at the former Fort Ord military base. Therefore, Alternative 5a would result in the ***same impact conclusion*** on groundwater quality compared to the proposed project, less than significant with mitigation. By contrast, Alternative 5b would have a ***reduced impact conclusion*** on groundwater quality compared to the proposed project, less than significant.

Cumulative Analysis

Combined Impacts with GWR Project

With the implementation of the GWR Project, groundwater levels in the 400-Foot Aquifer would rise because of the additional irrigation water provided to the CSIP area, resulting in a less-than-significant impact that is improved compared to Alternative 5 alone and to the proposed project. All other groundwater impacts would be the same in this combined scenario as under Alternative 5 alone.

Impacts of Full Cumulative Scenario

No additional projects would be relevant to the cumulative scenario compared to those addressed in Section 4.4.6 (for the proposed project, relevant to Alternative 5a) and Section 5.5.4.4 (for Alternative 1, relevant to Alternative 5b). In summary, Alternative 5a would result in improved groundwater levels compared to the proposed project because of the improved cumulative effects resulting from the contribution of the GWR Project, and thus would result in the ***same impact conclusion*** as the proposed project for cumulative impacts on groundwater resources, less than significant.

Although Alternative 5b would result in the same type of groundwater impacts as Alternative 5a, Alternative 5b would affect groundwater in the Perched-A Aquifer, and because no other projects would affect this resource, a cumulative impact analysis is not relevant to this impact. Thus, Alternative 5b would have a ***reduced impact conclusion*** for cumulative impacts compared to the proposed project, no impact/not relevant.

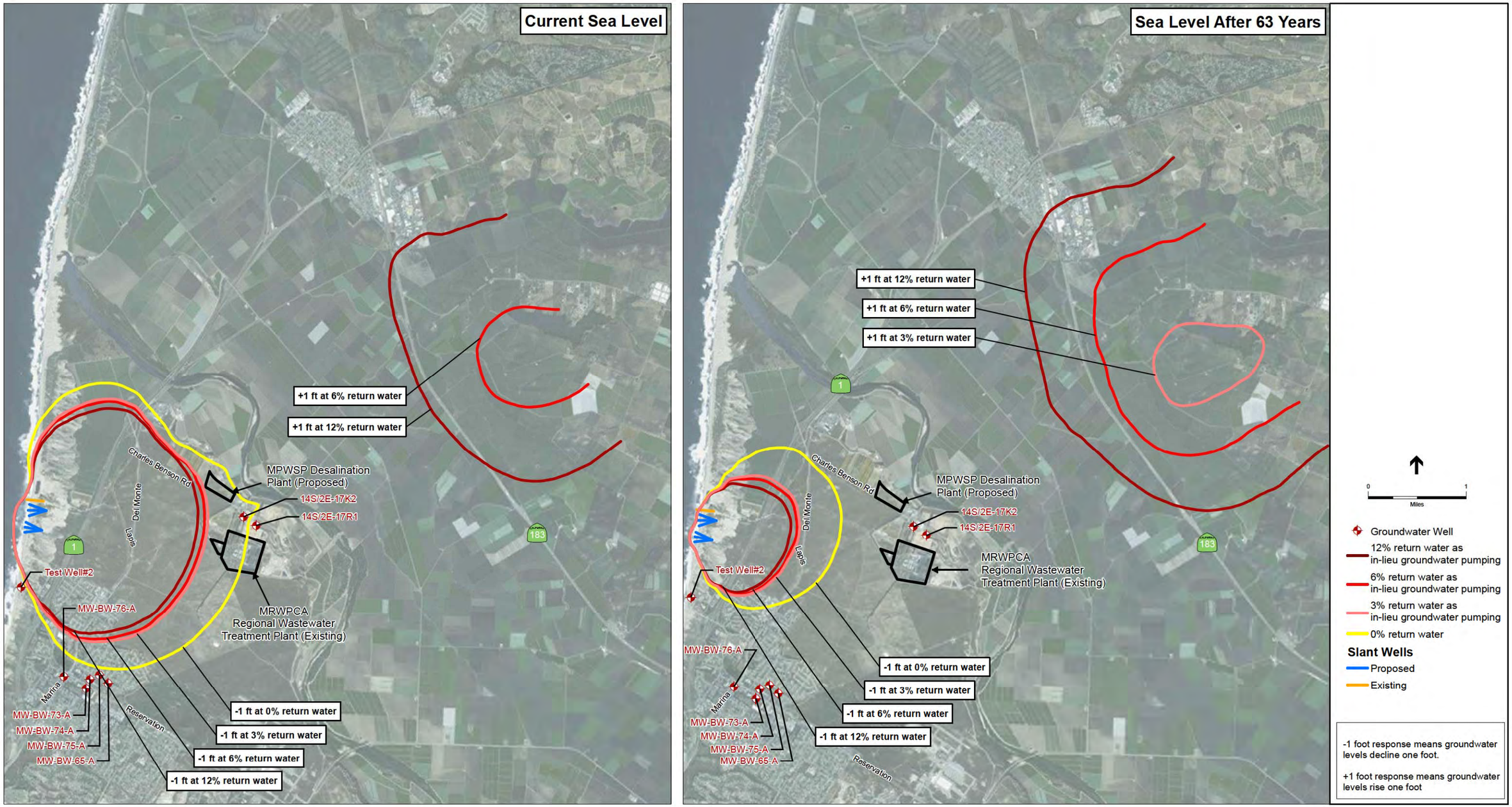
5.5.4.9 References

Department of Water Resources (DWR), 2004. *California's Groundwater, Bulletin 118, Central Coast Hydrologic Region, Salinas Valley Groundwater Basin, 180/400 Foot Aquifer Subbasin.* February 27, 2004.

Monterey Peninsula Water Management District, 2016. Addendum to the Aquifer Storage and Recovery Project Environmental Impact Report/Environmental Assessment and the Pure Water Monterey/Groundwater Replenishment Project Environmental Impact Report for the Hilby Avenue Pump Station. http://www.mpwmd.net/asd/board/boardpacket/2016/20160620/16/Item-16-Exh-A.pdf.

Monterey Regional Water Pollution Control Agency and Monterey Peninsula Water Management District, 2016. Consolidated Final Environmental Impact Report for the Pure Water Monterey Groundwater Replenishment Project, Volume IV, Exhibit B. http://purewatermonterey.org/wp/wp-content/uploads/Volume-IV-EIR-Certification-and-Project-Approval-Jan-2016.pdf.

United States Geological Survey (USGS), 2011. *Status and Understanding of Groundwater Quality in the Monterey Bay and Salinas Valley Groundwater Basins, 2005: California GAMA Priority Basin Project,* Scientific Investigations Report 2011-5058, 2011.

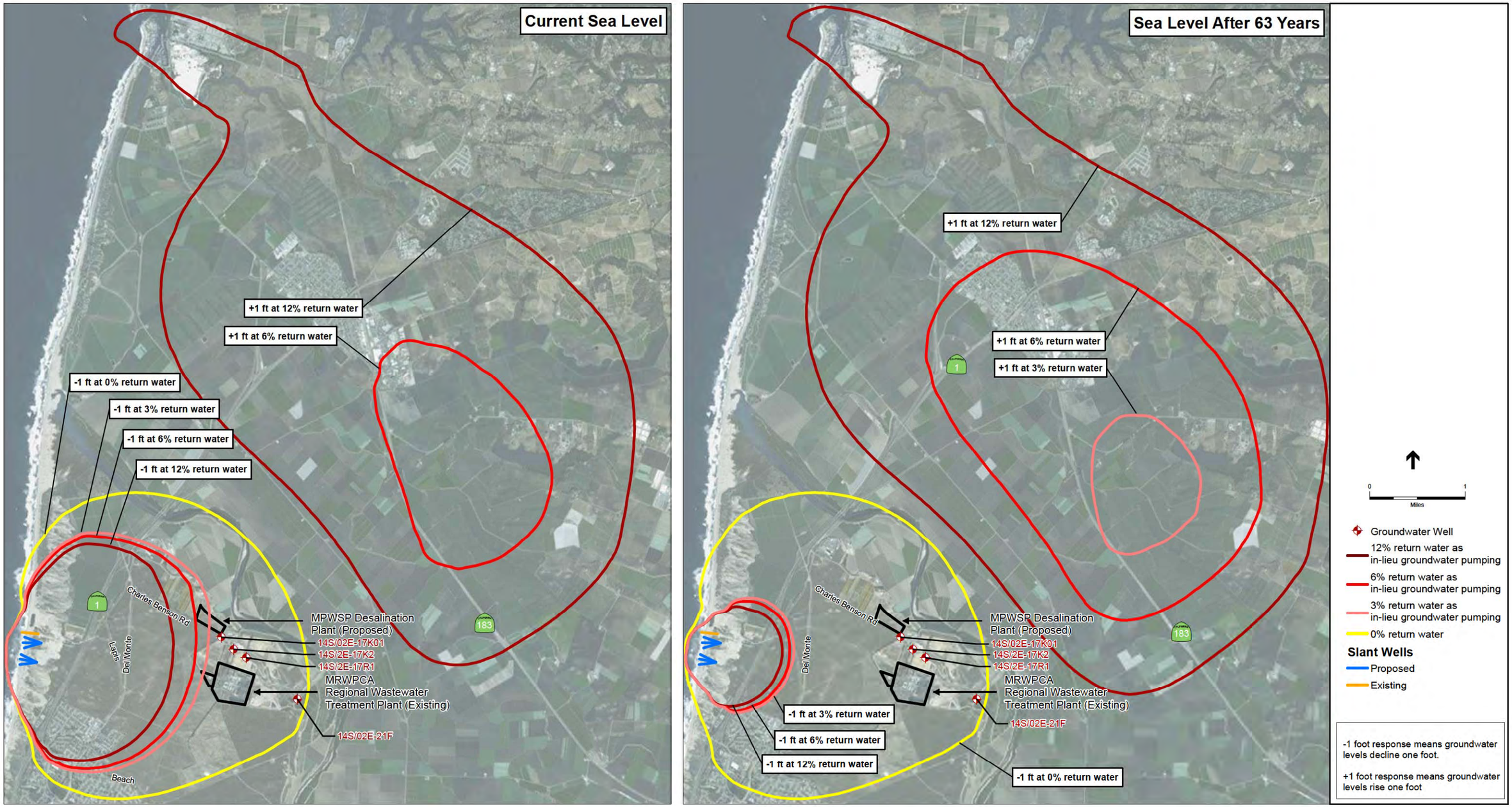


SOURCE:HydroFocus, 2016

205335.01 Monterey Peninsula Water Supply Project

Figure 5.5-5

Alternative 5a Site: 1-Foot Response in Dune Sand Aquifer under 15.5 MGD Pumping

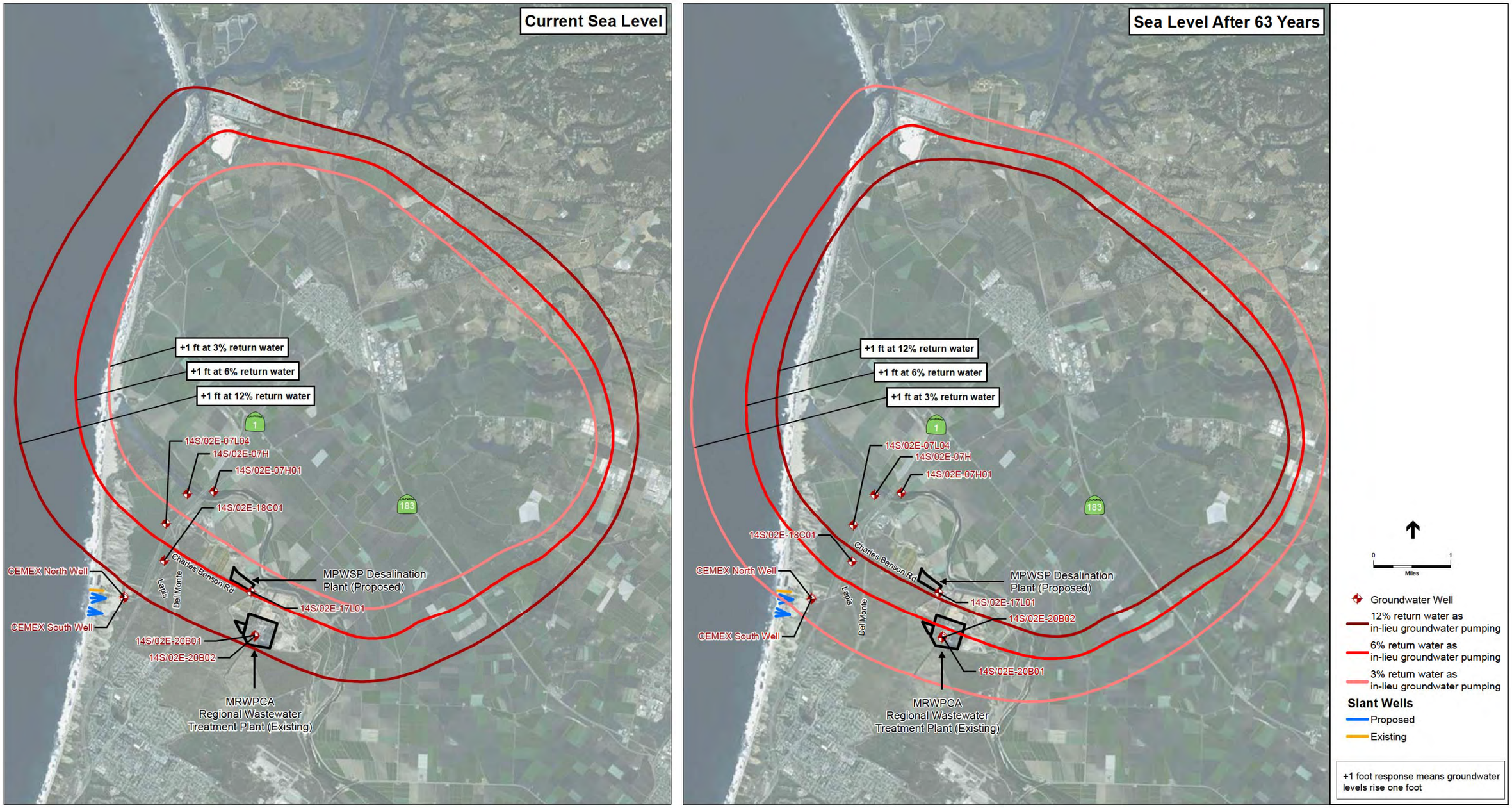


SOURCE:HydroFocus, 2016

205335.01 Monterey Peninsula Water Supply Project

Figure 5.5-6

Alternative 5a Site: 1-Foot Response in 180-Foot Aquifer under 15.5 MGD Pumping

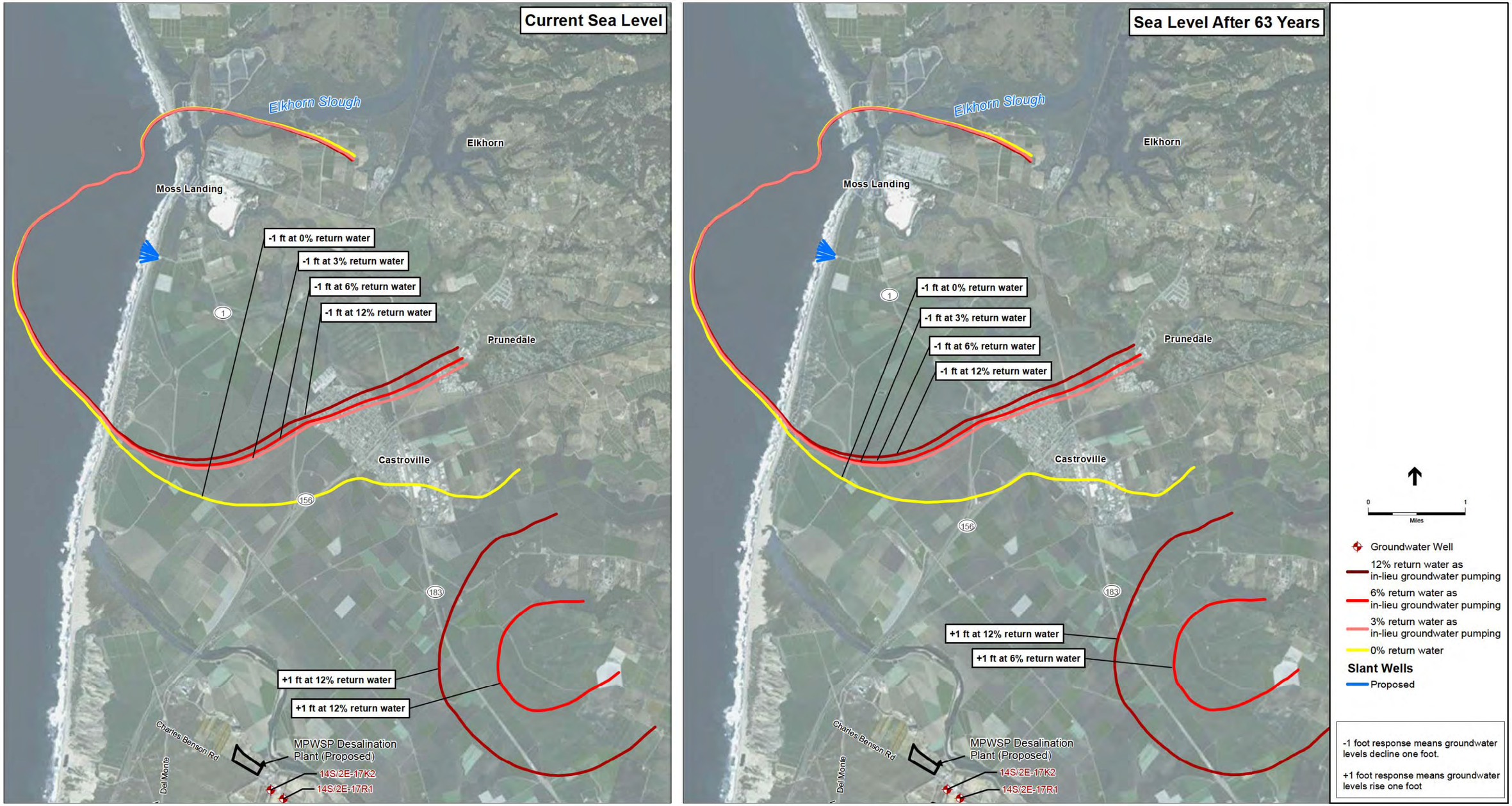


SOURCE:HydroFocus, 2016

205335.01 Monterey Peninsula Water Supply Project

Figure 5.5-7

Alternative 5a Site: 1-Foot Response in 400-Foot Aquifer under 15.5 MGD Pumping

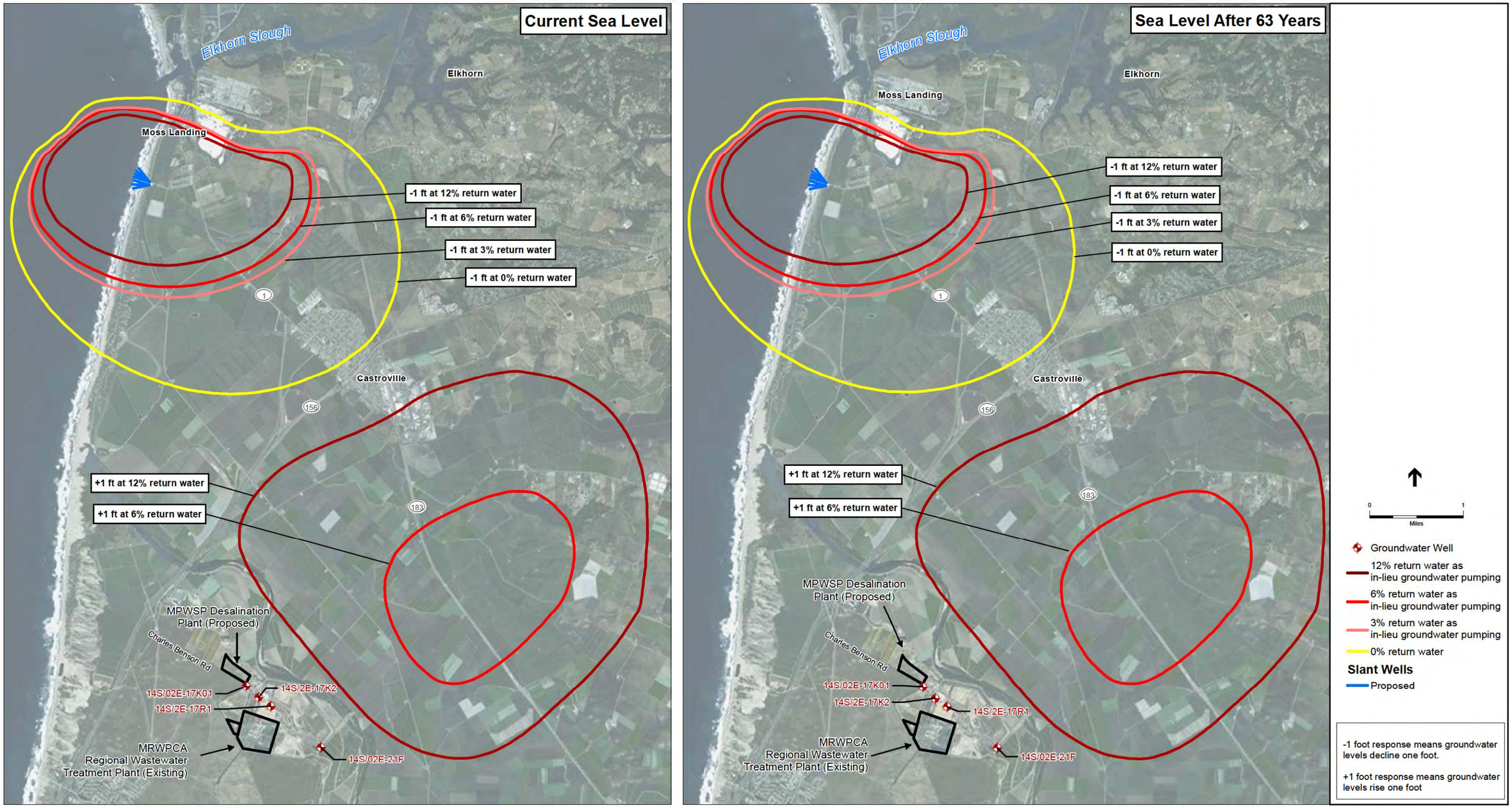


SOURCE:HydroFocus, 2016

205335.01 Monterey Peninsula Water Supply Project

Figure 5.5-8

Alternative 5b Slant Wells: 1-Foot Response in Dune Sand Aquifer under 15.5 MGD Pumping

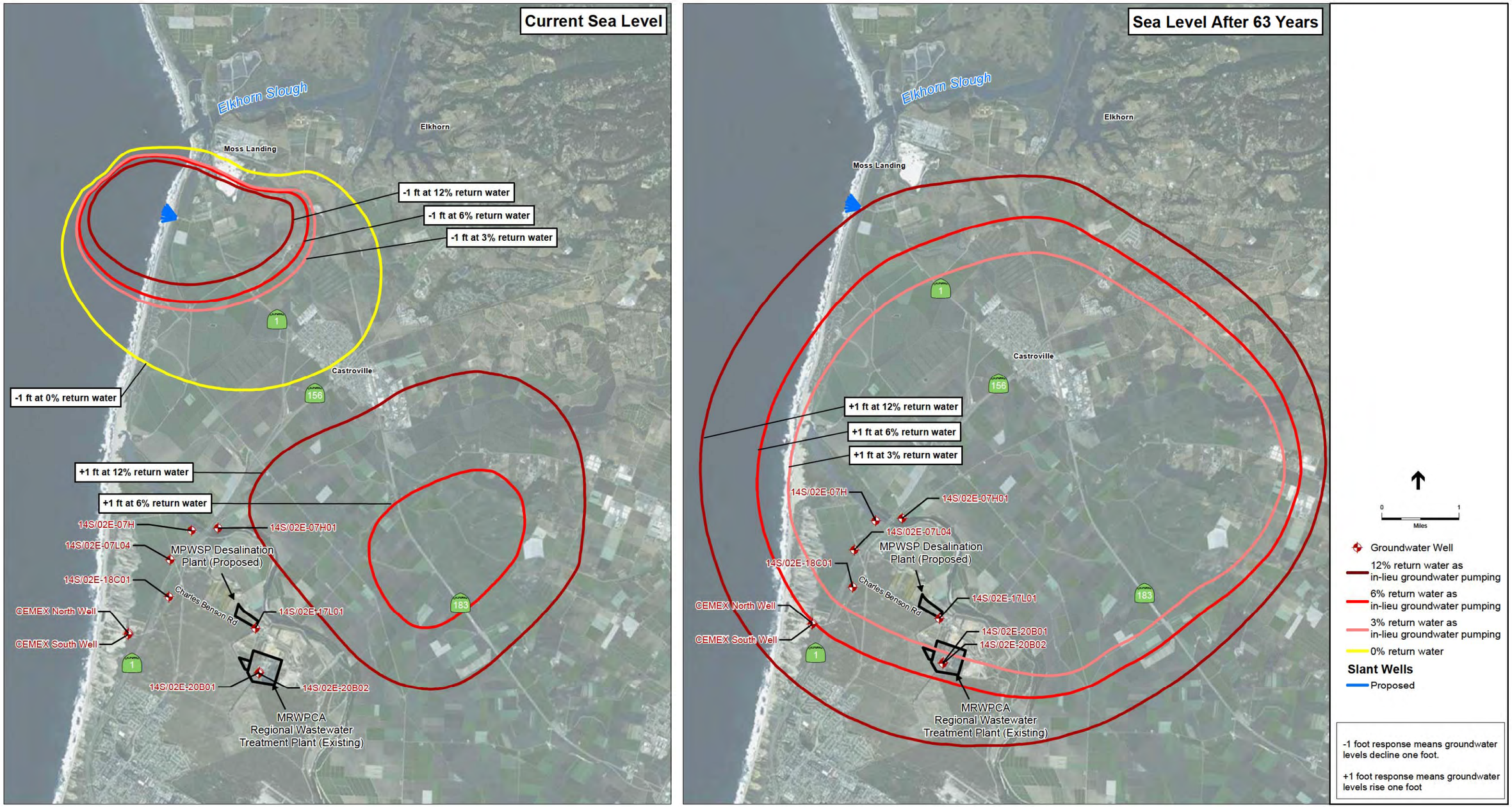


SOURCE:HydroFocus, 2016

205335.01 Monterey Peninsula Water Supply Project

Figure 5.5-9

Alternative 5b Slant Wells: 1-Foot Response in 180-Foot Aquifer under 15.5 MGD Pumping



SOURCE:HydroFocus, 2016

205335.01 Monterey Peninsula Water Supply Project

Figure 5.5-10

Alternative 5b Slant Wells: 1-Foot Response in 400-Foot Aquifer under 15.5 MGD Pumping

5.5.5 Marine Biological Resources

The evaluation criteria for marine biological resources address the effects from construction and operation on: any identified marine species, natural community or habitat, including candidate, sensitive or special status species; sustainability of marine species' community or population; and interference with movement of marine species or effects on nursery sites.

5.5.5.1 Setting/Affected Environment

The marine resources study area for the proposed project encompasses the nearshore waters (within 5 miles from shore) of Monterey Bay and extends from the Salinas River southward to the northern limits of Sand City and is described in Section 4.5.1. Several alternatives propose offshore intake and brine discharge facilities located north of the Salinas River, and offshore in Monterey Bay within MBNMS near Moss Landing Harbor and Elkhorn Slough.[5] This portion of the setting/affected environment contains a large amount of open water including ponds, flooded mudflats, Moss Landing Harbor, Old Salinas River Channel, Moro Cojo Slough, Elkhorn Slough, and Bennett Slough.

Moss Landing Harbor serves as the gateway to the Elkhorn Slough National Estuarine Research Reserve, California's second largest marine wetland administered by the National Oceanic and Atmospheric Administration (NOAA) and managed by the California Department of Fish and Wildlife (CDFW). This expansive tidal wetland is an important habitat for terrestrial and marine species. In addition to NOAA and CDFW, the Elkhorn Slough Foundation and other agencies and organizations protect natural resources and manage many conservation areas within this area, including Moss Landing State Beach, Moss Landing Wildlife Area, and Salinas River State Beach.

Aquatic habitats within Moss Landing Harbor and Elkhorn Slough include tidal salt marsh, rocky intertidal, sand and gravel beaches, tidal sand and mudflats, pelagic habitat, and subtidal benthic (seafloor) habitat.

Aquatic Habitats

Tidal Salt Marsh. Elkhorn Slough's large tract of tidal salt marsh is an important avian stop along the "Pacific Flyway" migration route, and provides habitat for over 135 aquatic bird, 550 marine invertebrate, and 102 fish species. Elkhorn Slough supports more than 20,000 shorebirds annually, including the western snowy plover (*Charadrius alexandrines nivosus*), a federally threatened and state species of special concern.

Rocky Intertidal. Where artificial rocky rubble, steel and concrete bulkheads, and pilings are present throughout the Harbor and slough, the mussel *M. californianus* and *M. Trosulus* can both be found, depending on their proximity to the main channels and tidal flows of ocean water. Green algal beds of *Enteromorpha* and *Ulva*, the red algae *Mastocarpu/Gigartinas* and *Polysiphonia*, striped shore crabs (*Pachgrapsus crassipes*), mud flat crabs (*Hemigrapsus*

[5] Moss Landing Harbor is not within MBNMS. Portions of Elkhorn Slough east of Highway 1 are within MBNMS.

oregonensis), barnacles (*Chtalamus and Semibalanus cariosus*), limpets (*Acmaea spp.*), turban snails (*Tegula funebralis*), and hydroids are also present. In addition, under the rocky rubble in some areas of the Harbor, the tube-building crustacean, *Corophium*, has been observed.

Sand and Gravel Beaches. Various invertebrates live in the sand and in wracks of decaying seaweed and other detritus. These include cirolanid isopods and mole crabs (Oakden and Nybakken, 1977). Polychaete worms, bivalves (i.e., clams, mussels, and scallops) are also regularly present, though typically in lower abundances. In addition, there are numerous shorebird species that use these beaches, such as sanderlings, marbled godwits, and willets that feed at the water's edge, and western snowy plovers and California least terns, both protected species, that nest there. Marine mammals, including California sea lions, harbor seals, and elephant seals, haul-out on isolated beaches and sands spits in Moss Landing's South Harbor. Sand dollars, worms, clams, crabs, and a variety of fish, including surfperch and flatfish, live in the surf zone.

Tidal sand and mud flats. Sheltered and exposed tidal flats support diverse populations of worms dominated by *Notosmastus tenuis* as well as the fat innkeeper worm (*Urechis caupo*); clams including the bentnose clam (*Macoma nasuta* and *M. secta*), gaper clam (*Tresus nuttalli*), Washington clam (*Saxidomus nuttalli*) and littleneck clam (*Prototheca staminea*); and snails (*Tegula spp.*) and provide important foraging area for migrating and resident shorebirds. Exposed tidal flats also support several areas of eelgrass beds (*Zostera marina*) that provide important nursery habitat for juvenile fish, crabs, and shrimp, as well as many other invertebrate species. Sea otters (*Enhydra lutris*) use mudflats within Elkhorn Slough as a pupping ground (Elkhorn Slough Foundation, 2011).

Pelagic Habitat. Monterey Bay, which is within MBNMS, has a high level of phytoplankton primary production due to annual seasonal upwelling, providing the base in a food web including zooplankton, fish, and marine mammals. Fish and marine mammal species occurring in the pelagic environment in this region are largely the same as those described in Section 4.5.1 (Setting/Affected Environment for the proposed project). The close proximity of Monterey Submarine Canyon to the shoreline means that certain fish, sharks, and marine mammals that would normally be found only in deeper offshore waters are frequent inhabitants of the nearshore pelagic environment surrounding Moss Landing. Many organisms found in the nearshore coastal environment use Elkhorn Slough mid-water habitat as nursery or spawning grounds and are therefore, temporary inhabitants (Caffrey et al., 2002). Permanent residents of Elkhorn Slough's pelagic habitat include black surfperch (*Leptocottus armatus*), striped mullet (*Mugil cephalus*), and bay pipefish (*Syngnathus leptorhynchus*). Recent studies of the plankton and larval fish communities inhabiting the coastal waters adjacent to the proposed Deep Water Desal project (Alternative 3) indicate that the plankton community is dominated by calanoid copepods, cyclopod copepods, and euphausiids (AMS, 2016). The larval fish and invertebrate larvae population appears to be dominated by northern anchovy (*Engraulis mordax*), white croaker (*Genyonemus lineatus*), gobies, assorted unidentified larval fish, the bay goby (*Lepidogobius lepidus*), sanddabs (Citharichthys spp.), lanternfishes, the blue rockfish complex (Sebastes), smelts, Pacific Sardines (*Sardinops sagax*), Dungeness crab (*Metacarcinus magister*), assorted cancer crabs, and market squid (*Doryteuthis opalescens*) (Tenera Environmental, 2014).

Subtidal Benthic (Seafloor) Habitat. The submarine canyon walls are a mixture of soft substrate and rocky outcrops, providing subtidal habitat for a very diverse biota of benthic organisms, such as corals, sea pens, tunicates, sponges, crinoids, and fishes. Krill, a major prey item for many cetaceans, also are found in high concentrations along canyon walls and near canyon heads. Species primarily associated with the freshwater areas of Elkhorn Slough include American shad (*Alosa sapidissima*), threadfin shad (*Dorosoma petenense*), mosquitofish (*Gambusia affinis*), prickly sculpin (*Cottus asper*), and threespine stickleback (*Gasterosteus aculeatus*). Few non-native species have been observed but do include the yellowfin goby (*Acanthogobius flavimanus*), mosquitofish, American shad, and striped bass. Within the Elkhorn Slough, the only permanent benthic resident is the Pacific staghorn sculpin (*Leptocottus armatus*). Other species occurring in the subtidal habitat within the slough are largely the same as those described in Section 4.5.1 (Setting/Affected Environment for the proposed project).

Special-Status Marine Species and Marine Natural Communities

The region assessed as part of the alternatives analysis includes USFWS-designated critical habitat areas for tidewater goby (*Eucyclogobius newberryi*), western snowy plover (*Charadrius alexandrinus nivosus*), and steelhead (*Oncorhynchus mykiss irideus*), each of which is described in **Table 4.5-2** in Section 4.5. Specific to the alternative study area, tidewater goby is known to occur in Bennett Slough and Moro Cojo Slough (CNDDB, 2010), both of which are part of Elkhorn Slough. Furthermore, Bennett Slough has been federally designated as a critical habitat recovery unit (MNT-1) for the species (USFWS, 2014). Threats to the recovery of the tidewater Goby include: 1) coastal development projects that result in the loss or alteration of coastal wetland habitat; 2) water diversions, alterations of water flow, and groundwater overdraft upstream of coastal lagoons and estuaries that negatively impact the species' breeding and foraging activities; 3) channelization of habitats, and; 4) nonpoint- and point-source pollution or discharge of agricultural and sewage effluents that are likely to impact the species' health or breeding and foraging activities.

Of the three listed salmonid species that occur in the waters of Monterey Bay (Coho salmon, Chinook salmon, and steelhead), only the Chinook salmon are known to occur within Elkhorn Slough. Chinook salmon of unknown origin have been recorded occasionally occurring in Elkhorn Slough (Yoklavich et al., 2002; Tenera Environmental, 2007), although no known critical habitat or access to spawning grounds is known to be present.

Elkhorn Slough, as well as protected habitat areas (e.g., Salinas River State Beach, Moss Landing State Beach, Moss Landing Wildlife Area, conservation lands managed by the Elkhorn Slough Foundation), support numerous special-status species of marine mammals, birds, turtles, and fish. In addition to these species, southern sea otter is a frequent inhabitant within Elkhorn Slough, which is used as both a foraging and a pupping ground. Southern sea otters inhabit open water and haul out on the mudflats in the main slough channel, from Moss Landing Harbor to Hudson Landing, but they are most common in the North Harbor area.

Additional natural communities present in the alternatives study area and not discussed in Section 4.5 include eelgrass and Native Olympia Oysters (*Ostrea lurida*). Eelgrass is a native

marine vascular plant that has been afforded special management considerations by CDFW, USFWS, NMFS, and USEPA. Major eelgrass beds exist along the main slough channel east of Highway 1 and at Seal Bend. In addition to providing refugia for young fish and invertebrates and foraging areas for waterfowl, eelgrass beds stabilize shorelines by dampening wave energy, collecting sediments transported to the shore, and preventing shore erosion. They also improve water quality by collecting and filtering organic matter and suspended sediment. In Elkhorn Slough, eelgrass is threatened by high erosion rates in the main channel; dredging in its historical Moss Landing harbor location; and light limitation caused by turbid water, eutrophication, and high abundance of algae (Elkhorn Slough Foundation, 2016).

Olympia oysters are a sensitive natural community known to provide high biodiversity habitat because they provide physical habitat structure sought by juvenile fish and crustaceans, worms, and foraging fish and birds (NOAA, 2008). They also stabilize sediment, reduce suspended sediment, and improve light penetration, thereby improving the physical conditions that encourage the establishment of submerged aquatic vegetation, such as eelgrass beds. Additionally, a robust population of filter feeders can help modulate plankton blooms (NOAA, 2008). Naturally occurring populations of native oysters within the Elkhorn Slough are extremely rare in most parts of the estuary, including areas where it once thrived. Threats to Olympia oysters include predation from indigenous and non-native marine snails (*Acanthina spirata* and *Urosalpinx cinerea*, respectively), birds, bat rays, and crabs. Limited suitable hard substrate and physical water quality conditions are also important parameters (NOAA, 2008).

5.5.5.2 Direct and Indirect Effects of the Proposed Project (10 slant wells at CEMEX)

As described in detail in Chapter 3, Description of the Proposed Project, the proposed project (see **Figure 3-2**) would include construction of a desalination plant on Charles Benson Road, up to nine new subsurface slant wells at the CEMEX active mining area and conversion of the existing test slant well to a permanent well, and the discharge of brine through the existing wastewater outfall. The proposed project would also include improvements to the existing Seaside Groundwater Basin aquifer storage and recovery (ASR) system, and about 21 miles of new water conveyance pipelines. No construction or placement of facilities on the seafloor would occur. Accordingly, drilling of the slant wells is the only construction activity that is considered; the operational activities include the pumping of the slant wells and the discharge of brine.

The following paragraphs summarize the direct and indirect effects of the proposed project and some of the impact categories are grouped; for a more detailed analysis and discussion, refer to Section 4.3.5. Overall, the effect of the proposed project on marine biological resource would be less than significant.

Construction Impacts

The subsurface slant wells are the only project components that would involve construction in or near the study area. Since none of the other project facilities would require construction in the

study area, construction of the other project facilities would not directly or indirectly affect marine biological resources.

Impact 4.5.1: Have a substantial adverse effect, either directly or through habitat modifications, including direct disturbance, removal, filling, hydrological interruption, or discharge, on any species, natural community, or habitat, including candidate, sensitive, or special-status species identified in local or regional plans, policies, regulations or conservation plans (including protected wetlands or waters, critical habitat, essential fish habitat (EFH)); or as identified by the CDFW, USFWS, or NMFS during construction.

Impact 4.5.2: Threaten to eliminate a marine plant or animal wildlife community or cause a fish or marine wildlife population to drop below self-sustaining levels during construction.

Impact 4.5.3: Interfere substantially with the movement of any native resident or migratory fish or marine wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native marine wildlife nursery sites during construction.

Underwater noise associated with drilling during well construction activities, the potential accidental release of drilling fluid, and the possible discharge of clarified[6] groundwater recovered during drilling operations are the only construction activities that could potentially affect marine biological resources and habitats.

Any drilling noise reaching overlying ocean waters would be below background underwater noise levels as a result of attenuation through the seafloor; underwater noise generated during slant well drilling would have no impact during construction.

Because the drilling operation would be set back approximately 900 feet from the mean high water mark (MHW) on the shoreline and the construction contractor would manage drilling fluids and potential discharges of clarified groundwater in accordance with regulatory requirements, the potential for an accidental release of any hazardous drilling fluids into waters of MBNMS, or increased turbidity in Monterey Bay during slant well construction, would be less than significant (see Section 4.3.5.1 for details). Because construction would not directly disturb marine habitat or cause stress, mortality, or behavioral avoidance as a result of construction noise or water quality degradation, the construction of the proposed project would not have a substantial adverse effect on any marine biological resources in MBNMS including special-status species, would not cause a fish or marine wildlife population to drop below self-sustaining levels and would not interfere with the movement of any native marine resident or migratory fish or marine wildlife species in MBNMS; the impact would be less than significant. No impacts would occur from the construction of any other proposed facility because none occur within the marine biological resources study area.

6 Clarified Water: Water that has been processed to remove suspended sediments and is therefore “clear” and when discharged to the ocean will not result in increased turbidity.

Operation Impacts

Potential operational impacts on marine biological resources would be limited to adverse effects associated with operation of the subsurface slant wells and the discharge of brine generated at the proposed MPWSP desalination plant. Because none of the other project facilities would affect marine biological resources, none of the other facilities are discussed.

Impact 4.5-4: Result in a substantial adverse effect, either directly or through habitat modifications, including direct disturbance, removal, filling, hydrological interruption, or discharge, on any marine species, natural community, or habitat, including candidate, sensitive, or special-status species identified in local or regional plans, policies, regulations or conservation plans (including protected wetlands or waters, critical habitat, essential fish habitat (EFH); or as identified by the CDFW, USFWS, and/or NMFS during operations.

Impact 4.5-5: Threaten to eliminate a marine plant or animal wildlife community or cause a fish or marine wildlife population to drop below self-sustaining levels during operations.

Impact 4.5-6: Interfere substantially with the movement of any native marine resident or migratory fish or marine wildlife species or with established native resident or migratory marine wildlife corridors, or impede the use of native marine wildlife nursery sites during operations

Impacts on marine biological resources during operations could result from impingement of organisms or through the accumulation of fine particulate material on the seafloor during pumping of the slant wells, from elevated salinity or other constituents in the brine, or from shear stress[7] on plankton from discharged brine.

Impingement of plankton, larval fish and other organic matter on the seafloor or a potential deterioration of seafloor sediments and soft substrate benthic habitat from the operation of the slant wells is not likely because the ocean currents at the seafloor and swimming speeds of aquatic species are greater than the low intake velocity.

The increased salinity and other constituents in the brine discharge would meet Ocean Plan water quality objectives at the edge of the ZID (see Section 4.3.5.2 for details) and would not affect marine habitat by reducing dissolved oxygen content (hypoxia). Nevertheless, and as discussed in Section 4.3, Surface Water Hydrology and Water Quality, the implementation of **Mitigation Measure 4.3-4** would ensure that monitoring is conducted to confirm that the brine is discharged at concentrations below Ocean Plan water quality objectives and further ensure compliance with the monitoring requirements and regulatory standards that are protective of the beneficial uses (including aquatic wildlife and habitat) of Monterey Bay. In the event that monitoring reveals non-compliance with Ocean Plan water quality objectives, corrective actions would be implemented through implementation of **Mitigation Measure 4.3-5** that would ensure operational discharges adhere to regulatory standards that are protective of beneficial uses.

[7] Shear stress is a strain in the structure of a substance produced by pressure, when its layers are laterally shifted in relation to each other.

Impacts due to shear stress caused by the brine discharge would be limited to plankton, because motile organisms would be able to avoid turbulence in the immediate vicinity of the brine discharge. The impact on plankton from shear stress would be less than significant because of the small percentage of plankton abundances potentially affected in the context of plankton abundance in the study area. Moreover, the Ocean Plan (OP) Provisions for Desalination Facilities require modeling and estimating of potential mortality due to shear stress entrainment, and require periodic re-evaluation to ensure the operational procedures employed result in acceptable plankton mortality (SWRCB, 2016). Ongoing evaluations and analysis, as required by the OP, will ensure that plankton losses remain less than significant, even if influencing factors related to plankton or the potential for plankton loss (plankton abundance, ocean conditions, etc.) fluctuate in the future, as is typical for such a dynamic environment.

Therefore, the operation of the proposed project would not have a substantial adverse effect on any marine biological resources in MBNMS including special-status species, would not cause a fish or marine wildlife population to drop below self-sustaining levels and would not interfere with the movement of any native marine resident or migratory fish or marine wildlife species in MBNMS; the impact would be less than significant.

5.5.5.3 Direct and Indirect Effects of the No Project Alternative

Under the No Project Alternative, no desalination facility would be built and operated, no slant wells would be drilled and no brine would be discharged through the MRWPCA outfall. Therefore, there would be no impacts on marine habitats and taxa as a result of construction activities or operational discharges. There would be beneficial impacts on steelhead under the No Project Alternative while they are present in terrestrial habitat, due to reductions in withdrawals from the Carmel River. For more information, see Section 5.5.6.3. Because the No Project Alternative would have no other direct or indirect impacts with respect to marine biological resources, it could not contribute to cumulative effects.

5.5.5.4 Direct and Indirect Effects of Project Alternative 1 – Slant Wells at Potrero Road

Alternative 1 would supply seawater to the proposed 9.6 mgd desalination plant located at the Charles Benson Road site using the same type of subsurface intake system as the proposed project, but at a different location (described in Section 5.4.3). The desalination plant, brine discharge pipeline, Castroville Pipeline, Pipeline to CSIP Pond, new Desalinated Water Pipeline, new Transmission Main, Terminal Reservoir, ASR components, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be identical to the proposed project described in Chapter 3, Description of the Proposed Project. The location of the slant wells at Potrero Road is the only component unique to Alternative 1 (see **Figure 5.4-1**) that could affect marine biological resources; brine would be discharged through the existing outfall just like the proposed project. Therefore, the marine biological resources impact analysis of Alternative 1 focuses primarily on the effects of the intake system; however, impact conclusions are made for the whole of Alternative 1.

Construction Impacts

The component unique to Alternative 1 that would involve construction in or near the marine resources study area would be the subsurface slant wells at Potrero Road. Just like the proposed project, underwater noise from the drilling operation would be below background underwater noise levels due to attenuation through the seafloor. Slant well drilling activities would occur in the parking lot approximately 600 feet inland from MHW on the back side of the dunes, and the contractor would discharge drilling liquids in accordance with regulatory requirements (see Section 5.5.3 for analysis of construction related water quality impacts). Although the potential impact would be increased from the proposed project because of the additional slant well at Potrero Road, the construction of Alternative 1 would not have a substantial adverse effect on any marine biological resources in MBNMS including special-status species, would not cause a fish or marine wildlife population to drop below self-sustaining levels and would not interfere with the movement of any native marine resident or migratory fish or marine wildlife species in MBNMS. Therefore, Alternative 1 would result in the ***same impact conclusions*** as the proposed project, less than significant.

Operational and Facility Siting Impacts

Unlike the proposed project, groundwater modeling (see **Appendix E2**) indicates pumping from the slant wells at Potrero Road would result in a cone of depression in the underlying groundwater aquifers that would draw or divert water from Elkhorn Slough. This drawdown impact is discussed in Section 5.5.4, Groundwater Resources, and presented in **Figure 5.5-2**. The modeling cannot predict the amount of water diverted from Elkhorn Slough although it must be conservatively assumed, based on the predicted areal extent of the drawdown, that operations could potentially adversely affect aquatic habitat in Elkhorn Slough due to reduced surface water flow and volumes. This would be an increased level of impact compared to the proposed project and because there is no method to mitigate for impacts on surface water flow and volumes in Elkhorn Slough, Alternative 1 would result in an ***increased impact conclusion*** on marine species, natural communities or habitat, protected wetlands or waters, and critical habitats compared to the proposed project, significant and unavoidable.

As described for the proposed project, impingement of plankton, larval fish and other organic matter on the seafloor from the operation of the slant wells at Potrero Road would not occur because ocean currents at the seafloor are greater than the low intake velocities from the slant wells, the increased salinity and other constituents in the brine discharge (see Section 5.5.3) would not threaten to eliminate a marine plant or animal wildlife community or cause a marine population to drop below self-sustaining levels, and would not interfere with the movement of native resident or migratory fish or marine wildlife species. Therefore, Alternative 1 would result in the ***same impact conclusion*** as the proposed project, less than significant.

The brine would be discharged at the same location and at the same concentration as the proposed project (see Section 4.5 for details). Therefore, operational discharge impacts on marine biological resources would be the same as the proposed project, less than significant.

In summary, the operation of Alternative 1 would have a greater potential impact on marine biological resources compared to the proposed project. While the operation of Alternative 1 would not cause a fish or marine wildlife population to drop below self-sustaining levels and would not interfere with the movement of any native marine resident or migratory fish or marine wildlife species in MBNMS, Alternative 1 could cause potentially significant and unavoidable effects on marine species, natural communities or habitat, protected wetlands or waters, and critical habitats in Elkhorn Slough as a result of the groundwater elevation drawdown from project pumping at Potrero Road.

Cumulative Analysis

Cumulative impacts during construction would be the same as those described for the proposed project in Section 4.5.6; the location of the slant wells at Potrero Road and the additional duration associated with construction of one additional slant well would not change the applicable geographic scope of the analysis or the type or intensity of Alternative 1's contributions to cumulative impacts during construction, which would not be cumulatively considerable.

During operations, the impacts associated with seawater intake and brine discharge would be the same as those described for the proposed project in Section 4.5.6. Although the additional impact of Alternative 1 on surface water flow and volumes in Elkhorn Slough would be significant and unavoidable, as discussed in Section 5.5.4.3 regarding groundwater impacts, no other projects are located in the same geographic area and have the potential to affect groundwater resources in the Perched A Aquifer, which in turn could result in impacts on surface water in Elkhorn Slough. Because no other projects would affect surface water flows and volumes in Elkhorn Slough, a cumulative impact analysis is not relevant to this impact.

5.5.5.5 Direct and Indirect Effects of Project Alternative 2 – Open-Water Intake at Moss Landing

Alternative 2 would supply seawater to the proposed 9.6 mgd desalination plant located at the Charles Benson Road site using a screened open-water intake system consisting of an intake structure located offshore in MBNMS and southwest of the Moss Landing Harbor entrance, a subsurface intake pipeline, and an intake pump station (described in Section 5.4.4). The desalination plant, brine discharge pipeline, new Desalinated Water Pipeline, new Transmission Main, Terminal Reservoir, ASR components, Highway 68 interconnection improvements, and the Carmel Valley Pump Station would be identical to the proposed project described in Chapter 3, Description of the Proposed Project. Because the open water intake would eliminate the need for returning source water drawn from the Salinas Valley Groundwater Basin, the Castroville Pipeline, the Pipeline to CSIP Pond, and operational components related to delivering water to Castroville Community Services District would not be implemented.

Therefore, the open water intake system is the unique component of Alternative 2 (see **Figure 5.4-2**) that could affect marine biological resources and this impact analysis focuses primarily on the potential impacts of construction and operation of the intake system; however, impact conclusions are made for the whole of Alternative 2.

Construction Impacts

The construction of an open-water intake, including the placement of the intake structure on the seafloor and the installation of the intake pipeline at the breakout face where the pipeline emerges from the seafloor, would result in a temporary localized disturbance of seafloor habitat, associated marine infaunal and epifaunal community, and habitat function that could have a temporary effect on some special-status fish species. The construction barges and drilling methods employed in installing the pipeline itself would pose temporary obstructions (anchor chains) to the movement of marine mammals and sea turtles, temporary disturbance and possible loss of soft substrate habitat and habitat function for special-status fish and marine mammal species under temporary barge anchors, and increased underwater noise from the construction activities. These activities could cause altered behavior (altered foraging and swimming patterns) in some special status fish, marine mammals, and sea turtles. The possible use of barges from outside Monterey Bay could pose a risk of introducing non-native invasive species attached to their hulls or in their ballast water which could indirectly affect marine community composition and habitat function in Monterey Bay.

These potential impacts would be considered significant and substantially more severe than construction impacts of the proposed project. **Mitigation Measure ALT 2-Marine-1** would require actions to avoid or minimize construction impacts on marine biological resources. While these measures would reduce construction-related impacts on marine biological resources, residual impacts may remain significant due to the sensitivity of the resources. Therefore, the construction of Alternative 2 could result in an increased impact on marine biological resources including candidate, sensitive, or special-status species identified in local or regional plans, policies, regulations or conservation plans during construction and would result in an ***increased impact conclusion*** compared to the proposed project; significant and unavoidable even with implementation of **Mitigation Measure ALT 2-Marine 1**.

While Alternative 2 would have an increased impact on marine biological resources compared to the proposed project because of the in-water construction described above, Alternative 2 would not cause a fish or marine wildlife population to drop below self-sustaining levels and would not interfere with the movement of any native marine resident or migratory fish or marine wildlife species in MBNMS. For these potential affects, Alternative 2 would result in the ***same impact conclusion*** as the proposed project, less than significant. No impacts would occur from the construction of any other proposed facility because none occur within the marine biological resources study area.

Mitigation Measure ALT 2-Marine-1: Marine Construction Measures.

CalAm and/or its contractors shall implement avoidance and minimization measures including, but not limited to:

1. Limit marine construction activities to periods of the year in which marine mammals and sea turtles are not migrating through the area;
2. Prior to construction, conduct seafloor habitat surveys of potential anchor chain corridors to determine locations of sensitive habitats, such as hard bottom substrate habitat, and avoid siting anchor chain corridors within these sensitive habitats;

3. The hulls of non-local work vessels and barges shall be cleaned prior to commencing work in Monterey Bay;
4. On-board qualified marine mammal observers (as defined by NOAA Fisheries) shall be present during all offshore construction activities with a requirement to cease all work if marine mammals or turtles come within 50 yards from the work vessels, and;
5. Provide environmental training to all marine work crews prior to start of construction to prevent environmental incidents. Training shall include information about how to identify marine biological resources to be avoided during construction, protocols for reporting to marine mammal observers, the importance of avoiding impacts on marine biological resources, and measures to avoid or minimize impacts during construction.

In summary, the construction of Alternative 2 would have a greater potential impact on marine biological resources compared to the proposed project because of the in-water construction activities. While the construction of Alternative 2 would not cause a fish or marine wildlife population to drop below self-sustaining levels and would not interfere with the movement of any native marine resident or migratory fish or marine wildlife species in MBNMS, Alternative 2 could result in potentially significant and unavoidable effects on marine species, natural communities or habitat, protected wetlands or waters in Monterey Bay within MBNMS as a result of residual impacts from in-water construction activities.

Operational and Facility Siting Impacts

Alternative 2 would include a screened open water intake within MBNMS that would be anchored to the seafloor and would result in a permanent loss of approximately 3,300 ft^2 of soft substrate benthic habitat, affecting marine species dependent on this habitat and habitat function. This would result in a greater impact compared to the proposed project, which proposes subsurface slant wells and no new structures on the seafloor.

Additionally, the same volume of source water as the proposed project would be provided by a screened open water intake. Consistent with the requirements of the Ocean Plan (SWRCB, 2016), the passive narrow-slot wedgewire screens would have a 1-millimeter (mm) slot size, and the screened intake water velocity would be at or below 0.5 feet per second. Although the screen design and operating intake velocity would be consistent with the requirements of the Ocean Plan, Alternative 2 could still result in an increased long-term impact on pelagic planktonic organisms and community through impingement and entrainment. Direct impingement of larger fish and invertebrate organisms is not expected due to the wedgewire screens and the low flow rate. However, as shown in **Table 4.5-8** in Section 4.5, the swimming speeds of several species of plankton, larval invertebrates, and larval fish are below the 0.5 feet per second intake velocity; therefore, such organisms could be entrained. Operation of Alternative 2 would result in 100 percent mortality of all organisms entrained through the open-water intake. A preliminary baseline characterization of the habitat in the vicinity of the Alternative 2 intake indicates that larval northern anchovy, Pacific sardines, white croaker, sanddab, rockfish, smelt, sculpin, Dungeness crab, cancer crabs, and unidentified larval fish are present and could be entrained (Tenera Environmental, 2014).

The Ocean Plan requires mitigation for loss of marine life or habitat due to the operation of an open ocean intake. Such loss is assessed through the conversion of Empirical Transport Modeling (ETM) results into an estimate of the habitat necessary to replace the production lost due to entrainment, called the Area of Production Foregone (APF). The APF is calculated by multiplying the area of habitat present within the estimated source water that would be drawn into the intake, by the proportional entrainment mortality estimated from ETM, to provide a habitat acreage that may be useful for understanding the extent of compensation required to mitigate impacts from entrainment (SWRCB, 2016). Potential APF for the magnitude of the loss under Alternative 2 was estimated (Luster, 2016) at less than 20 acres and therefore, potential operational impacts would be substantially greater than the proposed project. **Mitigation Measure ALT 2-Marine-2** would be required to minimize and mitigate for impacts on marine biological resources from entrainment. While these measures would minimize impacts on marine biological resources, residual impacts may remain significant due to the uncertainty of the efficacy of the mitigation.

Furthermore, Alternative 2 would use the existing MRWPCA outfall and would generate the same volume of brine discharge, with the same salinity characteristics, as the proposed project (see Section 4.5 for details). Unlike the proposed project however, the open water intake would not pre-filter PCBs through the seafloor and the resultant concentration of PCB in the brine would be greater than the proposed project and unlike the proposed project, Alternative 2 would exceed the Ocean Plan water quality objectives for PCBs (see Section 5.5. 3 for water quality analysis related to operational discharges under Alternative 2). Implementation of **Mitigation Measure 4.3-5** (Implement Protocols to Avoid Exceeding Water Quality Objectives) would reduce the potentially significant impact to a less-than-significant level. Overall, considering loss of benthic habitat, impingement/entrainment, and brine discharge affects, the operation of Alternative 2 would result in a greater impact on marine species, natural community, or habitat, during operations and an ***increased impact conclusion*** compared to the proposed project; impacts would be significant and unavoidable even with implementation of **Mitigation Measure ALT 2-Marine 2** and **Mitigation Measure 4.3-5 (Implement Protocols to Avoid Exceeding Water Quality Objectives)**.

At present, there are no known marine species in Monterey Bay with population numbers suspected of dropping below self-sustaining levels with the exception of the California sea otter. Although sea otters feed within the study area, sea otter prey would not be reduced and other species would not be threatened to go extinct because of entrainment of juvenile larvae and plankton. For the past several decades, the Moss Landing Power Plant has been using approximately 1.2 billion gallons per day of ocean water to cool power plant turbines (Tetra Tech, 2008). The entrainment of larval fish and plankton at the Moss Landing Power Plant has not resulted in effects on local marine species such that populations have been substantially affected. Therefore, the potential would be increased compared to the proposed project for the open-water intake to directly or indirectly threaten a marine plant, animal or wildlife community or cause a fish or marine wildlife population to drop below self-sustaining levels or interfere with the movement of any native marine resident or migratory fish or marine wildlife species in MBNMS but would result in the ***same impact conclusion*** as the proposed project, less than significant.

Mitigation Measure ALT 2-Marine-2: Minimization of and Mitigation for Loss of Marine Life and Habitat.

To ensure that design and operation of the Alternative 2 open ocean intake complies with the requirements of the California Ocean Plan, CalAm and/or its contractors shall:

1. In addition to implementing the required design standard of screening the open ocean intake using a screen with a 1.0-millimeter or smaller slot size screen, and the required operational standard of limiting through-screen velocity at the intake to not exceed 0.15 meters per second (0.5 feet per second), implement the best available technology feasible to minimize intake and mortality of all forms of marine life in the context of design and operation of an open ocean intake. Submit design of the open ocean intake to the RWQCB, CPUC, and MBNMS for review and approval.

2. Prepare a Marine Life Mortality Report to estimate the marine life mortality resulting from construction and operation of the facility after implementation of the facility's required site, design, and technology measures. The report shall use the methods specified in chapter III.M.2.e.(1) of the Ocean Plan, including using the Empirical Transport Model (ETM)/Area of Production Forgone (APF) approach to estimate entrainment impacts. Submit the draft report to RWQCB, CPUC, and MBNMS with the item 1 design submittal, for review and approval.

3. Based on the results of the report prepared in item 2, implement measures to meet the Ocean Plan fully mitigated standard of replacement of all forms of marine life or habitat lost. This can be accomplished in one of the following two ways or as a combination of both:

    a. *Mitigation Project*: Implement a mitigation project satisfying the provisions listed in Ocean Plan chapter III.M.2.e.(3), including preparing and submitting a Mitigation Plan as described in subsection (a) and meeting the requirements of subsection (b). Submit the Mitigation Plan to RWQCB, CPUC, and MBNMS for review and approval.

    b. *Fee-Based Mitigation Program*: If the RWQCB determines that an appropriate fee-based mitigation program has been established by a public agency, and that payment of a fee to the mitigation program will result in the creation and ongoing implementation of a mitigation project that meets the requirements of Ocean Plan chapter III.M.2.e.(3), CalAm may pay a fee to the mitigation program in lieu of completing a mitigation project. If implementation of this option is feasible, CalAm shall adhere to the requirements of chapter III.M.2.e.(4).

    For either of the above options, CalAm shall ensure that the requirements of Ocean Plan chapter III.M.2.e.(5 and 6) are met regarding site inspections of mitigation projects and mitigation project performance reporting.

In addition to physical impacts, Alternative 2 may be inconsistent with MBNMS Desalination Guidelines (NOAA, 2010), with regard to its open water intake. Guidelines state that "all desalination plants should be designed and sited to avoid and minimize impingement and entrainment to the extent feasible. Project proponents should investigate the feasibility of using subsurface intakes as an alternative to traditional intake methods."

Cumulative Analysis

The geographic scope for the cumulative analysis of the components of Alternative 2 that differ from the proposed project (i.e., the proposed open water intake) includes Monterey Bay, which is within MBNMS. The only project relevant to the cumulative scenario for Alternative 2 is the DeepWater Desal project (No. 34), described in **Table 4.1-2** in Section 4.1. The proximity of the DeepWater Desal project to the Monterey Canyon increases the potential risk to different fish and marine mammal species.

Assuming both Alternative 2 and the DeepWater Desal project are implemented, each with their proposed open water intakes, the construction of both Alternative 2 and the DeepWater Desal project would increase the temporary disturbance to marine soft substrate habitats, and increase disturbances to marine mammal and sea turtle movements from work barge anchors, anchor cables and underwater noise. Additionally, the increased magnitude of the marine construction effort required for DeepWater Desal would increase the risk of introducing non-native invasive species from work barges that originate from outside Monterey Bay. As described above, these impacts can be reduced through implementation of mitigation such as **Mitigation Measure ALT 2-Marine-1**; however, it is assumed that residual impacts may remain significant due to the sensitivity of the resources. Therefore, the cumulative impact from construction of Alternative 2 and the DeepWater Desal Project would be significant and unavoidable and Alternative 2 would have a cumulatively considerable contribution to this significant impact, even with implementation of mitigation.

Alternative 2 and the DeepWater Desal Project would result in the combined permanent loss of approximately 20,000 ft^2 (about 0.5 acre) of benthic habitat. Additionally, the operation of the open-water intake would result in the entrainment of plankton and larval fish, including those of the DeepWater Desal project (APF of greater than 40 acres), resulting in a cumulative APF estimated at approximately 60 acres (Luster, 2016). However, the existing Moss Landing Power Plant (MLPP) continues to draw 1.2 billion gallons per day for cooling water, which also results in the entrainment of larval fish and plankton. Through a settlement agreement executed on October 9, 2014 between the SWRCB and the current owner of the power plant, the MLPP must reduce its intake of cooling water to meet an 83.7 percent or greater reduction in mortality from entrainment and impingement impacts beginning with reductions on December 31, 2016 and achieving full compliance by December 31, 2020. The MLPP owner has indicated its intention to retrofit the power plant's four generating units to reduce entrainment and impingement impacts in compliance with the Once-Through-Cooling (OTC) policy and this would likely occur prior to the operation of any desalination project in Moss Landing. Regardless, these potential losses are considered a significant cumulative impact. As stated above, mitigation such as **Mitigation Measure ALT 2-Marine-2** would be necessary to compensate for the loss of habitat, but the efficacy of the available mitigation options has not been tested. Therefore, Alternative 2 could still result in a cumulatively considerable contribution and the cumulative impacts would be significant and unavoidable.

Because the open water intake would not pre-filter the PCBs through the seafloor, the PCB levels in the brine discharge could result in exceedances of Ocean Plan water quality objectives. For the same reasons described for exceedances of salinity objectives in Section 4.5.6, this would result

in a cumulatively considerable contribution to a potentially significant cumulative impact related to PCB concentrations. However, implementation of **Mitigation Measure 4.3-5** would reduce the concentration of PCBs in brine discharge to a level that meets Ocean Plan water quality objectives and is therefore not cumulatively considerable (less than significant with mitigation).

5.5.5.6 Direct and Indirect Effects of Project Alternative 3 – Monterey Bay Regional Water Project (MBRWP or DeepWater Desal Project)

Alternative 3 includes the construction and operation of a screened open ocean intake system and a brine discharge system located on the seafloor in Monterey Bay within MBNMS, subsurface pipelines connecting a pump station on Dolan Road to these intake and discharge systems, a seawater desalination facility and co-located data center, and associated components to provide up to 25,000 afy of potable water and data transmission and storage services. The construction and operation of the screened open water intake, the brine discharge facility and the HDD construction of the intake and brine discharge pipelines are the unique components of Alternative 3 that could affect marine biological resources.

In addition to the desalination plant and co-located data center, Alternative 3 would include 6.5 miles of additional desalinated water pipeline to connect with the CalAm system and up to an additional 25 miles of pipelines to convey desalinated water to other areas (total of 31.5 miles of additional pipeline).

Several components of Alternative 3 would be identical to the proposed project: the new Transmission Main, new desalinated water pipeline south of the “Connection to CalAm” Point on **Figure 5.4-3**, ASR 5 and 6 wells and ASR pipeline, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be as described in Chapter 3, Description of the Proposed Project, but these components would not affect marine biological resources and are not discussed. Therefore, the marine biological resources impact analysis of Alternative 3 focuses primarily on the new intake and discharge; however, impact conclusions are made for the whole of Alternative 3.

Construction Impacts

Alternative 3 would include the construction of a new screened open water intake system and a new brine discharge system in Monterey Bay within MBNMS. Offshore construction activities would be greater than those described for Alternative 2 because of the larger intake system, the additional discharge structure, and the two intake and two brine discharge pipelines; temporary disturbances and/or loss of seafloor habitat and function would be greater than those discussed for Alternative 2. Construction barges used during placement of both intake and discharge structures would pose temporary obstructions (anchor chains), temporary disturbance and possible loss of soft substrate habitat. HDD construction equipment would be used to install the two intake and two discharge pipelines under the ocean floor and would result in increased underwater noise compared to the proposed project. These activities could cause altered behavior (altered foraging and swimming patterns) in some special status fish, marine mammals, and sea turtles. The

possible use of barges from outside Monterey Bay could pose a risk of introducing non-native invasive species and result in collisions with marine mammals and sea turtles.

Similar to Alternative 2, mitigation would be required to reduce the short and long-term impacts of construction on marine biological resources in MBNMS. Although implementation of **Mitigation Measure ALT 2-Marine-1** or similar measures would reduce this impact, it would not be reduced to a less-than-significant level for the same reasons described for Alternative 2. Therefore, compared to the proposed project, the construction of Alternative 3 could result in a substantially increased impact on marine biological resources including candidate, sensitive, or special-status species identified in local or regional plans, policies, regulations or conservation plans during construction and would result in an ***increased impact conclusion*** compared to the proposed project; significant and unavoidable even with implementation of **Mitigation Measure ALT 2-Marine 1**.

Alternative 3 would have an increased impact on marine biological resources compared to the proposed project because of the in-water construction described above, but would not cause a fish or marine wildlife population to drop below self-sustaining levels and would not interfere with the movement of any native marine resident or migratory fish or marine wildlife species in MBNMS. Therefore, Alternative 3 would have the ***same impact conclusion*** as the proposed project, less than significant. No impacts would occur from the construction of any other proposed facility because none occur within the marine biological resources study area.

Operational and Facility Siting Impacts

Anchoring of the Alternative 3 intake and outfall structures with collars and ballast rock would result in approximately 16,700 ft^2 of permanent loss of seafloor habitat (about 0.4 acres). This would be a significant and substantially greater impact compared to the proposed project, which would not involve placement of any structures on the seafloor.

Additionally, Alternative 3 would draw up to 55 mgd of source water (compared to 24.1 mgd for the proposed project and Alternatives 1 and 2) through a screened open-water intake. A preliminary assessment determined that northern anchovy, Pacific sardines, white croaker, sanddab, rockfish, smelt, sculpin, Dungeness crab, cancer crabs, and unidentified larval fish would all be entrained (Tenera Environmental, 2014).

The potential ETM/APF for this alternative was estimated at greater than 40 acres (Luster, 2016), and similar to Alternative 2, would require mitigation. **Mitigation Measure ALT 2-Marine-2** would be required to minimize and mitigate for impacts on marine biological resources, but similar to Alternative 2, residual impacts may remain due to the uncertainty of the efficacy of the mitigation.

Furthermore, the Alternative 3 brine discharge would result in an increased impact on marine resources within MBNMS compared to the proposed project since both the volume (about 27 mgd compared to about 14 mgd for the proposed project) and concentration of the brine (about 66 ppt compared to about 58 ppt for the proposed project) would be greater. Modeling performed for the alternative by the proponent determined that the area of salinity that would exceed 2 ppt

above natural background levels would extend almost to the boundary of the BMZ, up to 315 feet from the outfall diffuser (Jenkins, 2016). Modeling performed for this EIR/EIS (**Appendix D1**) indicates the brine discharge from the proposed project would only exceed 2 ppt above ambient within a small area at the port and above the seafloor; the brine from the proposed project would be under 2 ppt where it contacts the seafloor within 30 feet of the diffuser (see Section 5.5.3 for details). Therefore, Alternative 3 would result in a larger area of the seafloor that would be exposed to increased salinity concentrations, could potentially cause hypoxia as a result of the extent of the seafloor area exposed to salinities exceeding 2 ppt (i.e. the majority of the area within the BMZ boundary), and could pose direct and indirect impacts on marine fish, invertebrates, marine mammals, and sea turtles in the pelagic waters of the BMZ.

Unlike the proposed project, the open water intake would not pre-filter PCBs through the seafloor; the concentration of PCB-levels in the brine discharge would be greater than the proposed project and would exceed the Ocean Plan water quality objective for PCBs at the edge of the ZID (see Section 5.5.3 for analysis of operational water quality impacts associated with Alternative 3). Implementation of **Mitigation Measure 4.3-5 (Implement Protocols to Avoid Exceeding Water Quality Objectives**), as described and analyzed in Section 4.3, would reduce the potentially significant impact to less-than-significant.

In addition, the cooling of the proposed co-located data center would increase the temperature of the brine by up to10° C above ambient ocean waters (the proposed project would have no heat gain). The increased temperature can be expected to result in potential additional impacts adjacent to the outfall, including the establishment of non-native invasive invertebrate and fish species in Monterey Bay by changing the conditions around the outfall to be more habitable.

Therefore, the operation of Alternative 3 would result in a greater impact on marine species, natural community, or habitat, during operations and would result in an ***increased impact conclusion*** compared to the proposed project; impacts would be significant and unavoidable even with implementation of **Mitigation Measure ALT 2-Marine 2** and **Mitigation Measure 4.3-5 (Implement Protocols to Avoid Exceeding Water Quality Objectives)**.

At present, there are no known marine species in Monterey Bay with population numbers suspected of dropping below self-sustaining levels with the exception of the California sea otter which feeds within the study area. Other species would not be threatened to go extinct because of entrainment of juvenile larvae and plankton. Therefore, the potential for the open-water intake to directly or indirectly threaten a marine plant, animal or wildlife community or cause a fish or marine wildlife population to drop below self-sustaining levels would be similar to, and would result in the ***same impact conclusion*** as the proposed project, less than significant.

Overall, the operations of Alternative 3 would have a greater impact on marine biological resources in MBNMS compared to the proposed project because of the potential impingement and entrainment resulting from the screened open water intake; from the increased area of seafloor that could be exposed to salinity greater than 2 ppt above ambient; from the increased levels of PCBs in the discharge water; and from the increased heat gain from cooling the co-located data center. It is unknown what mitigation measures would be required to protect the

marine biological resources, and whether they would be effective in reducing impacts to less than significant. Therefore, impacts on marine biological resources including candidate, sensitive, or special-status species would be significant and unavoidable even with mitigation. However, the operations of Alternative 3 would not substantially threaten a marine plant, animal or wildlife community or cause a fish or marine wildlife population to drop below self-sustaining levels, and would not interfere with the movement of any native marine resident or migratory fish or marine wildlife species in MBNMS.

In addition to physical impacts, Alternative 3 may be inconsistent with MBNMS Desalination Guidelines (NOAA, 2010), with regard to its open water intake and lack of a combined discharge. Guidelines state:

- All desalination plants should be designed and sited to avoid and minimize impingement and entrainment to the extent feasible. Project proponents should investigate the feasibility of using subsurface intakes as an alternative to traditional intake methods.
- Project proponents should investigate the feasibility of diluting brine effluent by blending it with other existing discharges.

Cumulative Analysis

The geographic scope for the Alternative 3 cumulative impact assessment is Monterey Bay, within MBNMS. However, for the reasons described in Section 4.5.6 and in Section 5.5.1, no other reasonably foreseeable projects described in **Table 4.1-2** in Section 4.1 would have the potential to combine with the effects of Alternative 3 to cause a cumulative effect on marine biological resources. However, the existing MLPP continues to draw 1.2 billion gallons per day for cooling water, which also results in the entrainment of larval fish and plankton. Through a settlement agreement executed on October 9, 2014 between the SWRCB and the current owner of the power plant, the MLPP must reduce its intake of cooling water to meet an 83.7 percent or greater reduction in mortality from entrainment and impingement impacts beginning with reductions on December 31, 2016 and achieving full compliance by December 31, 2020. The MLPP owner has indicated its intention to retrofit the power plant's four generating units to reduce entrainment and impingement impacts in compliance with the OTC policy, and this would likely occur prior to the operation of any desalination project in Moss Landing. No other reasonably foreseeable projects in the context of Alternative 3 would construct or use an open water intake or new discharge pipeline or result in additional brine discharges in Monterey Bay. Therefore, a cumulative impact analysis is not relevant to Alternative 3.

5.5.5.7 Direct and Indirect Effects of Project Alternative 4 – People's Moss Landing Water Desalination Project (People's Project)

Alternative 4 includes the construction and operation of an open ocean intake, a brine discharge system, intake and discharge pipelines, and supporting ballast rock located on the seafloor in Monterey Bay within MBNMS, as well as a 12 mgd desalination plant and associated facilities to provide 13,400 afy of water supply to meet the current and future needs of the Monterey Peninsula. The desalination plant, open water intake system, brine discharge system, and the

additional 6.5 miles of desalinated water pipeline are the components unique to Alternative 4 (see **Figure 5.4-4**).

Several components would be identical to the proposed project: the new Transmission Main, new desalinated water pipeline south of the "Connection to CalAm" Point on **Figure 5.4-4**, ASR-5 and -6 wells and ASR pipelines, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be as described in Chapter 3, Description of the Proposed Project. Because this alternative would have an open water intake that would eliminate the need for returning source water that originated from the Salinas Valley Groundwater Basin, the proposed Castroville Pipeline, Pipeline to CSIP Pond, and operational components related to delivering water to CCSD would not be implemented.

The construction and operation of the screened open water intake, the brine discharge facility and the construction of the source water and brine discharge pipelines are the unique components of Alternative 4 that could affect marine biological resources. Therefore, the marine biological resources impact analysis of Alternative 4 focuses primarily on these components; however, impact conclusions are made for the whole of Alternative 4.

Construction Impacts

Some of the components of Alternative 4 would utilize existing infrastructure; existing pipelines would be rehabilitated to convey source water and brine between the new desalination plant and the existing caisson on the beach, which would also be rehabilitated. But rather than using HDD to install the entire offshore portion of the pipelines, new intake and discharge pipelines would be laid on the seafloor with concrete collars and protected with approximately 100,000 cubic yards of riprap armoring along the last 1,100 feet and 700 feet, respectively.

Pipeline and intake and discharge system installation activities would result in increased underwater noise, temporary restrictions/barriers to whale and turtle movements, potential vessel collisions with marine mammals and sea turtles, and increased risk of introducing non-native invasive species from the use of construction barges. Similar to Alternatives 2 and 3, mitigation would be required to reduce the short and long-term impacts of construction in MBNMS. Although implementation of **Mitigation Measure ALT 2-Marine-1** or similar measures would reduce this impact, it would not be reduced to a less-than-significant level for the same reasons described for Alternatives 2 and 3. Therefore, the construction of Alternative 4 could result in an increased impact on marine biological resources including candidate, sensitive, or special-status species identified in local or regional plans, policies, regulations or conservation plans during construction and would result in an ***increased impact conclusion*** compared to the proposed project; significant and unavoidable even with implementation of **Mitigation Measure ALT 2-Marine 1**.

Alternative 4 would have an increased impact on marine biological resources compared to the proposed project because of the in-water construction described above, but would not cause a fish or marine wildlife population to drop below self-sustaining levels and would not interfere with the movement of any native marine resident or migratory fish or marine wildlife species in

MBNMS. Therefore, Alternative 4 would have the ***same impact conclusion*** as the proposed project, less than significant. No impacts would occur from the construction of any other proposed facility because none occur within the marine biological resources study area.

Operational and Facility Siting Impacts

The permanent structures on the seafloor under Alternative 4 would result in the permanent loss of approximately 43,200 ft^2 (about 1 acre) of benthic habitat (1,800 feet of pipeline with 12 feet of riprap per side), affecting marine species dependent on this habitat and habitat function. Additionally, Alternative 4 would require up to 30 mgd of source water (compared to 24.1 mgd for the proposed project, and Alternatives 1 and 2) through a screened open-water intake. A preliminary assessment determined that northern anchovy, Pacific sardines, white croaker, sanddab, rockfish, smelt, sculpin, Dungeness crab, cancer crabs, and unidentified larval fish would all be entrained (Tenera Environmental, 2014).

The potential APF for the magnitude of the intake under Alternative 4 was estimated at greater than 20 acres (Luster, 2016) and, similar to Alternatives 2 and 3, would require mitigation. Although implementation of **Mitigation Measure ALT 2-Marine-2** or similar measures would reduce operational impacts, they would not be reduced to a less-than-significant level due to the uncertainty of the efficacy of the mitigation.

Furthermore, impacts associated with brine discharge would be increased compared to the proposed project since the volume and concentration of the brine would be greater (about 17 mgd compared to about 14 mgd for the proposed project). No dilution modeling conducted by the proponent, if any, has been made available; therefore, it is currently unknown if the proposed 16-inch diffusers would be capable of meeting salinity concentrations and other Ocean Plan water quality objectives. Unlike the proposed project, the open water intake would not pre-filter PCBs through the seafloor and the concentration of the PCB-levels in the brine discharge would be greater than the proposed project. Implementation of a measure similar to **Mitigation Measure 4.3-5** (Implement Protocols to Avoid Exceeding Water Quality Objectives) could potentially reduce the significant impact. However, the design of the diffuser is not consistent with the Ocean Plan which states that brine discharge technologies other than wastewater dilution and multiport diffusers may be used if an owner or operator can demonstrate to the regional water board that the technology provides a comparable level of intake and mortality of all forms of marine life. It has not been demonstrated that the 16-inch diffusers would be effective at reducing the impacts since there has been no modeling conducted by the proponent, it is unknown if other mitigation would be required to protect the marine biological resources within MBNMS, and whether mitigation would be effective in reducing impacts to less than significant. Therefore, the overall operation of Alternative 4 would result in a greater potential impact on marine species, natural community, or habitat, during operations and would result in an ***increased impact conclusion*** compared to the proposed project; impacts would be significant and unavoidable even with implementation of **Mitigation Measure ALT 2-Marine 2** and **Mitigation Measure 4.3-5 (Implement Protocols to Avoid Exceeding Water Quality Objectives)**.

At present, there are no known marine species in Monterey Bay with population numbers suspected of dropping below self-sustaining levels with the exception of the California sea otter which feeds within the study area. Other species would not be threatened to go extinct because of entrainment of juvenile larvae and plankton. Therefore, the potential for Alternative 4 to directly or indirectly threaten a marine plant, animal or wildlife community or cause a fish or marine wildlife population to drop below self-sustaining levels would be similar to, and would result in the ***same impact conclusion*** as the proposed project, less than significant.

In addition to physical impacts, Alternative 4 may be inconsistent with MBNMS Desalination Guidelines (NOAA, 2010), with regard to its open water intake and lack of a combined discharge. Guidelines state:

- All desalination plants should be designed and sited to avoid and minimize impingement and entrainment to the extent feasible. Project proponents should investigate the feasibility of using subsurface intakes as an alternative to traditional intake methods.
- Project proponents should investigate the feasibility of diluting brine effluent by blending it with other existing discharges.

Cumulative Analysis

The geographic scope for the Alternative 4 cumulative impact assessment is Monterey Bay, within MBNMS. The only project relevant to the cumulative scenario for Alternative 4 is the DeepWater Desal project (No. 34), described in **Table 4.1-2** in Section 4.1.

Cumulative impacts from construction would be of a similar nature to those described for the cumulative scenario under Alternative 2, though increased due to the larger area of temporary construction impacts under Alternative 4. For the same reasons described for Alternative 2, even with mitigation, Alternative 4 would result in a cumulatively considerable contribution to the significant and unavoidable cumulative impacts of construction (significant and unavoidable).

Combined, Alternative 4 (43,200 ft^2) and the DeepWater Desal Project (16,700 ft^2) would result in the permanent loss or change of approximately 59,900 ft^2 of benthic habitat. Additionally, the operation of the open-water intake would result in the entrainment of plankton and larval fish, including those of the DeepWater Desal project (APF of greater than 40 acres), resulting in a cumulative APF estimated at greater than 60 acres (Luster, 2016). However, the existing MLPP continues to draw 1.2 billion gallons per day for cooling water, which also results in the entrainment of larval fish and plankton. Through a settlement agreement executed on October 9, 2014 between the SWRCB and the current owner of the power plant, the MLPP must reduce its intake of cooling water to meet an 83.7 percent or greater reduction in mortality from entrainment and impingement impacts beginning with reductions on December 31, 2016 and achieving full compliance by December 31, 2020. The MLPP owner has indicated its intention to retrofit the power plant's four generating units to reduce entrainment and impingement impacts in compliance with the OTC policy and this would likely occur prior to the operation of any desalination project in Moss Landing. Regardless, these potential losses are considered a significant cumulative impact. As stated above, mitigation to compensate for the loss of habitat

would be necessary, but the efficacy of the available mitigation options has not been tested. Therefore, Alternative 4 plus the DeepWater Desal Project could still result in a significant and unavoidable impact, with Alternative 4 having a cumulatively considerable contribution to such cumulative impact (significant and unavoidable).

Because it is unknown if the proposed 16-inch diffusers are capable of meeting salinity concentrations and other Ocean Plan water quality objectives, and because the open water intake would not pre-filter the PCBs through the seafloor, the salinity, PCB, and other Ocean Plan constituent levels in the brine discharge could result in exceedances of Ocean Plan water quality objectives. For the same reasons described for exceedances of salinity objectives in Section 4.5.6, this would result in a cumulatively considerable contribution to a potentially significant cumulative impact related to salinity and other Ocean Plan constituent concentrations. For salinity and other Ocean Plan constituents, it is unknown whether mitigation would be effective in reducing impacts to a level that is not cumulatively considerable (significant and unavoidable).

5.5.5.8 Direct and Indirect Effects of Alternative 5 – Reduced Desal Project 5a (CEMEX) and 5b (Potrero Road)

Alternative 5a would include the seawater intake system at the CEMEX site (the same location as the proposed project), but would include only seven subsurface slant wells (the converted test well and six new wells) and the same source water pipeline as the proposed project. Alternative 5b would include seven new wells at the western end of Potrero Road (the same location as Alternative 1) and the same source water pipeline as Alternative 1. Both Alternatives 5a and 5b would include a reduced-capacity desalination plant (6.4 mgd), and all other components would be the same as the proposed project.

Construction Impacts

Construction impacts of Alternatives 5a and 5b would be of the same types as described for the proposed project and Alternative 1, respectively, but reduced in proportion to the reduced number of slant wells. Therefore, Alternative 5 would result in reduced impact on marine biological resources within MBNMS, and would result in the ***same impact conclusion*** compared to the proposed project, less than significant.

Operational and Facility Siting Impacts

Slant well operation under Alternative 5a would be the same as the proposed project and would not affect marine biological resources. However, for the same reasons explained for Alternative 1, pumping from slant wells at Potrero Road under Alternative 5b would result in drawing or diverting water from Elkhorn Slough. This would result in a greater impact on marine biological habitat and associated species compared to the proposed project and Alternative 1; therefore, Alternative 5b would result in an ***increased impact conclusion*** compared to the proposed project because of the drawdown and the impact would be significant and unavoidable.

Impacts from brine discharges under Alternatives 5a and 5b would result in a reduced impact compared to the proposed project and Alternative 1 due to the decreased brine discharge volumes

(about 9 mgd compared to about 14 mgd for the proposed project and Alternative 1). However, the implementation of **Mitigation Measure 4.3-4** would require CalAm to monitor the discharges to ensure the modeled dilutions are being met, and if not, **Mitigation Measure 4.3-5** would reduce or avoid the impact on water quality and thus reduce or avoid impacts on marine habitats and biota, including special-status species. Alternative 5 would result in the ***same impact conclusion*** compared to the proposed project, less than significant with mitigation.

At present, there are no known marine species in Monterey Bay with population numbers suspected of dropping below self-sustaining levels with the exception of the California sea otter which feeds within the study area. The operation of Alternative 5a and 5b would not cause a fish or marine wildlife population to drop below self-sustaining levels and would not interfere with the movement of any native marine resident or migratory fish or marine wildlife species in MBNMS. Therefore, Alternative 5a and 5b and would result in the ***same impact conclusion*** as the proposed project, less than significant.

Cumulative Analysis

Combined Impacts with GWR Project

The GWR Project (No. 59) described in **Table 4.1-2** in Section 4.1 would discharge reverse osmosis-treated effluent through the MRWPCA's existing outfall. The water quality effects of the various discharge scenarios in the cumulative context of Alternative 5 and the GWR Project are described in Section 5.5.3.7 in the cumulative analysis of surface water quality impacts under Alternative 5. As described therein, all discharges associated with the Alternative 5 cumulative scenario would result in salinity less than 2 ppt above ambient levels at the edge of the ZID and at the edge of the BMZ, and would therefore not exceed or violate the salinity standards or degrade water quality in terms of salinity, and thus be protective of the marine biota and habitat of Monterey Bay. However, implementation of **Mitigation Measures 4.3-4** and **4.3-5** are necessary to ensure compliance with Ocean Plan objectives and requirements. The combined impact of Alternative 5 and the GWR Project would result in the same impact conclusion on marine resources related to brine discharges compared to the proposed project, less than significant with mitigation.

Section 5.5.3.7 also describes combined water quality impacts of Alternative 5 and the GWR Project related to other Ocean Plan constituents, and conservatively assumes that an exceedance of Ocean Plan water quality objectives could occur as a result of discharges from Alternative 5 and the GWR Project. Exceedances of Ocean Plan water quality objectives could result in significant impacts on marine resources, of which these water quality objectives are meant to be protective. Alternative 5 could result in a cumulatively considerable contribution to this significant combined impact, but implementation of **Mitigation Measure 4.3-5** would reduce combined impacts, and Alternative 5's contribution, to less than cumulatively considerable (less than significant with mitigation).

Impacts of Full Cumulative Scenario

The cumulative setting and geographic area for Alternatives 5a and 5b would be the same as that described in Section 4.5.6 and as for Alternative 1. With the exception of impacts related to brine

discharge, cumulative impacts from the construction and operation of Alternative 5a would be the same or slightly less than those described for the cumulative impacts for the proposed project, as described in Section 4.5.6. Therefore, Alternative 5a would not result in a considerable contribution to cumulative impacts on marine habitats and associated biological resources and cumulative impacts would be less than significant. Alternative 5b would have the same type and intensity of effects as Alternative 5a, but would result in the additional impact on surface water flows and volumes in Elkhorn Slough, as described above. Although the additional impact of Alternative 5b on surface water flow and volumes in Elkhorn Slough would be significant and unavoidable, as discussed in Section 5.5.4.3 regarding groundwater impacts, no other projects are located in the same geographic area and have the potential to affect groundwater resources in the Perched A Aquifer, which in turn could result in impacts on surface water in Elkhorn Slough. Because no other projects would affect surface water flows and volumes in Elkhorn Slough, a cumulative impact analysis is not relevant to this impact.

5.5.5.9 References

Applied Marine Science (AMS), 2016. *Plankton Community of Monterey Bay*. Technical Memorandum. Prepared by G.M. Berg, D. Hardin, and S.E. Thomas, July 12, 2016.

Caffrey, J., M. Brown, W.B. Tyler, and M. Silberstein, 2002. *Changes in a California Estuary: A profile of Elkhorn Slough.* Elkhorn Slough Foundation.

California Natural Diversity Database (CNDDB), 2010. Moss Landing, Prunedale 7.5-minute USGS Quadrangle.

Elkhorn Slough Foundation, 2011. Press Release: The Stork Visits Elkhorn Slough. May 6, 2011.

Elkhorn Slough Foundation, 2016. Elkhorn Slough Foundation. Available online at http://www.elkhornslough.org/esf/. Accessed December 23, 2016.

Jenkins, S. and Wasyl, J., 2016. *Brine Dilution Analysis for DeepWater Desal, LLC, Monterey Bay Regional Water Project at Moss Landing, CA*. June 23, 2014; Revised March 18, 2016.

Luster, 2016. Email from Tom Luster, California Coastal Commission, Re: Key Issues Discussed at March 4th multi-agency meeting with DeepWater Desal. June 30.

Monterey County Resource Management Agency (MCRMA), 2014. *Moss Landing Community Plan; Revised Draft*. July 2014.

Monterey Peninsula Water Management District (MPWMD), 2016. *Addendum to the Aquifer Storage and Recovery Project Environmental Impact Report/Environmental Assessment and the Pure Water Monterey/Groundwater Replenishment Project Environmental Impact Report for the Hilby Avenue Pump Station*. Prepared by Denise Duffy and Associates, June 14, 2016.

Monterey Regional Water Pollution Control Agency and Monterey Peninsula Water Management District (MRWPCA and MPWMD), 2016. *Consolidated Final Environmental Impact Report for the Pure Water Monterey Groundwater Replenishment Project, Volume IV, Exhibit B.* Prepared by Denise Duffy and Associates, January 2016.

NOAA, 2008. *Habitat Connections, Restoring the Olympia Oyster (Ostrea conchaphila), Volume 6, Number 2, 2008*. Available online at http://www.oyster-restoration.org/wp-content/uploads/2012/06/OlympiaOysterHabitatConnections.pdf. Accessed December 23, 2016.

National Oceanic and Atmospheric Administration, 2010. *Guidelines for Desalination Plants in the Monterey Bay National Marine Sanctuary*. Prepared by NOAA's Monterey Bay National Marine Sanctuary and National Marine Fisheries Service. May 2010.

Oakden, J.M. and J.W. Nybakken. 1977. *Preliminary baseline studies of the intertidal sand beach at Moss Landing*. In: Nybakken et al. (eds), Ecologic and hydrologic studies of Elkhorn Slough, Moss Landing Harbor, and nearshore coastal waters. Moss Landing Marine Laboratories Technical Publication, 77-1, 1977.

State Water Resources Control Board (SWRCB), 2016. *Water Quality Control Plan – Ocean Waters of California*. California Ocean Plan, 2015. Effective January 28, 2016.

Tenera Environmental, 2007. *Moss Landing Power Plant Units 1&2 and Units 6&7, Impingement Study Data Report. Prepared by Tenera Environmental for the California Energy Commission.* March 2007.

Tenera Environmental, 2014. *Draft Moss Landing Desalination Plant Intake Impact Assessment: Larval Entrainment*. May 2014.

Tetra Tech, 2008. California's Coastal Power Plants: Alternative Cooling System Analysis. Appendix J: Moss Landing Power Plant. Prepared by Tetra Tech In. Prepared for the California Ocean Protection Council. February 2008. Pp 47.

U.S. Fish and Wildlife Service (USFWS), 2005. Endangered and Threatened Species; Designation of Critical Habitat for Seven Evolutionary Units of Pacific Salmon and Steelhead in California; Final Rule. 50 CFR Part 226. September 2.

USFWS, 2014. Tidewater Goby (*Eucyclogobius newberryi*). Available online at http://www.fws.gov/arcata/es/fish/Goby/goby.html. Accessed December 23, 2016.

Yoklavich, M., G. Cailliet, D. Oxman, J. P. Barry, and D.C. Lindquist, 2002. Fishes. In Caffrey, J., M. Brown, W.B. Tyler, and M. Silberstein (eds.). Changes in a California Estuary: a Profile of Elkhorn Slough. 163-185 p.

5.5.6 Terrestrial Biological Resources

The evaluation criteria for Terrestrial Biological Resources address: candidate, sensitive, or special-status species; riparian habitat or other sensitive natural communities; critical habitat; federally protected wetlands, federal "other waters," and waters of the state; movement of native resident or migratory fish or wildlife species, established native resident or migratory wildlife corridors, or native wildlife nursery sites; consistency with local policies or ordinances protecting biological resources; spread of invasive non-native species; and consistency with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan.

5.5.6.1 Setting/Affected Environment

The general environmental setting and regulatory framework for components of the alternatives in common with the proposed project would be similar to that described for the proposed project in Section 4.6.

Several alternatives include a pipeline route in common, which extends north from Charles Benson Road along an abandoned railroad alignment to Monte Road, then follows Nashua Road, Molera Road and Highway 1 to either Potrero Road (Alternatives 1 and 5b) or Dolan Road (Alternatives 2, 3, and 4). Vegetation communities and wildlife habitats along this route are primarily agricultural fields, but with several crossings of tidal rivers and sloughs (Salinas River, Old Salinas River, Tembladero Slough, and Moro Cojo Slough). Salt marsh and brackish marsh vegetation is associated with the latter three, and is therefore in greater abundance than in the study area for the proposed project.

Alternative 1 and 5b slant wells at Potrero Road would be situated in an existing unpaved parking lot, but adjacent to restored and native central dune scrub vegetation with a potential to support special status plant and wildlife species.

The East Tank Farm Parcel (Alternative 3) is a remediated and capped site that supports non-native grassland and seasonal wetlands, with the potential to support California red-legged frog, California tiger salamander, and Santa Cruz long-toed salamander aquatic breeding and upland aestivation habitat (EMC Planning Group, Inc., 2016). This habitat type also supports burrowing owl, nesting birds, and American badger, as well as special-status plants.

The former National Refractories facility site (Alternative 4) is a largely disturbed post-industrial site with magnesium oxide waste, but includes a small drainage and salt marsh vegetation connected hydrologically to Moro Cojo Slough.

5.5.6.2 Direct and Indirect Effects of Proposed Project (Slant Wells at CEMEX)

Impact 4.6-1: Result in substantial adverse effects on species identified as candidate, sensitive, or special-status, either directly or through habitat modification, during construction.

Construction could result in direct impacts on special-status plants through mortality of individuals during earthwork and loss of habitat. Indirect impacts on plants can result from population fragmentation, introduction of non-native weeds, and interference with plant metabolic processes from construction effects such as fugitive dust and sedimentation. Construction can result in direct impacts on wildlife by direct trampling or entrapment of individuals and habitat removal. Indirect impacts on wildlife can occur from harassment, behavior disruption, increased predation, and degradation of habitat. Significant impacts on special-status plant and animal species could occur during construction at all of the proposed MPWSP facility sites and pipeline alignments; however, all impacts could be reduced to a less-than-significant level with 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 Measures for Western Snowy Plover)**, **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 (Habitat Mitigation and Monitoring Plan)**, **4.6-1o (Avoidance and Minimization Measures for California Red-legged Frog and California Tiger Salamander)**, **4.6-1p (Control Measures for Spread of Invasive Plants)**, **4.6-1q (Frac-out Contingency Plan)**, **4.12-1b (General Noise Controls for Construction Equipment)**, and **4.14-2 (Site-Specific Construction Lighting Measures)**.

Impact 4.6-2: Result in substantial adverse effects on riparian habitat, critical habitat, or other sensitive natural communities during construction.

Project construction could result in significant impacts on sensitive natural communities (including riparian habitat) and critical habitat. The subsurface slant wells, MPWSP Desalination Plant, and Source Water Pipeline would result in significant impacts on central dune scrub; the new Desalinated Water Pipeline would result in significant impacts on central dune scrub, coast live oak woodland, and riparian woodland and scrub; the new Transmission Main would result in significant impacts on central dune scrub, coast live oak woodland, and northern coastal scrub; the Castroville Pipeline would result in significant impacts on central dune scrub, northern coastal scrub, riparian woodland and scrub, and freshwater marsh; the ASR facilities would result in significant impacts on coast live oak woodland, northern coastal scrub, and central maritime chaparral; the Terminal Reservoir would significantly impact central maritime chaparral and coast live oak woodland; the

Ryan Ranch-Bishop Interconnection Improvements would significantly impact coast live oak woodland and northern coastal scrub; the Main System-Hidden Hills Interconnection Improvements would result in significant impacts on coast live oak woodland; and proposed project staging areas would significantly impact coast live oak woodland and northern coastal scrub.

Construction of the subsurface slant wells and portions of the Source Water Pipeline, new Desalinated Water Pipeline, Castroville Pipeline, and new Transmission Main would occur within local coastal zones in areas where certain vegetation communities may be designated environmentally significant habitat areas (ESHA) under Local Coastal Programs (LCPs). Construction within vegetation communities designated as primary or secondary habitat or ESHA under an LCP would result in significant impacts on these sensitive natural communities.

Construction of the subsurface slant wells and Source Water Pipeline would result in significant impacts on critical habitat for western snowy plover; construction of the Terminal Reservoir would significantly impact critical habitat for Monterey spineflower; and construction of the Carmel Valley Pump Station and Main System-Hidden Hills Interconnection Improvements would result in significant impacts on critical habitat for California red-legged frog. None of the other project facilities would result in significant impacts on critical habitat.

Construction of the Brine Discharge Pipeline and Pipeline to CSIP Pond would result in less-than-significant impacts on sensitive natural communities or critical habitat. All impacts on sensitive natural communities and critical habitat would be reduced to a less-than-significant level with implementation of **Mitigation Measures 4.6-1a**, **4.6-1b**, **4.6-1c**, **4.6-1d**, **4.6-1e**, **4.6-1n**, **4.6-1o**, **4.6-1p**, **4.6-2a (Consultation with Local Agencies and the California Coastal Commission regarding Environmentally Sensitive Habitat Areas)**, and **4.6-2b (Avoid, Minimize, and Compensate for Direct Construction Impacts on Sensitive Communities)**.

Impact 4.6-3: Result in substantial adverse effects on federal wetlands, federal other waters, and/or waters of the state during construction.

Direct impacts on wetlands include removal of vegetation, soil, or structures and/or the placement of fill in the wetland, or hydrological modifications (i.e. altering the flow of water in or out of the wetland or water). Indirect impacts could occur from construction activities or construction worker foot traffic that inadvertently extend beyond the designated construction work area and into waters or wetland features, trash and debris left in the features following construction, sedimentation of the feature as a result of increased soil erosion from construction work areas, and degradation of water quality from pollutants (e.g., oil, hydraulic fluid) that are conveyed by surface runoff from the construction site to offsite waters. With respect to sedimentation and degradation of water quality from construction pollutants, for all proposed project components, implementation of the BMPs in the project-specific SWPPP would include measures to manage soil erosion and protect water quality in receiving waterbodies.

Construction of the new Desalinated Water Pipeline, Castroville Pipeline, Carmel Valley Pump Station, and Ryan Ranch-Bishop Interconnection Improvements would result in direct impacts on potential waters of the U.S. and/or waters of the State. Construction of the subsurface slant wells, Source Water Pipeline, Castroville Pipeline, Brine Discharge Pipeline and Pipeline to CSIP Pond,

new Transmission Main, Terminal Reservoir, and Ryan Ranch-Bishop Interconnection Improvements, as well as use of staging areas could result in significant indirect impacts on wetlands/waters if construction activities or construction worker foot traffic were to extend beyond the designated construction work area.

Less than significant impacts on wetlands/waters would occur during construction of the MPWSP Desalination Plant, proposed ASR facilities, and Main System-Hidden Hills Interconnection Improvements. All significant direct and indirect impacts would be reduced to a less-than-significant level with implementation of **Mitigation Measures 4.6-1a**, **4.6-1b**, **4.6-1c**, and **4.6-3 (Avoid, Minimize, and or Mitigate Impacts on Wetlands)**.

Impact 4.6-4: Be inconsistent with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

With the exception of the subsurface slant wells and staging areas, all other proposed project facilities have the potential to conflict with a local tree ordinance, either by requiring removal or resulting in injury to a protected tree, which would be a significant impact. This significant impact would be reduced to a less-than-significant level with implementation of **Mitigation Measure 4.6-4 (Compliance with Local Tree Ordinances)**. A significant unavoidable impact would occur resulting from disturbance to central dune scrub within the CEMEX mining facility that is designated as primary habitat under the City of Marina LCLUP.

Impact 4.6-5: Introduce or spread an invasive non-native species during construction.

Project construction activities at the subsurface slant wells, MPWSP Desalination Plant, Source Water Pipeline, new Desalinated Water Pipeline, Castroville Pipeline, proposed ASR facilities, new Transmission Main, and Terminal Reservoir could contribute to the spread of invasive plants and/or introduce new invasive plants to the project area or adjacent lands with native plant communities through earth moving, transport of vehicles, equipment and materials, and unanticipated sediment dispersal during rain events, which would be a significant impact. This significant impact would be reduced to a less-than-significant level with implementation of **Mitigation Measures 4.6-1a** and **4.6-1p**.

Construction activities at the Brine Discharge Pipeline, Pipeline to CSIP Pond, Carmel Valley Pump Station, Ryan Ranch-Bishop Interconnection Improvements, Main System-Hidden Hills Interconnection Improvements, and staging areas are not expected to result in the introduction or spread of invasive non-native species.

Impact 4.6-6: Result in substantial adverse effects on candidate, sensitive, or special-status species during project operations.

Routine maintenance of the subsurface slant wells would be conducted every 5 years and access to the wells would be from the wellheads. Estimated disturbance area for maintenance is roughly 6 acres which include the access roads and staging. Maintenance activities would be conducted between October and February to avoid the snowy plover nesting season. This maintenance could result in significant impacts on special-status plant and wildlife species with potential to occur in the central dune scrub at the slant wells that are similar to the impacts of slant well construction.

Routine maintenance would also result in loss of snowy plover nesting habitat, which would be a significant impact. However, with implementation of the same mitigation measures prescribed for construction, these impacts would be reduced to a less-than-significant level.

The 3-million-gallon brine storage basin at the MPWSP Desalination Plant could attract waterfowl. Migratory waterfowl could become sick or die from use of the brine storage basin, which would be a significant impact. However, with implementation of **Mitigation Measure 4.6-5 (Installation and Monitoring of Bird Deterrents at the Brine Storage Basin)**, the impact would be reduced to a less-than-significant level.

Safety lighting at the Terminal Reservoir site could adversely affect migratory birds or bats by causing them to abandon their nests or roosts. However, this significant impact would be reduced to a less-than-significant level with implementation of **Mitigation Measure 4.6-1i (Avoidance and Minimization Measures for Nesting Birds)**.

Maintenance and operations of all other proposed facilities would not result in substantial noise increases, new permanent sources of glare or light, or foreseeable surface disturbance in undeveloped areas. Therefore, no impact or less than significant impacts on special-status species would result from implementation of all other facilities.

Impact 4.6-7: Result in substantial adverse effects on riparian habitat, critical habitat, or other sensitive natural communities during project operations.

Routine maintenance of the subsurface slant wells would result in significant impacts on central dune scrub sensitive natural community, primary and secondary habitat under the City of Marina LCLUP, and critical habitat for western snowy plover. However, with implementation of the same mitigation measures prescribed for construction, these impacts would be reduced to a less-than-significant level. Maintenance and operations of all other proposed facilities would not result in foreseeable surface disturbance in undeveloped areas, and therefore would have no impact on sensitive natural communities or critical habitat.

Impact 4.6-8: Result in substantial adverse effects on federal wetlands, federal other waters, and waters of the state during project operations.

Periodic maintenance of the subsurface slant wells could adversely affect the CEMEX settling ponds through indirect disturbance by worker foot or vehicle traffic, resulting in a significant impact. However, with implementation of some of the same mitigation measures prescribed for construction, these impacts would be reduced to a less-than-significant level. No impact on waters of the U.S./waters of the State would result from maintenance and operation of all other facilities.

Impact 4.6-9: Introduce or spread an invasive non-native species during project operations.

Maintenance activities at the subsurface slant wells would include ground disturbance, which could contribute to the spread of invasive plants and/or introduce new invasive plants to the project area or adjacent lands with native plant communities through earth moving, transport of

vehicles, equipment and materials, and unanticipated sediment dispersal during rain events, resulting in a significant impact. However, with implementation of **Mitigation Measures 4.6-1a** and **4.6-1p**, these impacts would be reduced to a less-than-significant level. Maintenance and operations of all other proposed facilities would not result in foreseeable surface disturbance which could contribute to the introduction or spread of invasive plants and would therefore have no impact.

Impact 4.6-10: Be inconsistent with the provisions of an adopted Habitat Conservation Plan, natural community conservation plan or other approved local, regional, or state habitat conservation plan.

Portions of the Source Water Pipeline, new Desalinated Water Pipeline, Castroville Pipeline, and new Transmission Main alignments within the Coastal Zone occur within vegetation communities or features considered environmentally sensitive habitat areas (ESHA) under the North County LCP/LUP, City of Seaside LCP or by the California Coastal Commission. Construction of the proposed project within ESHAs could conflict with an adopted LCP, which is considered 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 impact to a less-than-significant level.

The Terminal Reservoir and a portion of the new Transmission Main could conflict with the *1997 Installation-Wide Multispecies Habitat Management Plan (HMP)* for the former Fort Ord area, which is considered a significant impact. Implementation of **Mitigation Measure 4.6-1n** would reduce the impact to a less-than-significant level.

The proposed ASR Facilities are located within the HMP area but would not conflict with the HMP. None of the other project components are located within an approved HMP/HCP area. s

Impact 4.6-C: Cumulative impacts related to terrestrial biological resources.

The incremental effects of the MPWSP would not have a cumulatively considerable contribution to a significant cumulative effect on western snowy plover, migrating waterfowl, sensitive natural communities, wetlands or other waters, conflicts with local tree ordinances, or consistency with an adopted habitat conservation plan. Implementation of the MPWSP would have a cumulatively considerable contribution to this test slant well impact related to inconsistencies with the City of Marina LCLUP. No mitigation measures are available that would reduce this impact, and it would remain significant and unavoidable.

5.5.6.3 Direct and Indirect Effects of No Project Alternative

The No Project Alternative would avoid the construction-related impacts of the proposed project. Direct or indirect impacts on biological resources, including species, habitat, and wetlands, would not occur because there would be no ground disturbance.

Under the No Project Alternative, current diversions from the Carmel River would continue consistent with existing conditions in the short-term. However, under the No Project Alternative, CalAm would not meet Milestone 3 by September 30, 2018 (receipt of a CPCN from the CPUC),

nor would it meet the subsequent annual milestones associated with the construction and implementation of the MPWSP. CalAm's Effective Diversion Limit (EDL) from the Carmel River would be reduced under the terms of the CDO by 1,000 afy in October 2018, and by an additional 1,000 afy in each subsequent year until October 2021. Beginning in January 2022, as with the proposed project, CalAm would only be allowed to divert its legal entitlement of 3,376 afy from the Carmel River. See Section 5.4.2 for details on the amounts of water allowed by the CDO to be diverted each year until the CDO expiration. Therefore, under the No Project Alternative, diversions from the Carmel River would be reduced sooner than under the proposed project and Carmel River flows would be restored by a total of 10,000 acre-feet over the period of October 2018 through 2021. The increases to Carmel River flows under the No Project Alternative would be beneficial to Carmel River steelhead habitat.

Cumulative Analysis

In addition to the beneficial effect of increased streamflows in the Carmel River that would occur under the No Project Alternative compared to existing conditions, the GWR Project (No. 59 in **Table 4.1-2**) would provide water supply to CalAm that would further reduce CalAm's diversions from the Carmel River, per the terms of the CDO (SWRCB, 2016). Specifically, for every acre-foot of GWR Project water supply that CalAm is able to deliver to the Monterey District, CalAm must reduce its Carmel River system diversions by one acre-foot. Therefore, if GWR Project water becomes available to CalAm prior to 2022 (when Carmel River diversions would be limited to the 3,376 afy legal limit regardless of other water sources), CalAm's diversions from the Carmel River would be reduced compared to those described in **Table 5.4-3**, leaving more streamflow in the Carmel River than under the No Project Alternative alone. This would be a cumulative beneficial effect on steelhead habitat in the Carmel River.

5.5.6.4 Direct and Indirect Effects of Project Alternative 1 – Slant Wells at Potrero Road

Alternative 1 would supply seawater to the proposed 9.6 mgd desalination plant located at the Charles Benson Road site using the same type of subsurface intake system as the proposed project, but at a different location (described in Section 5.4.3). The desalination plant, brine discharge pipeline, Castroville Pipeline, Pipeline to CSIP Pond, new Desalinated Water Pipeline, new Transmission Main, Terminal Reservoir, ASR components, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be identical to the proposed project described in Chapter 3, Description of the Proposed Project. The location of the slant wells at Potrero Road and the additional 5.5 miles of source water pipeline are the components unique to Alternative 1 (see **Figure 5.4-1**). Therefore, the analysis of impacts of Alternative 1 on terrestrial biological resources focuses primarily on the locations for the intake system and source water pipelines that are different from the proposed project; however, impact conclusions are made for the whole of Alternative 1.

Construction Impacts

With respect to effects on special-status species and their habitat, Alternative 1 would reduce the potential for impacts associated with the subsurface slant wells and increase the potential for

impacts associated with risk of frac-out using HDD crossings. Similar to the proposed project, construction of new subsurface slant wells at Potrero Road could result in significant indirect impacts on adjacent sensitive habitats, including central dune scrub, salt marsh, and a tidal slough. The disturbed nature of the location of the Alternative 1 subsurface slant wells would reduce the amount of impact on federal and state-listed endangered species, including western snowy plover, and their habitat (mainly consisting of sensitive central dune scrub vegetation) compared to the proposed project by avoiding disturbance of 9 acres of central dune scrub habitat. Some indirect or temporary impact could occur, but it would be substantially less than what would result from construction of the new subsurface slant wells at the CEMEX mining area. Western snowy plover are not known to breed or winter in the vicinity of the Potrero Road parking lot construction site, but may still occur on the beach west of the site. Other special-status species with potential to occur adjacent to the Potrero Road parking lot could include Smith's blue butterfly, black legless lizard, Monterey spineflower, Menzies wallflower, sand gilia, and other special-status plants, as described in Section 4.6.1.8 and summarized in **Table F-1** of **Appendix F**. Implementation of **Mitigation Measures 4.6-1a** through **4.6-1p, 4.12-1b,** and **4.14-2** would reduce these impacts to less than significant.

Additionally, construction of the alternative source water pipeline north of Charles Benson Road could result in significant impacts at multiple river and tidal slough crossings and associated wetlands, including an additional separate pipeline crossing of Tembladero Slough at Molera Road, and of Old Salinas River at Potrero Road, and wetlands adjacent to the pipeline route. Although not anticipated, there is potential for frac-outs to occur using HDD. If a frac-out occurs, bentonite slurry could be released into the Salinas River and/or Tembladero Slough, which could degrade water quality and adversely impact steelhead habitat and/or individual fish by increasing suspended sediments that may inhibit fish respiration and degrade habitat, a significant impact. Implementation of **Mitigation Measure 4.6-1q** would reduce this impact to less than significant.

The Alternative 1 source water pipeline alignment provides lower habitat value for special-status plant and animal species in comparison with the proposed project's Source Water Pipeline alignment, resulting in a less severe impact on special-status plants and animals; nonetheless, identified mitigation measures for construction would be required. All other components and potential impacts under Alternative 1 would be the same as in the proposed project. Thus, with respect to adverse effects on special-status species, combining the impacts of the proposed project components with the addition of 5.5 miles of source water pipeline and the slant wells at Potrero Road, construction would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

With respect to effects on riparian habitat, critical habitat, and other sensitive natural communities, Alternative 1 would reduce the amount of impact on designated critical habitat and ESHA compared to the proposed project by using the less sensitive unpaved parking lot at Potrero Road (avoiding 9 acres of central dune scrub, a sensitive natural community and primary habitat under the City fo Marina LCLUP). The Alternative 1 source water pipeline would have less severe impacts on central dune scrub than the MPWSP Source Water Pipeline and impacts on northern coastal scrub and riparian woodland and scrub sensitive natural communities similar to the Castroville Pipeline. Similar types of indirect impacts on western snowy plover critical habitat would occur under

Alternative 1 as under the proposed project. Additional potential indirect impacts on Monterey spineflower critical habitat would occur at Potrero Road. All other components and potential impacts under Alternative 1 would be the same as in the proposed project, and could be reduced to less than significant through implementation of **Mitigation Measures 4.6-1a** through **4.6-1e**, **4.6-1n**, **4.6-1o**, **4.6-1p**, **4.6-2a**, and **4.6-2b**. Thus, with respect to riparian habitat, critical habitat, and sensitive natural communities, combining the impacts of the proposed project components with the addition of 5.5 miles of source water pipeline and the slant wells at Potrero Road, construction would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Alternative 1 would increase the potential for construction impacts on wetlands at multiple crossings of open water features, but could avoid or minimize those significant impacts to less than significant through the use of trenchless construction methods and implementation of the mitigation measures identified for the proposed project in Section 4.6 (**Mitigation Measures 4.6-1a** through **4.6-1c, 4.6-1g,** and **4.6-3**). Therefore, with respect to wetlands, combining the impacts of the proposed project components with the addition of 5.5 miles of source water pipeline and slant wells at Potrero Road, although the potential for significant impacts would increase, construction would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Alternative 1 would avoid the proposed project's significant impact resulting from the development of primary or secondary habitat under the City of Marina LCLUP, because it would avoid slant well construction at the CEMEX site and thus avoid primary and/or secondary habitat within the City of Marina. However, Alternative 1 would result in the development of the subsurface slant wells at Potrero Road within 100 feet of the Old Salinas River (see **Figure 5.4-1**, inset). This development would conflict with Policy 2.3.3.B4 of the North County LCP/LUP, which requires a setback of 100 feet from the landward edge of vegetation of all coastal wetlands (such as those present along the Old Salinas River) to be provided and maintained in open space use, and requires that no permanent structures except for those necessary for resource-dependent use which cannot be located elsewhere can be constructed in the setback area. Prior to approval of all proposed structures in the setback area, it must be demonstrated that the development does not significantly disrupt the habitat resource. It is noted that the Alternative 1 subsurface slant well construction would occur within the disturbed parking lot area and would not significantly disrupt habitat in this location; nonetheless, because the subsurface slant wells are not a resource-dependent use, they would conflict with this policy. No mitigation is available to reduce this impact to a less-than-significant level. All other facilities common with the proposed project have the potential to conflict with a local tree ordinance, either by requiring removal or resulting in injury to a protected tree, which would be a significant impact. This significant impact would be reduced to a less-than-significant level with implementation of **Mitigation Measure 4.6-4 (Compliance with Local Tree Ordinances)**. Therefore, although the impact related to the City of Marina LCLUP would be avoided, Alternative 1 would result in the ***same impact conclusion*** as the proposed project, significant and unavoidable, as a result of the impact related to conflict with the North County LCP/LUP.

The additional 5.5 miles of source water pipeline under Alternative 1 would increase the potential for pipeline construction to introduce or spread an invasive non-native species. Locating the

subsurface slant wells at Potrero Road would decrease the potential for slant well construction to spread invasive species within central dune scrub. This significant impact could be avoided or minimized to less than significant through implementation of **Mitigation Measures 4.6-1a** and **4.6-1p**. Thus, with respect to invasive species, combining the impacts of the proposed project components with the addition of 5.5 miles of source water pipeline and the slant wells at Potrero Road, construction would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Operational and Facility Siting Impacts

With respect to operational impacts on special-status species and their habitat, disturbance from maintenance of the slant wells at Potrero Road would result in a reduced impact on western snowy plover habitat compared to the proposed project; however, significant indirect impacts could still occur and would be reduced to less than significant with **Mitigation Measure 4.6-1d**. Indirect impacts on central dune scrub habitat, which borders the Potrero Road slant well site, and special-status plants and animals known to occur or with potential to occur in this habitat, would be less severe than operations and maintenance activities at the CEMEX mining facility under the proposed project. Additional indirect impacts special-status species with potential to occur in the Old Salinas River, adjacent to the east of the parking lot, could occur during operations and maintenance activities under Alternative 1. Noise generated during operation of the pumping wells at Potrero Road would be more severe than at the CEMEX facility due to the relative lower baseline noise environment; however, this difference would not change the impact level of significance. Operation and maintenance of components common to the proposed project would be the same as described in Impact 4.6-6. In particular, the Terminal Reservoir would have safety lighting that could adversely affect nesting birds, and would result in the same potentially significant impacts on special-status species as described in Section 4.6. Implementation of **Mitigation Measure 4.6-1i** would reduce this impact to less than significant. Therefore, with respect to impacts on special-status species, combining the proposed project components with those unique to Alternative 1, operation would result in a reduced impact due to the lower habitat value at the slant well site, but would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

With respect to operational impacts on riparian habitat, critical habitat, or other sensitive natural communities, operation and maintenance of the Alternative 1 subsurface slant wells at Potrero Road would occur in and around the well heads at the parking lot. The direct impact on approximately 6 acres of central dune scrub sensitive natural community during operations and maintenance activities at the CEMEX slant wells under the proposed project is avoided under Alternative 1. Indirect impacts on central dune scrub sensitive natural community, which borders the Potrero Road slant well site, would be less severe than operations and maintenance activities at the CEMEX mining facility under the proposed project. Impacts on central dune scrub considered primary habitat at the CEMEX mining facility during operations and maintenance are avoided under Alternative 1 as compared with the proposed project. Operations and maintenance of the Alternative 1 subsurface slant wells at Potrero Road could result in indirect impacts on vegetation communities or features designated as ESHA under the North County LCP/LUP; however, potential impacts would be less severe than under the proposed project. Similar indirect

impacts on western snowy plover critical habitat would occur during operations and maintenance under Alternative 1 as the proposed project. Additional indirect impacts on Monterey spineflower critical habitat would occur during operations and maintenance under Alternative 1 slant wells at Potrero Road as compared to the proposed project.

Alternative 1 would also avoid the proposed project's impacts on steelhead habitat in the Salinas River and Tembladero Slough, but instead may affect steelhead habitat in Elkhorn Slough. As described in Section 5.5.4, the slant wells at Potrero Road could draw in groundwater that would otherwise flow to recharge the slough or draw surface water directly from the slough. The modeling cannot predict the amount of water diverted from Elkhorn Slough although it must be conservatively assumed, based on the predicted areal extent of the drawdown, that operations could potentially adversely affect steelhead habitat in Elkhorn Slough due to reduced surface water flow and volumes. This would be an increased level of impact compared to the proposed project and because there is no method to mitigate for impacts on surface water flow and volumes in Elkhorn Slough, Alternative 1 would result in an ***increased impact conclusion*** with respect to riparian habitat, critical habitat, or other sensitive natural communities compared to the proposed project, significant and unavoidable.

Under Alternative 1, no maintenance would occur near the CEMEX settling ponds; however, operations and maintenance of subsurface slant wells at Potrero Road have some potential to cause runoff or sediment discharge to nearby Old Salinas River and associated tidal salt marsh. Implementation of **Mitigation Measures 4.6-1a** through **4.6-1c** would reduce these potential impacts to less than significant. No impact on waters of the U.S./waters of the State would result from maintenance and operation of all other facilities. Therefore, Alternative 1 would result in the ***same impact conclusion*** with respect to wetlands and other waters during operation, less than significant with mitigation.

Alternative 1 would avoid impacts of the proposed project on the spread of invasive plants during operation because no maintenance would occur at the CEMEX site, and the Potrero Road site is disturbed and thus not susceptible to the spread of invasive plants. Maintenance and operations of all other facilities would not result in foreseeable surface disturbance which could contribute to the introduction or spread of invasive plants and would therefore have no impact. Therefore, Alternative 1 would result in a ***reduced impact conclusion*** with respect the spread of invasive plants during operation, no impact.

Alternative 1 would have the same impact related to inconsistency with an adopted habitat conservation plan because all facilities contributing to this impact would be common with the proposed project. Implementation of **Mitigation Measures 4.6-1n**, **4.6-1p**, **4.6-2b**, and **4.6-8** would reduce the impact to a less-than-significant level. Therefore, with respect to consistency with an adopted habitat conservation plan, operation of Alternative 1 would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Cumulative Analysis

Alternative 1 would have no foreseeable operational potential to spread invasive plants, and so would not contribute to cumulative impacts related to invasive plants during operation.

The geographic scope of analysis for cumulative impacts related to terrestrial biological resources for Alternative 1 is defined by the location of the Alternative 1 components as well as biologically linked terrestrial areas within approximately 5 miles of these sites, and is the same as that described for the proposed project in Section 4.6.6, with the exception of the different location of the seawater intake system (Potrero Road, instead of CEMEX), and alternative source water pipeline route. Cumulative impacts, and the contribution of Alternative 1 to those impacts, within former Fort Ord lands and on migrating waterfowl would be exactly the same as described for the proposed project because the components that contribute to these impacts are the same under Alternative 1.

With respect to cumulative impacts on western snowy plover and sensitive dune scrub habitat, the location of subsurface slant wells at the Potrero Road parking lot would reduce Alternative 1 construction-related impacts compared to the proposed project because the Potrero Road parking lot location is disturbed and does not contain habitat or sensitive natural communities. Therefore, locating the subsurface slant wells at the Potrero Road parking lot would reduce potential direct and indirect impacts on western snowy plover and sensitive central dune scrub habitat and the potential to spread invasive species during construction and maintenance. The same projects listed in Section 4.6.6 would contribute to potential impacts on western snowy plover and sensitive vegetation types and wildlife habitat, including projects near the Potrero Road site (e.g., the Moss Landing Community Plan). In combination, these projects would result in significant cumulative impacts due to the potential to adversely affect western snowy plover and its habitat through heavy equipment use, dust generation, elevated noise levels, and increased human activity. Although it would reduce impacts on western snowy plover, given the sensitivity of this species, and given the potential to affect other special-status species listed above, Alternative 1 could result in a cumulatively considerable contribution to significant cumulative impacts on special-status species and sensitive habitat types. The impacts of Alternative 1 would be mitigated consistent with what is described for the proposed project in Section 4.6.5 (**Mitigation Measures 4.6-1a** through **4.6-1q**, **4.6-2**), and therefore, for the same reasons described in Section 4.6.6, while Alternative 1 could result in a considerable contribution to significant cumulative impacts on these biological resources, with mitigation, its contribution would be reduced to a level that is not cumulatively considerable.

Construction of Alternative 1 would reduce impacts on wetlands by avoiding the CEMEX settling ponds, but disturbance at the Potrero Road site and components that are common with the proposed project could result in significant impacts. Thus, with the exception of avoiding the CEMEX settling ponds, the contribution of Alternative 1 to cumulative impacts on wetlands would be the same as described for the proposed project. As a result, the same projects listed in Section 4.6.6 would contribute to potential impacts on wetlands and other waters, potentially resulting in a significant cumulative impact. Alternative 1 components common with the proposed project could have a considerable contribution to significant cumulative impacts on wetlands in the region, as described in Section 4.6.6. After implementation of mitigation measures identified for the proposed project (i.e., **Mitigation Measures 4.6-1a**, **4.6-1b, 4.6-1c**, and **4.6-3**), Alternative 1 would not have a cumulatively considerable contribution to a significant cumulative impact on wetlands for the same reasons described in Section 4.6.6.

Alternative 1 would avoid contributing to the significant cumulative impact related to inconsistencies with the Marina LCLUP by avoiding construction within the primary habitat at

the CEMEX site. However, Alternative 1 would have a significant and unavoidable impact related to placing structures within or adjacent to habitat that is inconsistent with the North County LCP/LUP. The DeepWater Desal Project (No. 34 in **Table 4.1-2** in Section 4.1) could place its proposed desalination plant within or adjacent to habitat considered to be ESHA under the North County LCP/LUP, also a significant and unavoidable impact. In combination, these projects would result in a significant cumulative impact, and Alternative 1 would have a cumulatively considerable contribution.

Overall, while some contributions to cumulative impacts would be avoided, Alternative 1 would result in the ***same impact conclusion*** as the proposed project, significant and unavoidable.

5.5.6.5 Direct and Indirect Effects of Project Alternative 2 – Open-Water Intake at Moss Landing

Alternative 2 would supply seawater to the proposed 9.6 mgd desalination plant located at the Charles Benson Road site using a screened open-water intake system consisting of an intake structure located offshore in MBNMS and southwest of the Moss Landing Harbor entrance, a subsurface intake pipeline, and an intake pump station (described in Section 5.4.4). The desalination plant, brine discharge pipeline, new Desalinated Water Pipeline, new Transmission Main, Terminal Reservoir, ASR components, Highway 68 interconnection improvements, and the Carmel Valley Pump Station would be identical to the proposed project described in Chapter 3, Description of the Proposed Project. Because the open water intake would eliminate the need for returning source water drawn from the Salinas Valley Groundwater Basin, the Castroville Pipeline, the Pipeline to CSIP Pond, and operational components related to delivering water to Castroville Community Services District would not be implemented. The open water intake system and the additional 6.5 miles of source water pipeline are the components unique to Alternative 2 (see **Figure 5.4-2**). Therefore, the analysis of Alternative 2 on terrestrial biological resources focuses primarily on the locations for the intake system and source water pipelines that are different from the proposed project; however, impact conclusions are made for the whole of Alternative 2.

Construction Impacts

With respect to effects on special-status species and their habitat, by eliminating onshore construction and maintenance activities and structures associated with the subsurface slant wells, Alternative 2 would avoid disturbance of 9 acres of central dune scrub habitat that would occur under the proposed project, eliminating impacts on western snowy plover and reducing overall impacts on special-status species and their habitat. Mitigation for impacts on snowy plover (**Mitigation Measure 4.6-1d**) would not be needed. Construction of the Alternative 2 intake would have the potential for indirect impacts on sensitive habitats, as none are located adjacent to sites where construction of the intake would occur. Alternative 2 would reduce impacts on special-status species and their habitat compared to the proposed project, but would still result in significant impacts as a result of the components common with the proposed project. Implementation of **Mitigation Measures 4.6-1a** through **4.6-1c**, **4.6-1e** through **4.6-1p,** and **4.14-2** would reduce these impacts to less than significant.

Additionally, construction of the Alternative 2 source water pipeline north of Charles Benson Road could result in significant impacts at multiple river and tidal slough crossings and associated wetlands, including an additional separate pipeline crossing of Tembladero Slough at Molera Road, and of Old Salinas River at Potrero Road, and wetlands adjacent to the pipeline route. Although not anticipated, there is potential for frac-outs to occur using HDD. If a frac-out occurs, bentonite slurry could be released into the Salinas River and/or Tembladero Slough, which could degrade water quality and adversely impact steelhead habitat and/or individual fish by increasing suspended sediments that may inhibit fish respiration and degrade habitat, a significant impact. Implementation of **Mitigation Measure 4.6-1q** would reduce this impact to less than significant.

The Alternative 2 source water pipeline alignment provides lower habitat value for special-status plant and animal species in comparison with the proposed project's Source Water Pipeline alignment, resulting in a less severe impact on special-status plants and animals; nonetheless, identified mitigation measures for construction would be required. All other components and potential impacts under Alternative 2 would be the same as in the proposed project. Thus, with respect to adverse effects on special-status species, although impacts would be decreased compared to the proposed project, combining the impacts of the proposed project components with the addition of 5.5 miles of source water pipeline, construction would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

With respect to effects on riparian habitat, critical habitat, and other sensitive natural communities, Alternative 2 would reduce the amount of impact on designated critical habitat and ESHA compared to the proposed project construction at the CEMEX slant well site by using industrial land on Dolan Road that is not adjacent to sensitive habitats. The Alternative 2 source water pipeline would have less severe impacts on central dune scrub than the MPWSP Source Water Pipeline and impacts on northern coastal scrub and riparian woodland and scrub sensitive natural communities similar to the Castroville Pipeline. Alternative 2 would avoid impacts on western snowy plover critical habitat. All other components and potential impacts under Alternative 2 would be the same as in the proposed project, and could be reduced to less than significant through implementation of **Mitigation Measures 4.6-1a** through **4.6-1c**, **4.6-1e, 4.6-1n**, **4.6-1o**, **4.6-1p**, **4.6-2a**, and **4.6-2b**. Thus, with respect to riparian habitat, critical habitat, and sensitive natural communities, although impacts would be reduced compared to the proposed project, combining the impacts of the proposed project components with the addition of 5.5 miles of source water pipeline, construction would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Alternative 2 would increase the potential for significant construction impacts on wetlands with multiple crossings of open water features and associated wetlands, but could avoid or minimize those significant impacts through the use of trenchless construction methods and implementation of mitigation measures identified for the proposed project in Section 4.6 (**Mitigation Measures 4.6-1a** through **4.6-1c**, **4.6-1g**, and **4.6-3**), which would reduce these impacts to less than significant. Additionally, the open water intake structure would be constructed on the seafloor in waters of the U.S. and of the State, resulting in discharge of fill material over an estimated 3,300 ft^2 (0.07 acre), a significant inmpact that would be reduced to less than signfiicant with implementation of **Mitgiation Measure 4.6-3**. Therefore, with respect to wetlands, combining

the impacts of the proposed project components with the addition of 5.5 miles of source water pipeline and open water intake, although the potential for significant impacts would increase, construction would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Alternative 2 would avoid the proposed project's significant impact resulting from the development of primary or secondary habitat under the City of Marina LCLUP, because it would avoid slant well construction at the CEMEX site and thus avoid primary and/or secondary habitat within the City of Marina. The Alternative 2 source water pipeline between Charles Benson Road and north of the Moro Cojo Slough traverses agricultural lands without tree cover, and no impact on trees or conflict with local tree ordinances is expected to occur. All other facilities common with the proposed project have the potential to conflict with a local tree ordinance, either by requiring removal or resulting in injury to a protected tree, which would be a significant impact. This significant impact would be reduced to a less-than-significant level with implementation of **Mitigation Measure 4.6-4 (Compliance with Local Tree Ordinances)**. Therefore, Alternative 2 would result in a ***reduced impact conclusion*** compared to the proposed project, less than significant with mitigation.

Eliminating the subsurface slant wells at CEMEX would decrease the potential for slant well construction to spread invasive species within central dune scrub, but the additional 5.5 miles of source water pipeline under Alternative 2 would increase the potential for pipeline construction to introduce or spread an invasive non-native species. This significant impact could be avoided or minimized to less than significant through implementation of **Mitigation Measures 4.6-1a** and **4.6-1p**. Thus, with respect to invasive species, combining the impacts of the proposed project components with the addition of 5.5 miles of source water pipeline, construction would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Operational and Facility Siting Impacts

With respect to operational impacts on special-status species and their habitat, eliminating the need for recurring maintenance of slant wells within or adjacent to sensitive central dune scrub habitat would eliminate operational impacts on this habitat type and associated special-status species. Maintenance of the new intake pump station would occur within already-developed and disturbed industrial areas on Dolan Road. Operation of Alternative 2 would eliminate impacts on western snowy plover; therefore, the need for mitigation of those impacts, as described in the proposed project, would also be eliminated. Noise generated during operation of the intake pump station would have a less severe impact on special-status species than the subsurface slant wells under the proposed project. Therefore, with respect to impacts on special-status species, combining the proposed project components with those unique to Alternative 2, operation would result in a reduced impact due to the lower habitat value at the slant well site, but would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

With respect to operational impacts on riparian habitat, critical habitat, or other sensitive natural communities, Alternative 2 would avoid the proposed project's impacts on steelhead habitat in the Salinas River and Tembladero Slough because it would not draw groundwater that could affect surface water flows, and would avoid maintenance-related impacts within snowy plover

critical habitat and central dune scrub, a sensitive natural community and primary and secondary habitat under the City of Marina LCLUP. Construction of other components would result in similar impacts on vegetation communities designated as primary or secondary habitat or ESHA under LCPs as the proposed project. Operation and maintenance of the intake pump station and source water pipeline would have similar impacts to those described for the proposed project and could be significant, but impacts would be reduced to a less-than-significant level with implementation of **Mitigation Measures 4.6-1a**, **4.6-1b**, **4.6-1c**, **4.6-1n**, **4.6-1p**, **4.6-2a**, and **4.6-2b**. Therefore, although it would greatly reduce impacts on critical habitat and other sensitive natural communities compared to the proposed project, Alternative 2 would result in the ***same impact conclusion*** with respect to riparian habitat, critical habitat, or other sensitive natural communities compared to the proposed project, less than significant with mitigation.

Under Alternative 2, operation and maintenance of the new open water intake at Moss Landing would not result in any potential impacts on jurisdictional wetlands or waters. No impact on waters of the U.S./waters of the State would result from maintenance and operation of all other facilities. Therefore, Alternative 2 would result in a ***reduced impact conclusion*** with respect to wetlands and other waters during operation, no impact.

Alternative 2 would avoid impacts of the proposed project on the spread of invasive plants during operation because no maintenance would occur at the CEMEX site. Maintenance and operations of all other facilities would not result in foreseeable surface disturbance which could contribute to the introduction or spread of invasive plants and would therefore have no impact. Therefore, Alternative 2 would result in a ***reduced impact conclusion*** with respect the spread of invasive plants during operation, no impact.

With respect to inconsistency with an adopted habitat conservation plan, the Alternative 2 source water pipeline and intake pump station would occur adjacent to vegetation communities or features considered ESHA under the North County LCP/LUP. Impacts on ESHAs under Alternative 2 would have the potential to be significant. Other components and potential impacts under Alternative 2 are the same as the proposed project, and would be significant. Implementation of **Mitigation Measures 4.6-1n**, **4.6-1p**, **4.6-2b**, and **4.6-8** would reduce the impact to a less-than-significant level. Therefore, with respect to consistency with an adopted habitat conservation plan, operation of Alternative 2 would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Cumulative Analysis

Alternative 2 would have no impact on wetlands or other waters during operation, no inconsistencies with local policies, and no foreseeable operational potential to spread invasive plants; therefore, unlike the proposed project, it would avoid contributions to cumulative impacts on these resources.

The geographic scope of analysis for cumulative impacts related to terrestrial biological resources for Alternative 2 is defined by the location of the Alternative 2 components, as well as biologically linked terrestrial areas within approximately 5 miles of these sites, and is the same as that described for the proposed project in Section 4.6.6, with the exception that the Castroville

Pipeline and Pipeline to CSIP are not included, as well as the different location of the open water intake system and alternative source water pipeline. Cumulative impacts, and the contribution of Alternative 2 to those impacts, within former Fort Ord lands and on migrating waterfowl would be exactly the same as described for the proposed project because the components that contribute to these impacts are the same under Alternative 2.

Eliminating disturbance associated with the subsurface slant wells at the CEMEX site would eliminate impacts on western snowy plover and reduce overall impacts on special-status species and their habitat and the potential to spread invasive species within sensitive dune scrub habitat compared to the proposed project. The same projects listed in Section 4.6.6 would contribute to potential impacts on sensitive vegetation types and wildlife habitat that could be affected by Alternative 2 components, including projects near the intake location (e.g., the Moss Landing Community Plan). In combination, these projects would result in significant cumulative impacts due to the potential to adversely affect special-status species and sensitive habitat types. Given the potential to adversely affect special-status species, Alternative 2 could result in a cumulatively considerable contribution to significant cumulative impacts on special-status species and sensitive habitat types. These impacts would be mitigated consistent with what is described for the proposed project in Section 4.6.5 (**Mitigation Measures 4.6-1a** through **4.6-1q**, **4.6-2**), and therefore, for the same reasons described in Section 4.6.6, while Alternative 2 could result in a considerable contribution to significant cumulative impacts on these biological resources, with mitigation, its contribution would be reduced to a level that is not cumulatively considerable.

Construction of Alternative 2 would have potentially significant impacts on wetlands as a result of multiple river and tidal slough crossings and associated wetlands. Additionally, components that are common with the proposed project could result in significant impacts as described in Section 4.6.5. The same projects listed in Section 4.6.6 would contribute to potential impacts on wetlands and other waters, potentially resulting in a significant cumulative impact. Alternative 2 river and tidal slough crossings, along with components common with the proposed project, could have a considerable contribution to significant cumulative impacts on wetlands in the region. After implementation of mitigation measures identified for the proposed project (i.e., **Mitigation Measures 4.6-1a, 4.6-1b, 4.6-1c,** and **4.6-3**), Alternative 2 would not have a cumulatively considerable contribution to a significant cumulative impact on wetlands for the same reasons described in Section 4.6.6.

Overall, Alternative 2 would result in a ***reduced impact conclusion*** compared to the proposed project, less than significant with mitigation.

5.5.6.6 Direct and Indirect Effects of Alternative 3 - Monterey Bay Regional Water Project (MBRWP or DeepWater Desal Project)

Alternative 3 includes the construction and operation of a screened open ocean intake system and a brine discharge system located on the seafloor in Monterey Bay within MBNMS, subsurface pipelines connecting to these intake and discharge systems, a seawater desalination facility and co-located data center, and associated components to provide up to 25,000 afy of potable water and data transmission and storage services. The pipelines for the intake and discharge systems

would be installed using HDD. The alternative would also include 6.5 miles of desalinated water pipeline to connect with the CalAm system and up to an additional 25 miles of pipelines to convey the desalinated water to other areas (total of 31.5 miles of additional pipeline). Several components would be identical to the proposed project: the new Transmission Main, new desalinated water pipeline south of the "Connection to CalAm" Point on **Figure 5.4-3**, ASR 5 and 6 wells and ASR pipeline, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be as described in Chapter 3, Description of the Proposed Project. Because this alternative would have an open water intake that would eliminate the need for returning source water that originated from the Salinas Valley Groundwater Basin, the proposed project Castroville Pipeline, Pipeline to CSIP Pond, and operational components related to delivering water to CCSD would not be implemented. The desalination plant and data center, open water intake system, brine discharge system, and the additional 31.5 miles of desalinated water pipeline are the components unique to Alternative 3 (see **Figure 5.4-3**). Therefore, the analysis of Alternative 3 focuses primarily on these components; however, impact conclusions are made for the whole of Alternative 3.

Construction Impacts

With respect to effects on special-status species and their habitat, by eliminating onshore construction and maintenance activities and structures associated with the subsurface slant wells, Alternative 3 would avoid disturbance of 9 acres of central dune scrub habitat that would occur under the proposed project, eliminating impacts on western snowy plover and reducing overall impacts on special-status species and their habitat. However, Alternative 3 would result in potentially greater significant impacts (up to 91 acres) on habitat that could support other special-status animal species, including California tiger salamander and California red-legged frog breeding and dispersal or refugia, Santa Cruz long-toed salamander, burrowing owl, nesting birds, and American badger, as well as special-status plants. Additionally, the desalination plant could indirectly reduce the habitat value of adjacent or nearby aquatic breeding habitats by reducing the the availability of upland aestivation sites and restricting migration. Construction of the new open-water intake and brine discharge outfall at Moss Landing would have negligible impacts on terrestrial biological resources, if any, because construction on land would be limited to a small parcel of already disturbed land.

The new desalinated water pipeline between the desalination plant and the "Connection to CalAm" point could result in the same impacts described above for these components of Alternative, 2 with potential for significant impacts on steelhead habitat and/or individual fish if a frac-out occurs using HDD. The Alternative 3 desalinated water pipeline alignment provides lower habitat value for special-status plant and animal species in comparison with the proposed project's Source Water Pipeline alignment, resulting in a less severe impact on special-status plants and animals; nonetheless, identified mitigation measures for construction would be required. The addition of approximately 25 miles of desalinated water pipelines to serve other areas likely would result in impacts similar to the desalinated water pipeline; however, alignments are not currently known. All other components and potential impacts on special-status species under Alternative 3 would be the same as in the proposed project.

In comparison with the proposed project, the potentially significant impact on special-status species during construction would be increased but could be reduced to less than significant by implementation of the same mitigation measures identified for the proposed project in Section 4.6. Implementation of **Mitigation Measures 4.6-1a** through **4.6-1c**, **4.6-1e** through **4.6-1q,** and **4.14-2** identified for the proposed project in Section 4.6 would reduce these impacts on special-status species and their habitat to less than significant. Thus, with respect to adverse effects on special-status species, although impacts would be increased compared to the proposed project, construction would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

With respect to effects on riparian habitat, critical habitat, and other sensitive natural communities, Alternative 3 would avoid approximately 9 acres of central dune scrub sensitive natural community and primary and secondary habitat under the City of Marina LCLUP, and indirect impacts on snowy plover critical habitat at the CEMEX site. However, construction of the Alternative 3 desalination facility, source water pipeline, and outfall pipeline would occur within or adjacent to vegetation communities or features considered ESHA under the North County LCP. The potential impacts on sensitive natural communities along Dolan Road could be significant and unavoidable even with implementation of **Mitigation Measures 4.6-2a** and **4.6-2b**. Construction of other components would result in similar impacts on vegetation communities designated as primary or secondary habitat or ESHA under LCPs as the proposed project. Thus, with respect to riparian habitat, critical habitat, and sensitive natural communities, construction would result in an ***increased impact conclusion*** compared to the proposed project, significant and unavoidable.

Alternative 3 would increase the potential for significant construction impacts on wetlands with multiple crossings of open water features and associated wetlands as described above for Alternative 2. Additionally, construction impacts would be greater than the proposed project, mainly due to location of the intake and brine discharge structures on the seafloor in comparison with the use of subsurface slant wells. The open water intake structure and brine discharge structure would be constructed on the seafloor in waters of the U.S. and of the State, resulting in discharge of fill material over approximately 16,700 ft^2 (0.4 acre). Installation of the intake and brine discharge pipelines would result in disturbance-related impacts within waters of the U.S. at their point of emergence from the seafloor. Installation of the pipelines within Dolan Road could result in additional impacts on wetlands and other waters located on either side of the roadway as a result of runoff from active construction sites. Construction of Alternative 3 could result in an unspecified amount of impacts on seasonal freshwater wetlands in the northwest corner of Moss Landing Power Plant East Parcel through direct fill. Implementation of **Mitigation Measures 4.6-1a**, **4.6-1b**, **4.6-1c**, and **4.6-3** would reduce impacts to a less-than-significant level. Therefore, with respect to wetlands, although the extent of impacts would increase, Alternative 3 construction would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Alternative 3 would avoid the proposed project's significant impact resulting from the development of primary or secondary habitat under the City of Marina LCLUP, because it would avoid slant well construction at the CEMEX site and thus avoid primary and/or secondary habitat within the City of Marina. However, Alternative 3 would result in the development of the intake and discharge pipelines under the Old Salinas River (see **Figure 5.4-3**, inset). This development

could conflict with Policy 2.3.3.B4 of the North County LCP/LUP, which requires a setback of 100 feet from the landward edge of vegetation of all coastal wetlands (such as those present along the Old Salinas River) to be provided and maintained in open space use, and requires that no permanent structures except for those necessary for resource-dependent use which cannot be located elsewhere can be constructed in the setback area. Prior to approval of all proposed structures in the setback area, it must be demonstrated that the development does not significantly disrupt the habitat resource. Because the intake and discharge pipelines are not a resource-dependent use, they would conflict with this policy. No mitigation is available to reduce this impact to a less-than-significant level. The Alternative 3 desalinated water pipeline between Charles Benson Road and north of the Moro Cojo Slough traverses agricultural lands without tree cover, and no impact on trees or conflict with local tree ordinances is expected to occur. All other facilities common with the proposed project have the potential to conflict with a local tree ordinance, either by requiring removal or resulting in injury to a protected tree, which would be a significant impact. This significant impact would be reduced to a less-than-significant level with implementation of **Mitigation Measure 4.6-4 (Compliance with Local Tree Ordinances)**. Overall, Alternative 4 would result in the ***same impact conclusion*** as the proposed project, significant and unavoidable.

Eliminating the subsurface slant wells at CEMEX would decrease the potential for slant well construction to spread invasive species within central dune scrub, but the longer desalinated water pipeline under Alternative 3 would increase the potential for pipeline construction to introduce or spread an invasive non-native species. This significant impact could be avoided or minimized to less than significant through implementation of **Mitigation Measures 4.6-1a** and **4.6-1p**. Thus, with respect to invasive species, combining the impacts of the proposed project components with the longer pipeline, construction would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Operational and Facility Siting Impacts

With respect to operational impacts on special-status species and their habitat, eliminating the need for recurring maintenance of slant wells within or adjacent to sensitive central dune scrub habitat would eliminate operational impacts on this habitat type and associated special-status species. Maintenance of the new intake pump station would occur within already-developed and disturbed industrial areas on Dolan Road. Operation of Alternative 3 would eliminate impacts on western snowy plover; therefore, the need for mitigation of those impacts, as described in the proposed project, would also be eliminated. Noise generated during operation of the intake pump station would have a less severe impact on special-status species than the subsurface slant wells under the proposed project. Impacts on waterfowl associated with operation and maintenance activities at the MPWSP Desalination Plant brine storage tank are avoided under Alternative 3. Therefore, with respect to impacts on special-status species, combining the proposed project components with those unique to Alternative 3, operation would result in a reduced impact, but would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

With respect to operational impacts on riparian habitat, critical habitat, or other sensitive natural communities, Alternative 3 would avoid the proposed project's impacts on steelhead habitat in the Salinas River and Tembladero Slough because it would not draw groundwater that could affect surface water flows, and would avoid maintenance-related impacts within snowy plover critical habitat and central dune scrub, a sensitive natural community and primary and secondary habitat under the City of Marina LCLUP. Construction of the Alternative 3 desalination facility, source water pipeline, outfall pipeline, and ASR pipelines would occur within or adjacent to vegetation communities or features considered ESHA under the North County LCP/LUP. Operation and maintenance of the intake pump station would have similar impacts to those described for the proposed project and could be significant. All impacts would be reduced to a less-than-significant level with implementation of **Mitigation Measures 4.6-1a**, **4.6-1b**, **4.6-1c**, **4.6-1n**, **4.6-1p**, **4.6-2a**, and **4.6-2b**. Therefore, Alternative 3 would result in the *same* ***impact conclusion*** with respect to riparian habitat, critical habitat, or other sensitive natural communities compared to the proposed project, less than significant with mitigation.

Operation and maintenance of the new open water intake and brine discharge outfall at Moss Landing would not result in any potential impacts on jurisdictional wetlands or. Operation and maintenance of the new desalination plant at Moss Landing Power Plant East Parcel could result in runoff and sediment discharge impacts on seasonal freshwater wetlands in the northwest corner of the parcel and to a drainage parallel to Dolan Road. Implementation of **Mitigation Measures 4.6-1a** through **4.6-1c** would reduce these potential impacts to less than significant. No impact on waters of the U.S./waters of the State would result from maintenance and operation of all other facilities. Therefore, Alternative 3 would result in the ***same impact conclusion*** with respect to wetlands and other waters during operation, less than significant with mitigation.

Alternative 3 would avoid impacts of the proposed project on the spread of invasive plants during operation because no maintenance would occur at the CEMEX site. Maintenance and operations of all other facilities would not result in foreseeable surface disturbance which could contribute to the introduction or spread of invasive plants and would therefore have no impact. Therefore, Alternative 3 would result in a ***reduced impact conclusion*** with respect the spread of invasive plants during operation, no impact.

With respect to inconsistency with an adopted habitat conservation plan, the Alternative 3 desalination facility at the Moss Landing Power Plant East Parcel, source water pipeline, and outfall pipeline would occur within or adjacent to vegetation communities or features considered ESHA under the North County LCP/LUP. Impacts on ESHAs under Alternative 3 would have the potential to be significant. Other components and potential impacts under Alternative 3 are the same as the proposed project, and would be significant. Implementation of **Mitigation Measures 4.6-1n**, **4.6-1p**, **4.6-2b**, and **4.6-8** would reduce the impact to a less-than-significant level. Therefore, with respect to consistency with an adopted habitat conservation plan, operation of Alternative 3 would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Cumulative Analysis

Alternative 3 would avoid the effects of the proposed project on migrating waterfowl, and would have no foreseeable operational potential to spread invasive plants; therefore, unlike the proposed project, it would avoid contributions to cumulative impacts on these resources.

The geographic scope of analysis for cumulative impacts related to terrestrial biological resources for Alternative 3 is defined by the location of the Alternative 3 components as well as biologically linked terrestrial areas within approximately 5 miles of these sites. Cumulative impacts within former Fort Ord lands, and the contribution of Alternative 3 to those impacts, would be exactly the same as described for the proposed project because the components that contribute to these impacts are the same under Alternative 3.

Eliminating disturbance associated with the subsurface slant wells at the CEMEX site would eliminate impacts on western snowy plover and reduce overall impacts on special-status species and their habitat and the potential to spread invasive species within sensitive dune scrub habitat compared to the proposed project. The same projects listed in Section 4.6.6 would contribute to potential impacts on sensitive vegetation types and wildlife habitat that could be affected by Alternative 3 components, including projects near the intake and desalination plant location (e.g., the Moss Landing Community Plan). In combination, these projects would result in significant cumulative impacts due to the potential to adversely affect special-status species and sensitive habitat types. Given the potential to adversely affect special-status species, Alternative 3 could result in a cumulatively considerable contribution to significant cumulative impacts on special-status species and sensitive habitat types. These impacts would be mitigated consistent with what is described for the proposed project in Section 4.6.5 (**Mitigation Measures 4.6-1a** through **4.6-1q**, **4.6-2**), and therefore, for the same reasons described in Section 4.6.6, while Alternative 3 could result in a considerable contribution to significant cumulative impacts on these biological resources, with mitigation, its contribution would be reduced to a level that is not cumulatively considerable.

Construction of Alternative 3 would have potentially significant impacts on wetlands as a result of multiple river and tidal slough crossings and associated wetlands. Additionally, components that are common with the proposed project could result in significant impacts as described in Section 4.6.5. The same projects listed in Section 4.6.6 would contribute to potential impacts on wetlands and other waters, potentially resulting in a significant cumulative impact. Alternative 3 river and tidal slough crossings, along with components common with the proposed project, could have a considerable contribution to significant cumulative impacts on wetlands in the region. After implementation of mitigation measures identified for the proposed project (i.e., **Mitigation Measures 4.6-1a, 4.6-1b, 4.6-1c,** and **4.6-3**), Alternative 3 would not have a cumulatively considerable contribution to a significant cumulative impact on wetlands for the same reasons described in Section 4.6.6.

Alternative 3 would avoid contributing to the significant cumulative impact related to inconsistencies with the City of Marina LCLUP by avoiding construction within the primary habitat at the CEMEX site. However, Alternative 3 would have a significant and unavoidable impact related to placing structures within or adjacent to habitat that is inconsistent with the

North County LCP/LUP. Alternative 3 is the only reasonably foreseeable project in **Table 4.1-2** in Section 4.1 that would place structures within or adjacent to habitat considered to be ESHA under the North County LCP/LUP; therefore, a cumulative impact analysis is not relevant to this impact.

Overall, Alternative 3 would result in a ***reduced impact conclusion*** compared to the proposed project, less than significant with mitigation.

5.5.6.7 Direct and Indirect Effects of Alternative 4 – People's Moss Landing Water Desalination Project (People's Project)

Alternative 4 includes the construction and operation of an open ocean intake, a brine discharge system and pipelines, and supporting ballast rock located on the seafloor in Monterey Bay within MBNMS, as well as a 12 mgd desalination plant and associated facilities to provide 13,400 afy of water supply to meet the current and future needs of the Monterey Peninsula. Several components would be identical to the proposed project: the new Transmission Main, new desalinated water pipeline south of the "Connection to CalAm" Point on **Figure 5.4-4**, ASR-5 and -6 wells and ASR pipeline, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be as described in Chapter 3, Description of the Proposed Project. Because this alternative would have an open water intake that would eliminate the need for returning source water drawn from the Salinas Valley Groundwater Basin, the proposed project Castroville Pipeline, Pipeline to CSIP Pond, and operational components related to delivering water to CCSD would not be implemented. The desalination plant, open water intake system, brine discharge system, and the additional 6.5 miles of desalinated water pipeline are the components unique to Alternative 4 (see **Figure 5.4-4**). Therefore, the analysis of Alternative 4 focuses primarily on these components; however, impact conclusions are made for the whole of Alternative 4.

Construction Impacts

With respect to effects on special-status species and their habitat, by eliminating onshore construction and maintenance activities and structures associated with the subsurface slant wells, Alternative 4 would avoid disturbance of 9 acres of central dune scrub habitat that would occur under the proposed project, eliminating impacts on western snowy plover and reducing overall impacts on special-status species and their habitat. Construction of the new open-water intake and brine discharge pipelines at Moss Landing and new alternative source water pipeline would have neglible impacts on terrestrial biological resources, if any, because construction on land would be limited to an existing 20-foot-diameter intake pump caisson structure located on the beach; Alternative 4 would avoid proposed project impacts on special-status plants and animals known to occur or with potential to occur at the subsurface slant well site and along the Source Water Pipeline; and impacts on special-status plants and animals at the MPWSP Desalination Plant, Brine Discharge Pipeline, and Pipeline to CSIP Pond. As described for Alternative 3, the Alterntive 4 desalinated water pipeline alignment provides lower habitat value for special-status plant and animal species in comparison with the proposed project's Source Water Pipeline alignment, resulting in a less severe impact on special-status plants and animals; nonetheless, identified mitigation measures for construction would be required. Implementation of **Mitigation**

Measures 4.6-1a through **4.6-1c**, **4.6-1e** through **4.6-1q,** and **4.14-2** identified for the proposed project in Section 4.6 would reduce these impacts on special-status species and their habitat to less than significant. Thus, with respect to adverse effects on special-status species, although impacts would be decreased compared to the proposed project, combining the impacts of the proposed project components with the components unique to Alternative 4, construction would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

With respect to effects on riparian habitat, critical habitat, and other sensitive natural communities, Alternative 4 would avoid approximately 9 acres of central dune scrub sensitive natural community and primary and secondary habitat under the City of Marina LCLUP, and indirect impacts on snowy plover critical habitat at the CEMEX site. However, the new alternative desalination plant would be situated adjacent to wetland sensitive habitat, consisting of saltmarsh wetlands connected to Moro Cojo Slough, with the potential for direct impacts from construction disturbance or runoff. This habitat also consitutes ESHA and is designated primary or secondary habitat under the North County LCP/LUP. However, Alternative 4 would not include facilities located within designated Critical Habitat, and overall impacts on sensitive habitats, including those on ESHA, would be decreased compared to the proposed project. Implementation of mitigation measures identified for the proposed project in Section 4.6 (i.e., **Mitigation Measures 4.6-1a** through **4.6-1c, 4.6-1e** through **4.6-1q, 4.12-1b,** and **4.14-2**) would reduce these impacts to less than significant. Thus, with respect to riparian habitat, critical habitat, and sensitive natural communities, construction would result in the ***same impact conclusion*** compared to the proposed project, less than significant with mitigation.

Alternative 4 would increase the potential for significant construction impacts on wetlands with multiple crossings of open water features and associated wetlands as described above for Alternative 2. Additionally, construction impacts would be greater than the proposed project, mainly due to location of the intake and brine discharge structures on the seafloor in comparison with the use of subsurface slant wells. The open water intake structure and brine discharge structure would be constructed on the seafloor in waters of the U.S. and of the State, resulting in discharge of fill material over approximately 43,200 ft^2 (about 1 acre). Construction of the desalination plant at the former National Refractories facility could impact salt marsh wetlands located along the site's western margin, and connected to Moro Cojo Slough. Implementation of **Mitigation Measures 4.6-1a**, **4.6-1b**, **4.6-1c**, and **4.6-3** would reduce impacts to a less-than-significant level. Therefore, with respect to wetlands, although the extent of impacts would increase, Alternative 4 construction would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Alternative 4 would avoid the proposed project's significant impact resulting from the development of primary or secondary habitat under the City of Marina LCLUP, because it would avoid slant well construction at the CEMEX site and thus avoid primary and/or secondary habitat within the City of Marina. However, Alternative 4 would result in the development of the intake and discharge pipelines under the Old Salinas River (see **Figure 5.4-4**, inset). This development could conflict with Policy 2.3.3.B4 of the North County LCP/LUP, which requires a setback of 100 feet from the landward edge of vegetation of all coastal wetlands (such as those present along the Old Salinas River) to be provided and maintained in open space use, and requires that no

permanent structures except for those necessary for resource-dependent use which cannot be located elsewhere can be constructed in the setback area. Prior to approval of all proposed structures in the setback area, it must be demonstrated that the development does not significantly disrupt the habitat resource. Because the intake and discharge pipelines are not a resource-dependent use, they would conflict with this policy. No mitigation is available to reduce this impact to a less-than-significant level. The Alternative 4 desalinated water pipeline between Charles Benson Road and north of the Moro Cojo Slough traverses agricultural lands without tree cover, and no impact on trees or conflict with local tree ordinances is expected to occur. All other facilities common with the proposed project have the potential to conflict with a local tree ordinance, either by requiring removal or resulting in injury to a protected tree, which would be a significant impact. This significant impact would be reduced to a less-than-significant level with implementation of **Mitigation Measure 4.6-4 (Compliance with Local Tree Ordinances)**. Overall, Alternative 4 would result in the ***same impact conclusion*** as the proposed project, significant and unavoidable.

Eliminating the subsurface slant wells at CEMEX would decrease the potential for slant well construction to spread invasive species within central dune scrub, but the longer desalinated water pipeline under Alternative 4 would increase the potential for pipeline construction to introduce or spread an invasive non-native species. This significant impact could be avoided or minimized to less than significant through implementation of **Mitigation Measures 4.6-1a** and **4.6-1p**. Thus, with respect to invasive species, combining the impacts of the proposed project components with the longer pipeline, construction would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Operational and Facility Siting Impacts

With respect to operational impacts on special-status species and their habitat, eliminating the need for recurring maintenance of slant wells within or adjacent to sensitive central dune scrub habitat would eliminate operational impacts on this habitat type and associated special-status species. Noise generated during operation of the intake pump station would have a less severe impact on special-status species than the subsurface slant wells under the proposed project. Impacts on waterfowl associated with operation and maintenance activities at the MPWSP Desalination Plant brine storage tank are avoided under Alternative 4. Therefore, with respect to impacts on special-status species, combining the proposed project components with those unique to Alternative 4, operation would result in a reduced impact, but would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

With respect to operational impacts on riparian habitat, critical habitat, or other sensitive natural communities, Alternative 3 would avoid the proposed project's impacts on steelhead habitat in the Salinas River and Tembladero Slough because it would not draw groundwater that could affect surface water flows, and would avoid maintenance-related impacts within snowy plover critical habitat and central dune scrub, a sensitive natural community and primary and secondary habitat under the City of Marina LCLUP. Additional indirect impacts on Monterey spineflower critical habitat could occur during operations and maintenance at the Alternative 4 intake facility at the existing beach caisson. Operations and maintenance of the Alternative 4 components,

including the alternative source water pipeline, outfall pipeline, and components common with the proposed project would have similar potentially significant impacts on sensitive natural communities and critical habitat as the proposed project. All impacts would be reduced to a less-than-significant level with implementation of **Mitigation Measures 4.6-1a**, **4.6-1b**, **4.6-1c**, **4.6-1n**, **4.6-1p**, **4.6-2a**, and **4.6-2b**. Therefore, Alternative 4 would result in the *same* ***impact conclusion*** with respect to riparian habitat, critical habitat, or other sensitive natural communities compared to the proposed project, less than significant with mitigation.

Operation and maintenance of the new open water intake and brine discharge outfall at Moss Landing would not result in any potential impacts on jurisdictional wetlands or waters in comparison to the proposed project. Operation of the desalination plant at the former National Refractories facility could impact salt marsh wetlands located along the site's western margin, and connected to Moro Cojo Slough, through runoff and sediment discharge. Implementation of **Mitigation Measures 4.6-1a** through **4.6-1c** would reduce these potential impacts to less than significant. No impact on waters of the U.S./waters of the State would result from maintenance and operation of all other facilities. Therefore, Alternative 4 would result in the ***same impact conclusion*** with respect to wetlands and other waters during operation, less than significant with mitigation.

Alternative 4 would avoid impacts of the proposed project on the spread of invasive plants during operation because no maintenance would occur at the CEMEX site. Maintenance and operations of all other facilities would not result in foreseeable surface disturbance which could contribute to the introduction or spread of invasive plants and would therefore have no impact. Therefore, Alternative 4 would result in a ***reduced impact conclusion*** with respect the spread of invasive plants during operation, no impact.

With respect to inconsistency with an adopted habitat conservation plan, the Alternative 4 desalination facility, source water pipeline, and outfall pipeline would occur within or adjacent to vegetation communities or features considered ESHA under the North County LCP/LUP. Impacts on ESHAs under Alternative 4 would have the potential to be significant. Other components and potential impacts under Alternative 4 are the same as the proposed project, and would be significant. Implementation of **Mitigation Measures 4.6-1n**, **4.6-1p**, **4.6-2b**, and **4.6-8** would reduce the impact to a less-than-significant level. Therefore, with respect to consistency with an adopted habitat conservation plan, operation of Alternative 4 would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Cumulative Analysis

Alternative 4 would have no foreseeable operational potential to spread invasive plants, and so would not contribute to cumulative impacts related to invasive plants during operation.

The geographic scope of analysis for cumulative impacts related to terrestrial biological resources for Alternative 4 is defined by the location of the Alternative 4 components as well as biologically linked terrestrial areas within approximately 5 miles of these sites. Cumulative impacts within former Fort Ord lands, and the contribution of Alternative 4 to those impacts,

would be exactly the same as described for the proposed project because the components that contribute to these impacts are the same under Alternative 4.

Eliminating disturbance associated with the subsurface slant wells at the CEMEX site would eliminate impacts on western snowy plover and reduce overall impacts on special-status species and their habitat and the potential to spread invasive species within sensitive dune scrub habitat compared to the proposed project. The same projects listed in Section 4.6.6 would contribute to potential impacts on sensitive vegetation types and wildlife habitat that could be affected by Alternative 4 components, including projects near the intake and desalination plant location (e.g., the Moss Landing Community Plan). In combination, these projects would result in significant cumulative impacts due to the potential to adversely affect special-status species and sensitive habitat types. Given the potential to adversely affect special-status species, Alternative 4 could result in a cumulatively considerable contribution to significant cumulative impacts on special-status species and sensitive habitat types. These impacts would be mitigated consistent with what is described for the proposed project in Section 4.6.5 (**Mitigation Measures 4.6-1a** through **4.6-1q**, **4.6-2**), and therefore, for the same reasons described in Section 4.6.6, while Alternative 4 could result in a considerable contribution to significant cumulative impacts on these biological resources, with mitigation, its contribution would be reduced to a level that is not cumulatively considerable.

Construction of Alternative 4 would have potentially significant impacts on wetlands as a result of multiple river and tidal slough crossings and associated wetlands. Additionally, components that are common with the proposed project could result in significant impacts as described in Section 4.6.5. The same projects listed in Section 4.6.6 would contribute to potential impacts on wetlands and other waters, potentially resulting in a significant cumulative impact. Alternative 4 river and tidal slough crossings, along with components common with the proposed project, could have a considerable contribution to significant cumulative impacts on wetlands in the region. After implementation of mitigation measures identified for the proposed project (i.e., **Mitigation Measures 4.6-1a, 4.6-1b, 4.6-1c,** and **4.6-3**), Alternative 4 would not have a cumulatively considerable contribution to a significant cumulative impact on wetlands for the same reasons described in Section 4.6.6.

Alternative 4 would avoid contributing to the significant cumulative impact related to inconsistencies with the City of Marina LCLUP by avoiding construction within the primary habitat at the CEMEX site. However, Alternative 4 would have a significant and unavoidable impact related to placing structures within or adjacent to habitat that is inconsistent with the North County LCP/LUP. The DeepWater Desal Project (No. 34 in **Table 4.1-2** in Section 4.1) could place its proposed desalination plant within or adjacent to habitat considered to be ESHA under the North County LCP/LUP, also a significant and unavoidable impact. In combination, these projects would result in a significant cumulative impact, and Alternative 4 would have a cumulatively considerable contribution.

Overall, while some contributions to cumulative impacts would be avoided, Alternative 4 would result in the ***same impact conclusion*** as the proposed project, significant and unavoidable.

5.5.6.8 Direct and Indirect Effects of Alternative 5 – Reduced Desal Project 5a (CEMEX) and 5b (Potrero Road)

Alternative 5a would include the seawater intake system at the CEMEX site (the same location as the proposed project), but would include only seven subsurface slant wells (the converted test well and six new wells) and the same source water pipeline as the proposed project. Alternative 5b would include seven new wells at the western end of Potrero Road (the same location as Alternative 1) and the same source water pipeline as Alternative 1. Both Alternatives 5a and 5b would include a reduced-capacity desalination plant (6.4 mgd), and all other components would be the same as the proposed project.

Construction Impacts

Alternative 5a would reduce impacts on sensitive central dune scrub and associated special-status species compared to the proposed project by reducing the area of construction impact at the CEMEX site by approximately 15 percent. However, construction activities in proximity to endangered species habitat (i.e., western snowy plover, Smith's blue butterfly, and others described in Section 4.6) would result in similar levels of potential direct and indirect effects on individuals and habitat quality compared with the project. Alternative 5b would result in construction of fewer subsurface slant wells at Potrero Road compared to Alternative 1, but would have the same area of disturbance, and so would result in the same types of impacts described for Alternative 1. Under both Alternatives 5a and 5b, the area of disturbance of California annual grassland and associated special-status species, including California tiger salamander, at the desalination plant site may be reduced, but potential significant impacts on special-status species would be the same as the proposed project. All other components and potential impacts under Alternatives 5a and 5b would be the same as in the proposed project and Alternative 1, respectively. Thus, with respect to adverse effects on special-status species, construction would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

With respect to effects on riparian habitat, critical habitat, and other sensitive natural communities, Alternative 5a would reduce the area of sensitive central dune scrub disturbance, but potential significant impacts on central dune scrub sensitive natural community, primary and secondary habitat under the Marina LCP, and western snowy plover critical habitat would be the same. Alternative 5b impacts on sensitive natural communities would be the same as described under Alternative 1. Overall, Alternative 5b would have less severe significant impacts on sensitive natural communities and similar significant impacts on critical habitat. With respect to riparian habitat, critical habitat, and sensitive natural communities, construction would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

The same impacts on jurisdictional wetlands and other waters would occur during construction of Alternative 5a as under the proposed project. Construction impacts resulting from Alternative 5b would result in greater potential impacts on jurisdictional wetlands and other waters associated with multiple crossings of jurisdictional features by the new alternative source water pipeline. **Mitigation Measures 4.6-1a** through **4.6-1c, 4.6-1g,** and **4.6-3** would be relevant to both

Alternatives 5a and 5b. Construction would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Alternative 5a would result in the same significant unavoidable impact from conflict with the Marina LCLUP as the proposed project, and Alternative 5b would result in the same significant unavoidable impact from conflict with the North County LCP/LUP as Alternative 1. Therefore, Therefore, Alternatives 5a and 5b would result in the ***same impact conclusion*** as the proposed project, significant and unavoidable.

Less ground disturbance would occur at the desalination plant site under Alternatives 5a and 5b than under the proposed project and therefore the potential impact resulting from the spread of non-native, invasive species at this site would be decreased. Alternative 5b would include a longer source water pipeline as described for Alternative 1, increasing the potential to spread invasive species along that alignment compared to the proposed project or Alternative 5a. Impacts would be significant and would require implementation of **Mitigation Measure 4.6-1p** (**Control Measures for Spread of Invasive Plants**) to reduce impacts to less than significant. Thus, with respect to invasive species, construction would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Operational and Facility Siting Impacts

With respect to operational impacts on special-status species and their habitat, disturbance from maintenance of the slant wells and the resulting impact on western snowy plover habitat would be similar to the proposed project under Alternative 5a (CEMEX site) and decreased compared to the proposed project under Alternative 5b (Potrero Road site); under either alternative, significant indirect impacts could still occur and would be reduced to less than significant with **Mitigation Measure 4.6-1d**. All other components would result in the same potentially significant impacts described for the proposed project, and thus would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

With respect to operational impacts on riparian habitat, critical habitat, or other sensitive natural communities, under Alternative 5a, similar impacts on central dune scrub sensitive natural community, primary and secondary habitat under the City of Marina LCLUP, and western snowy plover critical habitat would occur at the CEMEX facility subsurface slant wells and source water pipeline during operations and maintenance activities as the proposed project. The area of disturbance would be reduced under Alternative 5a but potential significant impacts on central dune scrub sensitive natural community, primary and secondary habitat under the City of Marina LCP, and western snowy plover critical habitat would be the same. Under Alternative 5b, impacts on sensitive natural communities during operations would be the same as described under Alternative 1, and would be potentially significant. Impacts of both Alternatives 5a and 5b would be mitigated to a less-than-significant level with implementation of **Mitigation Measures 4.6-1a** through **4.6-1d, 4.6-1n, 4.6-1p, 4.6-2a**, and **4.6-2b**.

Alternative 5a would reduce impacts on steelhead habitat compared to the proposed project. Although slant well pumping under Alternative 5a would not directly pull surface water from the Salinas River, like the proposed project slant well pumping, it could draw in groundwater that

would otherwise discharge to the river. Alternative 5a would remove less groundwater from the river recharge system compared to the proposed project – approximately 270 afy compared to the proposed project's 400 afy, proportional to the reduced capacity of the Alternative 5a desalination plant. This would represent 0.11 percent of the total annual flow volume of the Salinas River, compared to the proposed project's 0.16 percent. Similarly, Alternative 5a would remove approximately 47 afy from Tembladero Slough, compared to the proposed project's 70 afy. These impacts would be reduced compared to the proposed project and would remain less than significant. Alternative 5b, similarly, would reduce impacts on Elkhorn Slough compared to those described for Alternative 1; however, because impacts cannot be quantified with the information available, it is assumed this impact would remain significant and unavoidable. Therefore, with respect to riparian habitat, critical habitat, or other sensitive natural communities, Alternative 5a would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation, and Alternative 5b would result in an ***increased impact conclusion*** compared to the proposed project, significant and unavoidable.

Under Alternative 5a, operation and maintenance of a reduced number of subsurface slant wells at CEMEX would reduce the potential for impacts on jurisdictional wetlands and other waters. Under Alternative 1, no maintenance would occur near the CEMEX settling ponds; however, operations and maintenance of subsurface slant wells at Potrero Road have some potential to cause runoff or sediment discharge to nearby Old Salinas River and associated tidal salt marsh. Implementation of **Mitigation Measures 4.6-1a** through **4.6-1c** would reduce these potential impacts to less than significant. No impact on waters of the U.S./waters of the State would result from maintenance and operation of all other facilities. Therefore, Alternatives 5a and 5b would result in the ***same impact conclusion*** with respect to wetlands and other waters during operation, less than significant with mitigation.

Alternative 5a would result in the same potential as the proposed project to spread invasive plants at the CEMEX site during operation (significant, but reduced to less than significant implementation of **Mitigation Measures 4.6-1** and **4.6-1p**). Alternative 5b would avoid impacts of the proposed project on the spread of invasive plants during operation because no maintenance would occur at the CEMEX site, and the Potrero Road site is disturbed and thus not susceptible to the spread of invasive plants. Maintenance and operations of all other facilities would not result in foreseeable surface disturbance which could contribute to the introduction or spread of invasive plants and would therefore have no impact. Therefore, Alternative 5a would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation, and Alternative 5b would result in a ***reduced impact conclusion*** with respect the spread of invasive plants during operation, no impact.

Alternatives 5a and 5b would have the same impact related to inconsistency with an adopted habitat conservation plan because all facilities contributing to this impact would be common with the proposed project. Implementation of **Mitigation Measures 4.6-1n**, **4.6-1p**, **4.6-2b**, and **4.6-8** would reduce the impact to a less-than-significant level. Therefore, with respect to consistency with an adopted habitat conservation plan, operation of Alternatives 5a and 5b would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Cumulative Analysis

Combined Impacts with GWR Project

Construction of GWR Project (No. 59 in **Table 4.1-2** in Section 4.1) facilities may adversely affect, either directly or through habitat modification, special-status plant and wildlife species and their habitat. Significant impacts on special-status plant and animal species could occur during construction at all of the proposed GWR Project facility sites including impacts on some of the same resources as Alternatives 5a and 5b: sandmat manzanita, Monterey ceanothus, Monterey spineflower, Eastwood's goldenbush, and Kellogg's horkelia; roosting special-status bat species and nesting raptors, migratory birds, tricolored blackbird, western burrowing owl, California horned lark, white-tailed kite, or other protected avian species; Smith's blue butterfly; California tiger salamander, California red-legged frog; western pond turtle; California legless lizard; coast horned lizard; Monterey dusky-footed woodrat; Monterey ornate shrew; and American badger. The GWR Project also would include construction of facilities that could adversely affect jurisdictional wetlands and other waters and could result in the removal and/or trimming of protected trees. All impacts could be reduced to a less-than-significant level with implementation of mitigation approved as part of the adopted Mitigation Monitoring and Reporting Program for the GWR Project (MRWPCA and MPWMD, 2016). For the same reasons described for the proposed project and Alternatives 5a and 5b, the GWR Project could have cumulatively considerable contributions to cumulative impacts on these resources, but after implementation of adopted mitigation measures, the GWR Project would not combine with the contribution of Alternatives 5a and 5b to result in as significant combined impact on these resources.

Operation of the GWR Project would affect the hydrology of the Salinas River with a potential reduction of up to 2 percent of the average annual flow, which would not be substantial in relation to total flows. In combination with the effects of Alternative 5a, the total effect would be a potential reduction of up to 2.11 percent of the average annual flow. These combined diversions would not result in significant cumulative impact on Salinas River flows or the associated riparian habitats, and the contribution of Alternative 5a would not be cumulatively considerable. The GWR Project's effects on the hydrology of the Salinas River would not combine with potential effects of Alternative 5b on the hydrology of Elkhorn Slough.

Several components of Alternatives 5a and 5b that are common with the proposed project would be located within the *1997 Installation-Wide Multispecies Habitat Management Plan* (HMP) for the former Fort Ord area and construction and operations of these facilities could be inconsistent with the HMP. The GWR Project components located within the boundaries of former Fort Ord could be inconsistent with the local requirements for HMP plant species. Implementation of mitigation approved as part of the adopted Mitigation Monitoring and Reporting Program for the GWR Project (MRWPCA and MPWMD, 2016) would reduce the GWR Project's impact. Similarly, implementation of **Mitigation Measures 4.6-1p**, **4.6-2b**, and **4.6-8** for Alternatives 5a and 5b would reduce potential impacts to a less-than-significant level, and for the same reasons described in Section 4.6.6 for the proposed project, the contribution of Alternatives 5a and 5b to a cumulative impact on the HMP would not be cumulatively considerable.

Impacts of Full Cumulative Scenario

The cumulative scenario for Alternatives 5a and 5b would be the same as described in Section 4.6.6 for the proposed project, but as described above, would include the additional GWR Project. Contributions to cumulative impacts resulting from construction of Alternatives 5a and 5b would be reduced compared to those described for the proposed project, which is described in Section 4.6.6, consistent with the reduced impacts associated with fewer slant wells and a reduced desalination plant footprint as described above. While these impacts could result in cumulatively considerable contributions to the same cumulative impacts described for the proposed project, these impacts would be mitigated consistent with what is described for the proposed project in Section 4.6.5. Following implementation of these mitigation measures, for the same reasons described for the proposed project in Section 4.6.6, Alternatives 5a and 5b would not have a cumulatively considerable contribution to a significant cumulative impact with the exception of the significant and unavoidable contribution to cumulative impacts related to inconsistencies with the City of Marina LCLUP (Alternative 5a) and the North County LCP/LUP (Alternative 5b). Construction of Alternative 5a and 5b could result in a cumulatively considerable contribution to a significant cumulative impact on wetlands, but mitigation measures described as part of the proposed project (i.e., **Mitigation Measures 4.6-1a, 4.6-1b, 4.6-1c,** and **4.6-3**), would reduce the contribution of Alternative 5a and 5b to below a cumulatively considerable level.

Overall, while some contributions to cumulative impacts would be reduced, Alternatives 5a and 5b would result in the ***same impact conclusion*** as the proposed project, significant and unavoidable.

5.5.6.9 References

EMC Planning Group, Inc., 2016. Habitat Assessment for the California Red-Legged Frog, California Tiger Salamander, and Santa Cruz Long-Toed Salamander, Monterey Bay Regional Water Project, Moss Landing, Monterey County, California. Prepared for Deep Water Desal, LLC. Feb. 26, 2016.

Monterey Regional Water Pollution Control Agency and Monterey Peninsula Water Management District (MRWPCA and MPWMD), 2016. Consolidated Final Environmental Impact Report for the Pure Water Monterey Groundwater Replenishment Project, Volume IV, Exhibit B. http://purewatermonterey.org/wp/wp-content/uploads/Volume-IV-EIR-Certification-and-Project-Approval-Jan-2016.pdf.

State Water Resources Control Board (SWRCB), 2016. *Order WR 2016-0016, In the Matter of Application of California American Water Company, To Amend State Water Board Order 2009-0060*. Adopted July 19, 2016.

5.5.7 Hazards and Hazardous Materials

The evaluation criteria for Hazards and Hazardous Materials address: hazards to the public or the environment from accidental spills during construction, and during operation; encountering hazardous materials from, or locating facilities on a hazardous materials site; handling hazardous materials near a school, and; increased risk of wildland fires during construction. Construction of all facilities will involve the use of hazardous materials (e.g. fuel, lubricants, paints, and solvents) but only the slant wells, the desalination plant, the ASR wells, Terminal Reservoir and the Carmel Valley Pump Station would use hazardous materials during operation. Proposed facilities near the wildlands of the former Fort Ord, and in Carmel Valley, are located in or near areas classified by CAL FIRE as High or Very High Hazard Severity Zones.

5.5.7.1 Setting/Affected Environment

The components of the alternatives that are common to the proposed project are located south of the Nashua Road/Highway 1 intersection and the setting/affected environment for those facilities is described in Section 4.7, Hazards and Hazardous Materials. The setting for the components north of the Nashua Road/Highway 1 intersection is presented below.

Hazardous Materials Sites in the Moss Landing Area

The hazardous materials sites discussed below are the only active hazardous materials sites in the Moss Landing area and would have the potential to overlap with the components unique to Alternatives 2, 3, and 4. There are no hazardous sites that overlap with the components unique to Alternatives 1 or 5b and there are no known hazardous materials sites within Monterey Bay in MBNMS.

Former National Refractories

The former refractory property, which is the site for the Alternative 4 desalination plant, is located at the southeast corner of Highway 1 and Dolan Road. It was used as a mineral extraction and processing facility and a brick production plant until the bankruptcy of National Refractories in 2002 (CapRock, 2013, 2016). This facility had several onsite landfills, settling ponds, borrow areas, above and below ground storage tanks, and underground fuel lines. The refractory had historic releases of hexavalent chromium, other metals (barium, total chromium, molybdenum, nickel, and zinc), solvents, and fuels to soil and groundwater. Most of the historical structures have been removed. Site investigation and remediation activities are in progress.

Fuel contamination was released from the former USTs located about 200 feet south of Dolan Road. The contamination in soil and groundwater is reportedly limited to the former refractory property and is being remediated by a soil vapor extraction system.

Chromite ore piles have been removed from the property, eliminating a source of hexavalent chromium. However, hexavalent chromium is reportedly present in groundwater throughout the former refractory property and may extend for an unknown distance to areas north of Dolan Road and south of the former refractory property. Some of the source of hexavalent chromium in

groundwater is from the onsite historical use of chromium. Background studies also revealed that naturally-occurring chromium-bearing minerals in the local Aromas Red Sands Formation are a source of the hexavalent chromium detected in the Aromas Aquifer. Remediation activities for hexavalent chromium in groundwater have consisted of the injection of a lactate solution to stimulate microbial activity to transform hexavalent chromium to the less toxic trivalent chromium, which largely precipitates out of groundwater. Hexavalent chromium concentrations have been reduced but are still above action levels in some areas. The depth to groundwater ranged from 16.65 to 29.96 feet below the ground surface on November 11, 2015 (CapRock, 2016).

Dynegy Moss Landing (aka Moss Landing Power Plant)

The Dynegy Moss Landing site, also known as the Moss Landing Power Plant, is located along the north side of Dolan Road extending from Highway 1 east to Via Tanques Road (DTSC, 2016). This site is located north across Dolan Road from the Alternative 4 desalination plant site; and directly west of the Alternative 3 desalination plant site. Portions of the Alternative 2 and 3 intake pump station and intake pipeline would overlap with the area of contamination reported at this site. PG&E is the original owner and retains responsibility for environmental cleanup. Dynegy, current owner, took control of the facility in 2007. Nine power generation units have been used at the site since its inception. Fuel oil was burned to generate power before switching to natural gas. The constituents of concern at the facility are petroleum hydrocarbons, volatile organic compounds, polynuclear aromatic hydrocarbons, metals, polychlorinated biphenyls (PCBs), and asbestos. Soil and groundwater investigation and cleanup are in progress. The extent of soil and groundwater contamination is both onsite and offsite. The property has land use restrictions that prohibit onsite soil excavation and groundwater extraction without the approval of the DTSC. The power generation and subsequent investigation and cleanup activities are in the western portion of the property and contamination has not been reported in the eastern portion of the property.

Calera Corporation Moss Landing Cement Company

The Calera Corporation Moss Landing Cement Company is located at 7696 Highway 1 in Moss Landing just southeast of the Highway 1 and Dolan Road intersection. It is located west-southwest of the Alternative 3 desalination plant site and adjacent to the Alternative 4 desalination plant site. The site had seven containment structures that have not been used since 2011. Remediation was conducted in 2011 and the site owners are planning to submit a case closure request (RWQCB, 2016). The GeoTracker website provided summary information but no investigation or cleanup reports.

Other Hazards Considerations

There are no airports within 2 miles and no schools within 0.25 mile of the components located north of the Nashua Road/Highway 1 intersection; the area is not within a very high or high fire hazard severity zone (CAL FIRE, 2007, 2008).

5.5.7.2 Direct and Indirect Effects of Proposed Project (Slant Wells at CEMEX)

The proposed project extends from Castroville in the north to the city of Carmel in the south (see **Figure 3-2**) and would include construction of a desalination plant on 25 acres along Charles Benson Road northeast of the City of Marina, up to nine new subsurface slant wells at the CEMEX active mining area, two new wells (ASR-5 and ASR-6) at the existing Seaside Groundwater Basin aquifer storage and recovery (ASR) system, the Carmel Valley Pump Station, and about 21 miles of water conveyance pipelines. The direct and indirect impacts of the proposed project are described in detail in Section 4.7.5.

Impact 4.7-1: Create a significant hazard to the public or the environment through the routine transport, use, disposal, or accidental release of hazardous materials during construction.

Petroleum products, such as gasoline, diesel fuel, lubricants, and cleaning solvents would be utilized to fuel and maintain construction vehicles and equipment for all project components. The proposed slant wells would use drilling fluids, such as bentonite mud and foam to assist the rotary drilling techniques. The construction contractor would pump out all of the sand-bentonite mud slurry and put it in a storage container for offsite hauling and disposal. Installation of the ASR Wells may use non-corrosive, environmentally inert, biodegradable additives to keep the drill hole open. Construction activities are required to comply with numerous hazardous materials and stormwater regulations, (such as the Hazardous Materials Business Plan (HMBP), Stormwater Pollution Prevention Plan (SWPPP), and California Fire Code) designed to ensure that hazardous materials are transported, used, stored, and disposed of in a safe manner. Through compliance with applicable hazardous materials storage, disposal, and stormwater permitting regulations, impacts associated with potential releases from the routine transport, use, or disposal of hazardous materials or the accidental release of hazardous materials during construction would be less than significant for all project components.

Impact 4.7-2: Encountering hazardous materials from other hazardous materials release sites during construction.

The proposed project involves excavation, trenching, and grading for the construction of water conveyance pipelines, building footings, and utilities. Some sites with known soil and/or groundwater contamination are located within 0.25 mile of project facilities and may have affected subsurface conditions at various locations along the project area. If substantial hazardous materials are present in excavated soils, health and safety risks to workers and the public could occur. Such risks could occur from stockpiling, handling, or transportation of contaminated soils. The dewatering of contaminated groundwater could also present risks to public health and safety, and the environment, if the contaminated groundwater (i.e., dewatering effluent) is not handled properly. The potential for contaminated soil and groundwater to be released into the environment during project construction would be considered a significant impact. These impacts would be reduced to a less-than-significant level with implementation of **Mitigation Measures 4.7-2a (Health and Safety Plan)**, which requires that construction contractors prepare a health and safety plan in accordance with Cal OSHA regulations and **4.7-2b (Soil and Groundwater**

Management Plan), which requires construction contractors to comply with all relevant environmental regulations and plan appropriately for the safe and lawful handling and disposal of excavated soil and groundwater.

Impact 4.7-3: Location on a known hazardous materials site.

The Terminal Reservoir (above and below ground options) and portions of the new Transmission Main and ASR Pipelines would be located in the former Fort Ord Seaside Munition Response Areas, a known former hazardous materials site that is identified on the National Priorities List. Construction activities within this area have the potential to encounter undiscovered unexploded ordnance, which, if not identified and properly handled, could cause injury to or death of construction workers or result in wildfire. Compliance with the City of Seaside's Ordnance Remediation District regulations and the environmental protection provisions of the Findings of Suitability for Early Transfer (FOSET) agreement between Fort Ord Reuse Authority and the City of Seaside would ensure that project impacts are less than significant. None of the other project components are located within a known hazardous materials site.

Impact 4.7-4: Handle hazardous materials or emit hazardous emissions within 0.25 mile of a school during construction.

The new Desalinated Water Pipeline, new Transmission Main, ASR Pipelines, and Ryan Ranch-Bishop Interconnection Improvements Pipeline would be located within 0.25 miles of a school and, as discussed in Impact 4.7-1, would require the use of fuel, lubricants, paints, and solvents. The HMBP and SWPPP discussed under Impact 4.7-1, above, impose performance standards on the construction activities that would ensure the risk of release of hazardous materials during construction would be low. Therefore, the potential for a hazardous materials release during construction to result in increased exposure to hazardous materials at the nearby schools is remote; this impact is less than significant. None of the other proposed project components are located within 0.25-mile of a school. No impact would result.

Impact 4.7-5: Increased risk of wildland fires during construction.

The new Transmission Main, ASR Pipelines, Terminal Reservoir, Ryan Ranch-Bishop Interconnection Improvements, Main System-Hidden Hills Interconnection Improvements, and Carmel Valley Pump Station are proposed in or near areas classified by CAL FIRE as High or Very High Fire Hazard Severity Zones. California regulations governing the use of construction equipment in fire prone areas are designed to minimize the risk of wildland fires (e.g., PRC Sections 4411 et seq.). In addition, the California Fire Code addresses the fire safety of general construction operations. The construction contractor must comply with these regulations and any additional requirements imposed by CAL FIRE or the local fire protection departments. With compliance, the impact associated with an increased risk of wildland fires during construction would be less than significant.

None of the other project facilities are located within or near an area classified by CAL FIRE as a High or Very High Fire Hazard Severity Zone; however, construction activities could temporarily increase fire risk. Compliance with California Fire Code regulations would ensure that the

potential impact associated with an increased risk of fire during construction of all other project components would be less than significant.

Impact 4.7-6: Create a significant hazard to the public or the environment through the routine transport, use, disposal, or accidental release of hazardous materials during project operations.

Operation and maintenance of the proposed subsurface slant wells, MPWSP Desalination Plant, ASR-5 and ASR-6 Wells, Terminal Reservoir, and Carmel Valley Pump Station would involve the routine use and storage of hazardous materials. Through compliance with existing state and federal laws and regulations regarding hazardous materials storage and management, the potential for environmental impacts due to the accidental release of hazardous materials would be less than significant. Operation of all pipelines, Ryan Ranch-Bishop Interconnection Improvements, and the Main System-Hidden Hills Interconnection Improvements would have no impact related to the inadvertent release of hazardous materials.

Impact 4.7-C: Cumulative impacts related to hazards and hazardous materials.

Proposed project construction and operation would not have a considerable contribution to cumulative impacts on the public or the environment through the transport, use, disposal, or accidental release of hazardous materials or to cumulative effects associated with wildfire risk because the likelihood that the proposed project and cumulative projects in the vicinity of project components would be under construction at the same time is remote. The proposed project could have a considerable contribution to a potentially significant cumulative impact resulting from the potential release of or exposure to hazardous materials in soil or groundwater from more than one project, but implementation of mitigation measures identified in Impact 4.7-2 would reduce the impact to a less-than-significant level.

5.5.7.3 Direct and Indirect Effects of No Project Alternative

Under the No Project Alternative, no new facilities would be constructed or operated. Consequently, there would be no construction- or operations-related use of hazardous materials, no chance of encountering or releasing hazardous materials or of locating a facility on an existing hazardous materials site associated with the No Project Alternative.

Because the No Project Alternative would have no direct or indirect impacts with respect to hazards or hazardous materials, it could not contribute to cumulative effects related to these topics.

5.5.7.4 Direct and Indirect Effects of Alternative 1 – Slant Wells at Potrero Road

Alternative 1 would supply seawater to the proposed 9.6 mgd desalination plant located at the Charles Benson Road site using the same type of subsurface intake system as the proposed project, but at a different location (described in Section 5.3.3.2, Intake Option 3 – Subsurface Slant Wells at Potrero Road). The desalination plant, brine discharge pipeline, Castroville

Pipeline, Pipeline to CSIP Pond, new Desalinated Water Pipeline, new Transmission Main, Terminal Reservoir, ASR components and Carmel Valley Pump Station would be identical to the proposed project described in Chapter 3, Description of the Proposed Project. The location of the slant wells at Potrero Road and the additional 5.5 miles of source water pipeline are the components unique to Alternative 1 (see **Figure 5.4-1**).

Construction Impacts

Petroleum products, such as gasoline, diesel fuel, lubricants, and cleaning solvents would be used to fuel and maintain construction vehicles and equipment for all components of Alternative 1. The 5.5 miles of additional source water pipeline, and the one additional well required for Alternative 1 (10 new wells at Potrero Road versus 9 new wells plus the converted test well at CEMEX) would increase the potential for accidental spills compared to the proposed project. However, through compliance with applicable hazardous materials storage, disposal, and stormwater permitting regulations, impacts associated with potential releases from the routine transport, use, or disposal of hazardous materials or the accidental release of hazardous materials during construction would result in the ***same impact conclusion*** as the proposed project, less than significant.

Alternative 1 would involve excavation, trenching, and grading for the construction of water conveyance pipelines and building footings. If substantial hazardous materials are present in excavated soils, health and safety risks to workers and the public could occur. The dewatering of contaminated groundwater could also present risks to public health and safety, and the environment, if the contaminated groundwater (i.e., dewatering effluent) is not handled properly. The change from the CEMEX site to the Potrero Road site would not result in encountering any additional known hazardous materials sites and the potential impact would be the same as the proposed project. The potential at common component locations would be reduced to a less-than-significant level with implementation of **Mitigation Measures 4.7-2a (Health and Safety Plan)**, which requires that construction contractors prepare a health and safety plan in accordance with Cal OSHA regulations and **4.7-2b (Soil and Groundwater Management Plan)**, which requires construction contractors to comply with all relevant environmental regulations and plan appropriately for the safe and lawful handling and disposal of excavated soil and groundwater. Alternative 1 would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

No component unique to Alternative 1 would be located within 0.25 mile of a school and the potential for Alternative 1 to emit hazardous emissions within 0.25 miles of a school would be the same as the proposed project. Compliance with all relevant hazardous materials storage and permitting requirements would minimize the risk of releases and Alternative 1 would result in the ***same impact conclusion*** as the proposed project, less than significant.

No component unique to Alternative 1 would be located in a High or Very High Fire Hazard Safety Zone and Alternative 1 would result in a the same level of impact and the ***same impact conclusion*** as the proposed project, less than significant.

Operational and Facility Siting Impacts

Operations and maintenance activities associated with Alternative 1 would involve the same storage and use of hazardous materials and the transport of hazardous wastes generated during operations as the proposed project and compliance with applicable laws, permits and regulations would result in the ***same impact conclusion*** as the proposed project, less than significant.

No component unique to Alternative 1 would be located on a known hazardous material site. Therefore, the potential to create a hazard to the public would be the same as the proposed project and Alternative 1 would have the ***same impact conclusion*** as the proposed project, less than significant.

Cumulative Analysis

Cumulative impacts resulting from the components of Alternative 1 that are common with the proposed project would be the same as those described for the proposed project in Section 4.2.6. The geographic scope of analysis for cumulative impacts related to hazards and hazardous materials for the components that differ from the proposed project is defined by the location of the Alternative 1 intake system and associated pipelines north of the Nashua Road/Highway 1 intersection. Of the cumulative projects described in **Table 4.1-2** in Section 4.1, the DeepWater Desal Project (No. 34) is the only additional project that would have components located near Alternative 1 components; however, the DeepWater Desal Project facilities would be located north of Potrero Road at Moss Landing and would not geographically overlap with Alternative 1 components; therefore, the impacts of these components would not combine with impacts of Alternative 1. No other cumulative projects are located in this Potrero Road area, and no changes or increases in cumulative impacts would occur. Similar to the proposed project, with implementation of **Mitigation Measures 4.7-2a** and **4.7-2b**, Alternative 1's contribution to a significant cumulative impact regarding encountering hazardous materials sites would be reduced to a level that is not cumulatively considerable. Therefore, Alternative 1 would result in the ***same impact conclusion*** as the proposed project for cumulative effects related to hazardous materials, less than significant with mitigation.

5.5.7.5 Direct and Indirect Effects of Alternative 2 – Open-Water Intake at Moss Landing

Alternative 2 would supply seawater to the proposed 9.6 mgd desalination plant located at the Charles Benson Road site using a new, screened open-water intake system consisting of an intake structure located offshore in MBNMS and southwest of the Moss Landing Harbor entrance, a subsurface intake pipeline, and an intake pump station on Dolan Road (described in Section 5.4.4). The desalination plant, brine discharge pipeline, new Desalinated Water Pipeline, new Transmission Main, Terminal Reservoir, ASR components, Highway 68 interconnection improvements, and the Carmel Valley Pump Station would be identical to the proposed project described in Chapter 3, Description of the Proposed Project. Because the open water intake would eliminate the need for returning source water that originated from the Salinas Valley Groundwater Basin, the Castroville Pipeline, the Pipeline to CSIP Pond, and operational components related to delivering water to Castroville Community Services District would not be implemented. The open water intake system

and the additional 6.5 miles of source water pipeline are the components unique to Alternative 2 (see **Figure 5.4-2**). Therefore, the hazards and hazardous materials impact analysis of Alternative 2 focuses primarily on the locations for the intake system and source water pipelines that are different from the proposed project; however, impact conclusions are made for the whole of Alternative 2.

Construction Impacts

Petroleum products would be used to fuel and maintain construction vehicles and equipment for all components of Alternative 2. The 6.5 miles of additional source water pipeline, the new screened open water intake and the elimination of the Castroville Pipeline would increase the potential for accidental spills compared to the proposed project. However, through compliance with applicable hazardous materials storage, disposal, and stormwater permitting regulations, impacts associated with potential releases from the routine transport, use, or disposal of hazardous materials or the accidental release of hazardous materials during construction would result in the ***same impact conclusion*** as the proposed project, less than significant.

The construction of the open water intake system, including a pump station on Dolan Road and the installation of the intake pipeline (HDD technique), and the additional 6.5 miles of source water pipeline (open trench and HDD construction), would result in an increase in potential of encountering hazardous materials in soil and groundwater from the known hazardous materials sites in the Moss Landing area compared to the proposed project, resulting in a potentially significant impact. The potential release of or exposure to hazardous materials in soil or groundwater would be reduced to a less-than-significant level with implementation of **Mitigation Measure 4.7-2a** (**Health and Safety Plan**) which would require that construction contractors prepare a health and safety plan in accordance with Cal OSHA regulations, and **Mitigation Measure 4.7-2b** (**Soil and Groundwater Management Plan**) which requires construction contractors to comply with all relevant environmental regulations and plan appropriately for the safe and lawful handling and disposal of excavated soil and groundwater, when encountered. Alternative 2 would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

No component unique to Alternative 2 would be located within 0.25 mile of a school and the potential for Alternative 2 to emit hazardous emissions within 0.25 miles of a school would be the same as the proposed project. Compliance with all relevant hazardous materials storage and permitting requirements would minimize the risk of releases and Alternative 2 would result in the ***same impact conclusion*** as the proposed project, less than significant.

No component unique to Alternative 2 would be located in a High or Very High Fire Hazard Safety Zone and Alternative 2 would result in the ***same impact conclusion*** as the proposed project, less than significant.

Operational and Facility Siting Impacts

In addition to the Terminal Reservoir (above and below ground options) and portions of the new Transmission Main and ASR Pipelines, the Alternative 2 pump station on Dolan Road would be located on or near the known hazardous material sites at Moss Landing. Therefore, the potential

to create a hazard to the public would be increased compared to the proposed project. However, compliance with regulations would ensure that project impacts are less than significant. Therefore, Alternative 2 would have the ***same impact conclusion*** as the proposed project, less than significant.

Operations and maintenance activities associated with Alternative 2 would involve the same storage and use of hazardous materials and the transport of hazardous wastes generated during operations as the proposed project and compliance with applicable laws, permits and regulations would result in the ***same impact conclusion*** as the proposed project, less than significant.

Cumulative Analysis

Cumulative impacts resulting from the components of Alternative 2 that are common with the proposed project would be the same as those described for the proposed project in Section 4.2.6. The geographic scope of analysis for cumulative impacts related to hazards and hazardous materials for the components that differ from the proposed project is defined by the location of the Alternative 2 open water intake system and associated pipelines north of the Nashua Road/Highway 1 intersection. Alternative 2 would not contribute to cumulative impacts related to proximity to schools or airports, or location within a very high or high fire severity hazard zone.

The DeepWater Desal Project (No. 34) and the Moss Landing Community Plan (No. 37), described in **Table 4.1-2** in Section 4.1 are located geographically near or overlap the Alternative 2 components. Various proposed surface construction projects are included in the Moss Landing Community Plan and the estimated time of construction is unknown. These projects would be required to comply with the same requirements as Alternative 2. All project components involving the handling, storage, and disposal of hazardous materials would be required to prepare a HMBP 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. 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. Compliance with existing laws and regulations regarding hazardous materials transport would reduce the risk of environmental or human exposure to such materials and would reduce impacts of each project to a level and geographic scope such that they would not combine with one another to cause significant cumulative impacts. Similar to the proposed project, with implementation of **Mitigation Measures 4.7-2a** and **4.7-2b**, Alternative 2's contribution to a significant cumulative impact regarding encountering hazardous materials sites would be reduced to a level that is not cumulatively considerable. Therefore, Alternative 2 would result in the ***same impact conclusion*** as the proposed project for cumulative effects related to hazardous materials, less than significant with mitigation.

5.5.7.6 Direct and Indirect Effects of the Alternative 3 – Monterey Bay Regional Water Project (MBRWP or DeepWater Desal Project)

Alternative 3 includes the construction and operation of a screened open ocean intake system and a brine discharge system located on the seafloor in Monterey Bay within MBNMS, subsurface pipelines connecting to these intake and discharge systems, a seawater desalination facility and co-located data center, and associated components to provide up to 25,000 afy of potable water and data transmission and storage services. The 2 pipelines for the intake and 2 pipelines for the discharge systems would be installed using HDD. The alternative would also include 6.5 miles of desalinated water pipeline to connect with the CalAm system and up to an additional 25 miles of pipelines to convey the desalinated water to other areas (total of 31.5 miles of additional pipeline). Several components would be identical to the proposed project: the new Transmission Main, new desalinated water pipeline south of the "Connection to CalAm" Point on **Figure 5.4-3**, ASR 5 and 6 wells and ASR pipeline, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be as described in Chapter 3, Description of the Proposed Project. Because this alternative would have an open water intake that would eliminate the need for returning source water that originated from the Salinas Valley Groundwater Basin, the Castroville Pipeline, Pipeline to CSIP Pond, and operational components related to delivering water to CCSD would not be implemented. The desalination plant and data center, open water intake system, brine discharge system, and the additional 31.5 miles of desalinated water pipeline are the components unique to Alternative 3 (see **Figure 5.4-3**). Therefore, the impact analysis of Alternative 3 focuses primarily on these components; however, impact conclusions are made for the whole of Alternative 3.

Construction Impacts

Petroleum products would be used to fuel and maintain construction vehicles and equipment for all components of Alternative 3. The 6.5 miles of additional source water pipeline, the new screened open water intake and discharge, the 25 miles of additional desalinated water pipeline, and the larger desalination facility and co-located data center would increase the potential for accidental spills during construction compared to the proposed project. However, through compliance with applicable hazardous materials storage, disposal, and stormwater permitting regulations, impacts associated with potential releases from the routine transport, use, or disposal of hazardous materials or the accidental release of hazardous materials during construction, Alternative 3 would result in the ***same impact conclusion*** as the proposed project, less than significant.

The construction of the open water intake system, including a pump station on Dolan Road and the installation of the 2 intake and 2 discharge pipelines (HDD technique), and the additional 31.5 miles of additional pipeline (open trench and HDD construction), would result in an increase in potential, of encountering hazardous materials in soil and groundwater from the known hazardous materials sites in the Moss Landing area compared to the proposed project, resulting in a potentially significant impact. The potential release of or exposure to hazardous materials in soil or groundwater would be reduced to a less-than-significant level with implementation of **Mitigation Measure 4.7-2a** (**Health and Safety Plan**) which would require that construction contractors prepare a health and safety plan in accordance with Cal OSHA regulations, and

Mitigation Measure 4.7-2b (**Soil and Groundwater Management Plan**) which requires construction contractors to comply with all relevant environmental regulations and plan appropriately for the safe and lawful handling and disposal of excavated soil and groundwater, when encountered. Therefore, Alternative 2 would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

No component unique to Alternative 3 would be located within 0.25 mile of a school and the potential for Alternative 3 to emit hazardous emissions within 0.25 miles of a school would be the same as the proposed project. Compliance with all relevant hazardous materials storage and permitting requirements would minimize the risk of releases and Alternative 3 would result in the ***same impact conclusion*** as the proposed project, less than significant.

No component unique to Alternative 3 would be located in a High or Very High Fire Hazard Safety Zone and Alternative 3 would result in the ***same impact conclusion*** as the proposed project, less than significant.

Operational and Facility Siting Impacts

In addition to the Terminal Reservoir (above and below ground options) and portions of the new Transmission Main and ASR Pipelines, the Alternative 3 pump station on Dolan Road would be located on or near the known hazardous material sites at Moss Landing. Therefore, the potential to create a hazard to the public would be increased compared to the proposed project. However, compliance with regulations would ensure that project impacts are less than significant. Therefore, Alternative 3 would have the ***same impact conclusion*** as the proposed project, less than significant.

Operations and maintenance activities associated with Alternative 3 would involve increased volumes of hazardous materials storage and use of hazardous materials and the transport of hazardous wastes generated during operations as the proposed project because of the much larger desalination plant capacity. However, Alternative 3 compliance with applicable laws, permits and regulations would result in the ***same impact conclusion*** as the proposed project, less than significant.

Cumulative Analysis

Cumulative impacts resulting from the components of Alternative 3 that are common with the proposed project would be the same as those described for the proposed project in Section 4.2.6. The geographic scope of analysis for cumulative impacts related to hazards and hazardous materials for components that differ from the proposed project is defined by the location of the Alternative 3 components located north of the Nashua Road/Highway 1 intersection. Alternative 3 would not contribute to cumulative impacts related to proximity to schools or airports, or location within a very high or high fire severity hazard zone.

The Moss Landing Community Plan (No. 37 in **Table 4.1-2** in Section 4.1) is located in the Moss Landing area. The contributions of the Moss Landing Community Plan projects to hazards and hazardous materials-related impacts would be as described under Alternative 2. As described for

Alternative 2, compliance with existing laws and regulations regarding hazardous materials transport would reduce the risk of environmental or human exposure to such materials and would reduce impacts of each project to a level and geographic scope such that they would not combine with one another to cause significant cumulative impacts. Similar to the proposed project, with implementation of **Mitigation Measures 4.7-2a** and **4.7-2b**, Alternative 3's contribution to a significant cumulative impact regarding encountering hazardous materials sites would be reduced to a level that is not cumulatively considerable. Therefore, Alternative 3 would result in the ***same impact conclusion*** as the proposed project for cumulative effects related to hazardous materials, less than significant with mitigation.

5.5.7.7 Direct and Indirect Effects of Alternative 4 – Peoples' Moss Landing Water Desalination Project (Peoples' Project)

Alternative 4 includes the construction and operation of an open ocean intake, a brine discharge system and pipelines, and supporting ballast rock located on the seafloor in Monterey Bay within MBNMS, as well as a 12 mgd desalination plant and associated facilities to provide 13,400 afy of water supply to meet the current and future needs of the Monterey Peninsula. Several components would be identical to the proposed project: the new Transmission Main, new desalinated water pipeline south of the "Connection to CalAm" Point on **Figure 5.4-4**, ASR-5 and -6 wells and ASR pipeline, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be as described in Chapter 3, Description of the Proposed Project. Because this alternative would have an open water intake that would eliminate the need for returning source water originating from the Salinas Valley Groundwater Basin, the Castroville Pipeline, Pipeline to CSIP Pond, and operational components related to delivering water to CCSD would not be implemented. The desalination plant, open water intake system, brine discharge system, and the additional 6.5 miles of desalinated water pipeline are the components unique to Alternative 4 (see **Figure 5.4-4**). Therefore, the impact analysis of Alternative 4 focuses primarily on these components; however, impact conclusions are made for the whole of Alternative 4.

Construction Impacts

Petroleum products would be used to fuel and maintain construction vehicles and equipment for all components of Alternative 4. The installation of the intake and discharge pipelines, the new screened open water intake and brine discharge system, the 6.5 miles of additional desalinated water pipeline, and the larger desalination facility would increase the potential for accidental spills compared to the proposed project. However, through compliance with applicable hazardous materials storage, disposal, and stormwater permitting regulations, impacts associated with potential releases from the routine transport, use, or disposal of hazardous materials or the accidental release of hazardous materials during construction would result in the ***same impact conclusion*** as the proposed project, less than significant.

The construction of the open water intake system, including the pump station at the caisson, the installation of the intake and brine discharge pipelines (HDD technique), and the additional 6.5 miles of desalinated water pipeline (open trench and HDD construction), would result in an increase in potential of encountering hazardous materials in soil and groundwater from the known

hazardous materials sites in the Moss Landing area compared to the proposed project, resulting in a potentially significant impact. The potential release of or exposure to hazardous materials in soil or groundwater would be reduced to a less-than-significant level with implementation of **Mitigation Measure 4.7-2a** (**Health and Safety Plan**) which would require that construction contractors prepare a health and safety plan in accordance with Cal OSHA regulations, and **Mitigation Measure 4.7-2b** (**Soil and Groundwater Management Plan**) which requires construction contractors to comply with all relevant environmental regulations and plan appropriately for the safe and lawful handling and disposal of excavated soil and groundwater, when encountered. Therefore, Alternative 4 would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

No component unique to Alternative 4 would be located within 0.25 mile of a school and the potential for Alternative 4 to emit hazardous emissions within 0.25 miles of a school would be the same as the proposed project. Compliance with all relevant hazardous materials storage and permitting requirements would minimize the risk of releases and Alternative 4 would result in the ***same impact conclusion*** as the proposed project, less than significant.

No component unique to Alternative 4 would be located in a High or Very High Fire Hazard Safety Zone and Alternative 4 would result in the ***same impact conclusion*** as the proposed project, less than significant.

Operational and Facility Siting Impacts

In addition to the Terminal Reservoir (above and below ground options) and portions of the new Transmission Main and ASR Pipelines, the Alternative 4 desalination plant would be located on or near a known hazardous material site at Moss Landing. Therefore, the potential to create a hazard to the public would be increased compared to the proposed project. However, compliance with regulations would ensure Alternative 4 would have the ***same impact conclusion*** as the proposed project, less than significant.

Operations and maintenance activities associated with Alternative 4 would involve an increased volume of storage and use of hazardous materials and the transport of hazardous wastes generated during operations compared to the proposed project due to the larger desalination capacity. However, Alternative 4 compliance with applicable laws, permits and regulations would result in the ***same impact conclusion*** as the proposed project, less than significant.

Cumulative Analysis

Cumulative impacts resulting from the components of Alternative 4 that are common with the proposed project would be the same as those described for the proposed project in Section 4.2.6. The geographic scope of analysis for cumulative hazards and hazardous materials impacts is defined by the location of the Alternative 4 open water intake system, desalination facility, and associated pipelines north of the Nashua Road/Highway 1 intersection. Alternative 4 would not contribute to cumulative impacts related to proximity to schools or airports, or location within a very high or high fire severity hazard zone.

The DeepWater Desal Project (No. 34 in **Table 4.1-2** in Section 4.1) and the Moss Landing Community Plan (No. 37) are located in the Moss Landing area. The contributions of these projects to hazards and hazardous materials-related impacts would be as described under Alternative 2. As described for Alternative 2, compliance with existing laws and regulations regarding hazardous materials transport would reduce the risk of environmental or human exposure to such materials and would reduce impacts of each project to a level and geographic scope such that they would not combine with one another to cause significant cumulative impacts. Similar to the proposed project, with implementation of **Mitigation Measures 4.7-2a** and **4.7-2b**, Alternative 4's contribution to a significant cumulative impact regarding encountering hazardous materials sites would be reduced to a level that is not cumulatively considerable. Therefore, Alternative 4 would result in the ***same impact conclusion*** as the proposed project for cumulative effects related to hazardous materials, less than significant with mitigation.

5.5.7.8 Direct and Indirect Effects of Alternative 5 – Reduced Desal Project 5a (CEMEX) and 5b (Potrero Road)

Alternative 5a would include the seawater intake system at the CEMEX site (the same location as the proposed project), but would include only seven subsurface slant wells (the converted test well and six new wells) and the same source water pipeline as the proposed project. Alternative 5b would include seven new wells at the western end of Potrero Road (the same location as Alternative 1) and the same source water pipeline as Alternative 1 (5.5 additional miles compared to the proposed project). Both Alternatives 5a and 5b would include a reduced-capacity desalination plant (6.4 mgd), and all other components would be the same as the proposed project.

Construction Impacts

Construction of Alternatives 5a and 5b components would have a slightly reduced footprint because of the reduced number of wells and smaller sized desalination plant compared to the proposed project and Alternative 1, respectively, resulting in a similar level of potential for accidental spills compared to the proposed project. However, through compliance with applicable hazardous materials storage, disposal, and stormwater permitting regulations, impacts associated with potential releases from the routine transport, use, or disposal of hazardous materials or the accidental release of hazardous materials during construction would result in the ***same impact conclusion*** as the proposed project, less than significant.

Similar to the proposed project and Alternative 1, the implementation of **MMs 4.7-2a** and **4.7-2b** would reduce the potential for harmful exposure to hazardous materials present in soil or groundwater during construction of Alternative 5a or 5b, respectively, to a less-than-significant level and would result in the ***same impact conclusions*** compared to the proposed project; less than significant with mitigation.

No components of Alternative 5a or 5b would be located within 0.25 mile of a school and the potential for Alternative 5a or 5b to emit hazardous emissions within 0.25 miles of a school would be the same as the proposed project. Compliance with all relevant hazardous materials

storage and permitting requirements would minimize the risk of releases and Alternative 5a or 5b would result in the ***same impact conclusion*** as the proposed project, less than significant.

No component of Alternative 5a or 5b would be located in a High or Very High Fire Hazard Safety Zone and Alternative 5a or 5b would result in the ***same impact conclusion*** as the proposed project, less than significant.

Operational and Facility Siting Impacts

Other than the Terminal Reservoir (above and below ground options) and portions of the new Transmission Main and ASR Pipelines, no other components of Alternative 5a or 5b would be located on or near the known hazardous material site at Moss Landing. Therefore, the potential to create a hazard to the public would be increased compared to the proposed project and compliance with regulations would ensure Alternative 5a or 5b would have the ***same impact conclusion*** as the proposed project, less than significant.

Operations and maintenance activities associated with Alternative 5a or 5b would involve reduced storage and use of hazardous materials and the transport of hazardous wastes generated during operations compared to the proposed project, and compliance with applicable laws, permits and regulations would result in the ***same impact conclusion*** as the proposed project, less than significant.

Cumulative Analysis

The geographic scope of analysis for cumulative hazards and hazardous materials impacts for Alternatives 5a and 5b is the same as for the proposed project and Alternative 1, respectively. In addition to the projects identified as relevant to the cumulative analyses for the proposed project and Alternative 1, the GWR Project (No. 58 in **Table 4.1-2** in Section 4.1) is relevant to both Alternatives 5a and 5b. The GWR Project would be subject to compliance with existing laws and regulations regarding hazardous materials transport that would reduce the risk of environmental or human exposure to such materials and would reduce impacts of each project to a level and geographic scope such that they would not combine with one another to cause significant cumulative impacts. Similar to the proposed project, with implementation of **Mitigation Measures 4.7-2a** and **4.7-2b**, Alternative 5a and 5b's contribution to a significant cumulative impact regarding encountering hazardous materials sites would be reduced to a level that is not cumulatively considerable. Therefore, Alternatives 5a and 5b would result in the ***same impact conclusion*** as the proposed project for cumulative effects related to hazardous materials, less than significant with mitigation.

5.5.7.9 References

California Department of Forestry and Fire Protection (CAL FIRE), 2007. Fire and Resource Protection Program (FRAP), *Fire Hazard Severity Zones in State Responsibility Areas, Monterey County*, November 7, 2007. Available online at: http://frap.cdf.ca.gov/webdata/maps/monterey/fhsz_map.27.pdf. Accessed April 25, 2013.

California Department of Forestry and Fire Protection (CAL FIRE), 2008. FRAP, *Monterey County Very High Fire Hazard Severity Zones in LRA As Recommended By CAL FIRE*, November 4, 2008. Available online at: http://frap.fire.ca.gov/webdata/maps/monterey/fhszl_map.27.pdf. Accessed April 25, 2013.

CapRock Geology, Inc., 2013, *Workplan, Moss Landing Commercial Park, Moss Landing, California*, October 7, 2013.

CapRock Geology, Inc., 2016, *Groundwater Monitoring Report, First Biannual 2015, Moss Landing Commercial Park, Highway One and Dolan Road, Moss Landing, California*, January 20, 2016.

Department of Toxic Substances Control (DTSC), 2016, Dynegy Moss Landing, Case Summary. Available online at http://www.envirostor.dtsc.ca.gov/public/profile_report.asp?global_id=80001833. Accessed July 9, 2016.

RWQCB, 2016. *Calera Corporation Moss Landing Cement Company - Summary of May 06, 2016 Telephone Conference Call*, June 17, 2016.

5.5.8 Land Use, Land Use Planning, and Recreation

The evaluation criteria for Land Use, Land Use Planning, and Recreation address: consistency with applicable plans, policies, and regulations related to land use and recreation that were adopted for the purpose of mitigating and environmental effect; and disrupting or precluding public access to or along the coast during construction.

5.5.8.1 Setting/Affected Environment

The components of the alternatives that are common to the proposed project are located south of the Nashua Road/Highway 1 intersection and the setting/affected environment for those facilities is described in Section 4.8, Land Use, Land Use Planning, and Recreation. The setting for the components north of the Nashua Road/Highway 1 intersection is presented below.

Pipeline Alignments North of Nashua Road/Highway 1 Intersection

Lands adjacent to the pipeline alignments north of the Nashua Road/Highway 1 Intersection that are part of Alternatives 1, 2, 3, 4 and 5b are used for agricultural, light and heavy industrial, commercial, residential, and public/quasi-public purposes. Local Coastal Program (LCP) land use plan designations for lands adjacent to the pipeline alignments include: Agricultural Preservation, Recreation and Visitor Serving, Residential – Medium Density, Outdoor Recreation, General Commercial, Wetlands and Coastal Strand, Industrial – Coast Dependent – Heavy, and Heavy Industrial. The zoning designations of lands adjacent to the pipeline alignments for Alternatives 1, 2, 3, 4 and 5b include: Coastal Agricultural Preservation (CAP), Agricultural Conservation (AC), Heavy Industrial (HI) and Resource Conservation (RC). All pipeline segments north of the Nashua Road/Highway 1 intersection would occur within the Coastal Zone. Nearby recreational lands and facilities include Salinas River State Beach, the Elkhorn Slough National Estuarine Research Reserve (“Elkhorn Slough”) and the Moro Cojo Slough State Marine Reserve (“Moro Cojo Slough”). The Monterey Bay Sanctuary Scenic Trail alignment follows Highway 1 through Moss Landing. However, the segment that passes through Moss Landing is either undeveloped or limited to the Highway 1 shoulder.

Potrero Road Parking Lot

The Potrero Road parking lot (part of Alternatives 1 and 5b) is located at the western terminus of Potrero Road and serves Salinas River State Beach. Lands adjacent to the parking lot include the Salinas River State Beach to the west and the Old Salinas River channel and fringing marshes to the north, south, and east. The nearest development is a small neighborhood located approximately 800 feet to the northeast. The LCP land use plan designation for lands adjacent to the Potrero Road parking lot is Scenic and Natural Resource Recreation. The zoning designation of lands adjacent to the parking lot is Open Space Recreation (OR). The parking lot lies within the Coastal Zone. Recreational resources in the vicinity of the Potrero Road parking lot include Salinas River State Beach.

Moss Landing

The stretch of Moss Landing beach in the vicinity of components of Alternatives 1, 2, 3, 4, and 5b is located on the west side of Moss Landing's southern peninsula, approximately 250 feet west of Sandholdt Road. Land uses in this area include Moss Landing Beach, the Monterey Bay Aquarium Research Institute, restaurants, and various commercial and marine-related light-industrial developments. Sandholdt Lot, Salinas River State Beach, is located approximately 150 feet to the south of this area. The LCP land use plan designations are Industrial – Coast Dependent – Light and Education – Scientific. The zoning designations are Light Industrial (LI) and Public/Quasi-Public (PQP). The area lies within the Coastal Zone. Nearby recreational lands and facilities include the Salinas River State Beach and the Elkhorn Slough National Estuarine Research Reserve.

Moss Landing Green Commercial Park

The Moss Landing Green Commercial Park is located east of Highway 1 and south of Dolan Road, in Moss Landing. The site is the location of the Alternative 4 desalination plant and it includes various tanks, warehouses, and administrative structures remaining from the former National Refractories & Minerals Corporation's magnesium production operations. The LCP land use plan designation is Industrial – Coast Dependent – Heavy. The zoning designation is Heavy Industrial (HI). The site lies within the Coastal Zone. Nearby recreational resources and facilities include the Monterey Bay Sanctuary Scenic Trail and Elkhorn Slough.

East Tank Farm Parcel

The East Tank Farm Parcel is located north of and adjacent to Dolan Road, approximately 2 miles east of Highway 1 and is the Alternative 3 desalination plant site. The former fuel oil storage site has been remediated and is presently clear of development except for one storage tank and appurtenant facilities. The site is bordered by lands used for agricultural and light industrial activities. The LCP land use plan designation is Heavy Industrial. The zoning designation is Heavy Industrial (HI). The site lies within the Coastal Zone. Recreational facilities and resources in the vicinity include Elkhorn Slough and Moro Cojo Slough.

Regulatory Framework

Regulatory requirements applicable to the proposed project that are related to land use and recreation are presented in Section 4.8.2, Regulatory Framework. Many of the plans, policies, and regulations identified in that section would also apply to the components unique to the project alternatives, including: the Marine Protection, Research, and Sanctuaries Act; the California Coastal Act; and the Monterey County Local Coastal Program (LCP). In addition, the Salinas River State Beach General Plan and the Moss Landing Community Plan would apply to components of project alternatives. With respect to land use and recreation, key tenets of these regulatory requirements include prioritizing coastal dependent land uses, maximizing public access to and along the coast, and preserving and enhancing recreational opportunities. The consistency analyses presented in the impacts subsections below consider each alternative's conformity with these principles.

Salinas River State Beach General Plan

The Salinas River State Beach General Plan (General Plan) outlines a framework for park management, providing for protection of natural resources; improving park access; and for the siting, design, and construction of future park improvements in a manner that avoids environmental effects. Prominent among the General Plan's guiding principles is the provision and management of recreational opportunities consistent with resource management and protection. Alternatives' components that could occur on Salinas River State Beach include the subsurface slant wells and Source Water Pipeline (Alternatives 1 and 5b).

Moss Landing Community Plan

The Moss Landing Community Plan (MLCP) Area encompasses the Moss Landing neighborhoods of Elkhorn, Dolan, North Harbor, Island, South Harbor, Village Center, and Heights. The MLCP is a component of and contains community-specific policies that supplement the more general North County Land Use Plan policies to achieve the basic goals of the California Coastal Act, including maximizing public access and recreational opportunities in the coastal zone, among others. The MLCP is presently undergoing a comprehensive update. All alternatives' components sited along and north of Potrero Road would be subject to the MLCP.

Monterey County Land Use Plan and Zoning Designations

This subsection includes an evaluation of the potential for alternatives' components' to conflict with existing Monterey County land use plan and zoning designations. As noted previously, all facilities would be located within Monterey County's coastal zone on lands for which land uses have been classified and zoned pursuant to the North County Land Use Plan and the Monterey County Coastal Implementation Plan (Title 20, Zoning Ordinance), respectively. As discussed below, all alternatives' facilities would require a use permit from Monterey County and would be subject to review and approval pursuant to the provisions of the Local Coastal Plan and other applicable land use policies and regulations. The following is an assessment of established land use plan and zoning designations for alternatives' facilities north of the Nashua Road/Highway 1 intersection.

- Pipelines north of the Nashua Road/Highway 1 intersection would be sited primarily within existing road rights-of-way or utility corridors. Similarly, the Potrero Road subsurface slant wells (Alternatives 1 and 5b) would be sited beneath an existing parking lot at the western terminus of Potrero Road. Road rights-of-way do not have land use or zoning designations in Monterey County; nor does the Potrero Road parking. Nevertheless, because all pipelines and subsurface slant wells would be buried below ground surface, none would have the opportunity to conflict with existing land use or zoning designations.
- The existing caisson at Sandholdt Road that would be utilized for an intake pump system (Alternative 4) would occur on lands designated for Industrial – Coast Dependent – Light and zoned Light Industrial (LI). The Industrial – Coast Dependent – Light land use designation is intended primarily to support marine-related industry, including fishing, canning, boat storage, and other related support facilities and infrastructure. The pump station would be in keeping with the types of industrial facilities envisioned for this classification. The zoning regulations for LI zoning districts allow public utility facilities with a coastal development permit (Section 20.26.060.X). Public utility facilities include

those for the production, storage, transmission, distribution, and recovery of water, sewage, energy, and other similar utilities (Section 20.06.910).

- The intake pump station on Dolan Road (Alternatives 2 and 3), the desalination plant and other facilities at the East Tank Farm Parcel (Alternative 3), and the desalination plant at Moss Landing Green Commercial Park (Alternative 4), would each occur on lands designated for industrial land uses and zoned for heavy industry (HI). The land use designations for the intake pump station site and Moss Landing Green Commercial Park prioritize coastal-dependent industry; the designation for the East Tank Farm Parcel allows for general heavy industry. Each facility would be in keeping with the envisioned uses for its respective land use classification. The zoning regulations for the HI zoning district allow for public utility facilities with a coastal development permit (20.28.060.U).

5.5.8.2 Direct and Indirect Effects of Proposed Project (Slant Wells at CEMEX)

The proposed project extends from Castroville in the north to the city of Carmel in the south (see **Figure 3-2**) and would include construction of a desalination plant on 25 acres along Charles Benson Road northeast of the City of Marina, up to nine new subsurface slant wells at the CEMEX active mining area, two new wells (ASR-5 and ASR-6) at the existing Seaside Groundwater Basin ASR system, the Carmel Valley Pump Station, and about 21 miles of water conveyance pipelines. The direct and indirect impacts of the proposed project are described in detail in Section 4.8.5.

Impact 4.8-1: Consistency with applicable plans, policies, and regulations related to land use and recreation that were adopted for the purpose of mitigating an environmental effect.

The proposed MPWSP would not be expected to conflict with applicable policies related to land use and recreation that were adopted for the purpose of avoiding or mitigating an environmental effect. Although construction of the Source Water Pipeline, new Desalinated Water Pipeline, new Transmission Main, and the Ryan Ranch–Bishop Interconnection Improvements, Terminal Reservoir, and ASR pipelines could affect recreational facilities, any disruptions would be temporary and limited to the construction phase. Therefore, the proposed project would not substantially conflict with plans, policies related to land use or recreation. The impact would be less than significant.

Impact 4.8-2: Disrupt or preclude public access to or along the coast during construction.

The proposed new Transmission Main and optional alignment would intersect three Fort Ord Dunes State Park entrances. The effects of the new Transmission Main construction on vertical and lateral public accessways within Fort Ord Dunes State Park would be significant. **Mitigation Measure 4.9-1, Traffic Control and Safety Assurance Plan**, which would require the implementation of a traffic control safety plan for project construction activities that could affect the public right-of-way, (including roads and trails leading into Fort Ord Dunes State Park), and include measures that would provide for continuity of vehicular, pedestrian, and bicyclist access, would reduce the effects on public access to a less-than-significant level.

Impact 4.8-C: Cumulative impacts related to land use and recreation.

The proposed project would not have a considerable contribution to a significant cumulative impact related to conflicts with plans, policies, and regulations adopted to protect public access or recreational facilities because any effects associated with construction would be temporary and no long-term effects would result. Cumulative effects on coastal public access during construction could be significant if the Fort Ord Dunes Campground project (No. 46 in **Table 4.1-2**) was constructed at the same time as the new Transmission Main, but the proposed project's contribution to this impact would be reduced to a less-than-significant level with implementation of the mitigation measure identified in Impact 4.8-2.

5.5.8.3 Direct and Indirect Effects of No Project Alternative

Under the No Project Alternative, no new facilities would be constructed or operated. Consequently, there would be no construction- or operations-related impacts on land use, land use planning, or recreation associated with the No Project Alternative. Because the No Project Alternative would have no direct or indirect impacts with respect to land use, land use planning, or recreation, it could not contribute to cumulative effects related to these topics.

5.5.8.4 Direct and Indirect Effects of Alternative 1 – Slant Wells at Potrero Road

Alternative 1 would supply seawater to the proposed 9.6 mgd desalination plant located at the Charles Benson Road site using the same type of subsurface intake system as the proposed project, but at a different location (described in Section 5.4.3). The desalination plant, brine discharge pipeline, Castroville Pipeline, Pipeline to CSIP Pond, new Desalinated Water Pipeline, new Transmission Main, Terminal Reservoir, ASR components and Carmel Valley Pump Station would be identical to the proposed project described in Chapter 3, Description of the Proposed Project. The location of the slant wells at Potrero Road and the additional 5.5 miles of source water pipeline are the components unique to Alternative 1 (see **Figure 5.4-1**). Therefore, the impact analysis of Alternative 2 focuses primarily on the locations for the intake system and source water pipelines that are different from the proposed project; however, impact conclusions are made for the whole of Alternative 2.

Construction Impacts

Similar to the proposed project, and based upon an initial review of consistency, components of Alternative 1 that are common with the proposed project would not be expected to conflict with applicable land use policies related to land use and recreation that were adopted for the purpose of avoiding or mitigating an environmental effect. Although construction of the Source Water Pipeline, new Desalinated Water Pipeline, new Transmission Main, Ryan Ranch–Bishop Interconnection Improvements, Terminal Reservoir, and ASR pipelines could affect recreational facilities, any disruptions would be temporary and limited to the construction phase.

Alternative 1 facilities at Potrero Road would also be subject to the Salinas River State Beach General Plan. The subsurface slant wells and Source Water Pipeline are coastal-dependent land uses because they depend upon proximity to the coast in order to function. These facilities would

generally occur in areas without land use or zoning regulations and would be permissible on adjacent lands with a coastal development permit (CDP). Subsurface slant well and pipeline construction activities, including vehicle ingress and egress, equipment and materials staging, trenching, and stockpiling, would disrupt public access and recreational opportunities in the coastal zone through increased traffic and potential lane closures, and through the temporary closure of the Potrero Road parking lot and coastal access. During the 24-month construction period, travel to or along the coast could take longer than usual and parking options for Salinas River State Beach visitors would be limited to two of three existing options (Sandholdt Road lot or Monterey Dunes Way lot). These effects would be limited to the construction period and alternative recreational beach access opportunities in the area would remain open. For these reasons, components unique to Alternative 1 would not result in conflicts with plans, policies or regulations related to land use or recreation. Additional discussion of traffic and transportation is provided in Section 5.5.9. Public beach access is discussed further below.

Therefore, Alternative 1 would not conflict with plans and policies related to land use or recreation adopted for the purpose of avoiding or mitigating an environmental effect, and would result in the ***same impact conclusion*** as the proposed project, less than significant.

Alternative 1 would result in construction-related impacts on public access to or along the coast for the new Transmission Main. However, with implementation of **Mitigation Measure 4.9-1 (Traffic Control and Safety Assurance Plan)**, Alternative 1 would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

The Alternative 1 subsurface slant well installation would require complete closure of the Potrero Road parking lot for the 24-month construction period and closure of the parking lot would temporarily disrupt public access to the shore at that location. Nearby alternative beach access opportunities at the end of Sandholdt Road (approximately 0.6 mile north) and Monterey Dunes Way (approximately 1 mile south) would remain open. However, because existing vertical access from Potrero Road would be precluded, the effect would result in an increased level of impact on recreational access compared to the proposed project. However implementation of **Mitigation Measures REC-1a** (**Public Notification)**, **REC-1b (Beach Access Management Plan**) and **REC-1c** (**Public Access during Construction**), below, would reduce impacts to less than significant. These measures provide for the maintenance of existing public access where feasible and safe, posting of public notice in advance of any closures, and the development of a plan for managing public safety in and around the work areas and accessways. Lateral public access seaward of the Potrero Road parking lot would remain open and unimpeded.

Mitigation Measure REC-1a: Public Notification.

Two weeks prior to construction, CalAm shall post signs notifying the public of the dates of construction operations and locations of beach or beach access closure. The signs shall be printed on weather-proof materials and posted at public access points and other highly visible locations for the duration of the closure period. In addition, the signs shall include a map showing the nearest alternative access point. At the end of the closure period, CalAm or its contractors shall retrieve all notice materials.

Mitigation Measure REC-1b: Beach Access Management Plan.

Prior to commencement of construction activities, CalAm shall submit a beach access management plan to the CPUC and MBNMS for review and approval. The plan shall describe the strategies that the construction contractor(s) will employ during construction to ensure public safety and maintain beach access, as feasible. As appropriate, the plan shall include, but not be limited to: construction fencing; signs; use of enclosed storage areas; construction and construction worker vehicle parking and access routes; maintenance of clear public access routes through to the beach; nightly removal of equipment to a designated area. CalAm shall also provide the public with contact information in order to report immediate hazards related to the project. This information shall be provided in a public notice posted on-site prior to the commencement of any project-related activity.

Mitigation Measure REC-1c: Public Access during Construction.

Public access shall be maintained to the maximum extent feasible during construction, while ensuring public safety. The Beach Access Management Plan shall provide for maintenance of clear public access routes through to the beach, such that physical construction interference shall be kept to a minimum.

Therefore, Alternative 1 would have a greater potential to disrupt recreational access than the proposed project, but after implementation of the mitigation measures above, would result in the ***same impact conclusion*** as the proposed project during construction, less than significant with mitigation.

Operational and Facility Siting Impacts

Alternative 1 would not result in any above-ground facilities that would permanently affect coastal public access. The above-ground facilities proposed within the Coastal Zone at Potrero Road would be relatively small and would not block public access to the beach. No other project components have the potential to permanently affect public access. Therefore, Alternative 1 would result in the ***same impact conclusion*** on land use and recreation as the proposed project, less than significant.

Cumulative Analysis

No facility siting and operations-period effects would occur that could contribute to cumulative effects. Therefore, the geographic scope of analysis for cumulative impacts related to land use and recreation for Alternative 1 is defined by the lands and recreational resources that would be affected by Alternative 1 construction, and is the same as that described for the proposed project in Section 4.2.6, with the exception of the different location of the seawater intake system (Potrero Road, instead of CEMEX), and alternative source water pipeline route. Concurrent construction and operation of Alternative 1 and projects in the cumulative scenario, including the DeepWater Desal Project (No. 34 in **Table 4.1-2** in Section 4.1), would increase the duration and geographic extent of recreational access disruptions within the study area. The impacts of Alternative 1 on recreational access and access to the shore at the Potrero Road location would be significant, and if other projects were to affect recreational or public shore access concurrently, the cumulative impact would be significant and the contribution of Alternative 1 would be cumulatively considerable. With implementation of **Mitigation Measures 4.9-1, REC-1a, REC-1b**, and **REC-1c**, this

contribution would be reduced to a level that is not cumulatively considerable. Alternative 1 would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

5.5.8.5 Direct and Indirect Effects of Project Alternative 2 – Open-Water Intake at Moss Landing

Alternative 2 would supply seawater to the proposed 9.6 mgd desalination plant located at the Charles Benson Road site using a new, screened open-water intake system consisting of an intake structure located offshore in MBNMS and southwest of the Moss Landing Harbor entrance, a subsurface intake pipeline, and an intake pump station (described in Section 5.4.4). The desalination plant, brine discharge pipeline, new Desalinated Water Pipeline, new Transmission Main, Terminal Reservoir, ASR components, Highway 68 interconnection improvements, and the Carmel Valley Pump Station would be identical to the proposed project described in Chapter 3, Description of the Proposed Project. Because the open water intake would eliminate the need for returning source water drawn from the Salinas Valley Groundwater Basin, the Castroville Pipeline, the Pipeline to CSIP Pond, and operational components related to delivering water to Castroville Community Services District would not be implemented. The open water intake system and the additional 6.5 miles of source water pipeline are the components unique to Alternative 2 (see **Figure 5.4-2**). Therefore, the impact analysis of Alternative 2 focuses primarily on the locations for the intake system and source water pipelines that are different from the proposed project; however, impact conclusions are made for the whole of Alternative 2.

Construction

Based upon an initial review of consistency, components of Alternative 2 that are common with the proposed project would only have temporary effects during construction activities, and would not be expected to conflict with applicable land use policies related to land use and recreation that were adopted for the purpose of avoiding or mitigating an environmental effect. Facilities in Moss Landing that are unique to Alternative 2 would be subject to the Moss Landing Community Plan. The effects of components unique to Alternative 2 are presented below.

- The intake structure, intake pump station, and the Source Water Pipeline are coastal-dependent land uses, because they depend upon proximity to the coast in order to function. The intake structure and pipelines would generally occur in areas without land use or zoning regulations and would be permissible on adjacent lands with a CDP. The intake pump station would occur on a site reserved for heavy industrial uses, where public utility facilities are permissible with a CDP.
- Intake pump station and pipeline construction activities, including vehicle ingress and egress, equipment and materials staging, trenching, and stockpiling, would disrupt public access and recreational opportunities in the coastal zone through increased traffic and potential lane closures. During the construction period, travel to or along the coast could take longer than usual. Similarly, recreational boating and other open-water recreational activities in MBNMS could be disrupted in the vicinity of offshore barges during intake structure construction (approximately 1,300 feet offshore). These effects would be limited to the construction period and would not preclude other public access or recreational opportunities in the area. For these reasons, components unique to Alternative 2 would not result in conflicts with plans, policies or regulations related to land use or recreation.

Additional discussion of traffic and transportation is provided in Section 5.5.9. Public beach access is discussed further below.

Installation of the intake structure, intake pump station at Dolan Road, and the additional length of pipeline would not conflict with plans and policies related to land use or recreation that were adopted for the purpose of avoiding or mitigating an environmental effect, and overall Alternative 2 would result in the ***same impact conclusion*** as the proposed project, less than significant.

There are other facilities unique to Alternative 2 that would substantially disrupt or preclude public shoreline access. Construction-related impacts on public access to or along the coast for the new Transmission Main would result in the same significant impact. However with implementation of **Mitigation Measure 4.9-1: Traffic Control and Safety Assurance Plan**, Alternative 2 would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Operational and Facility Siting Impacts

Alternative 2 would not result in any above-ground facilities that would conflict with plans and policies related to land use or recreation that were adopted for the purpose of avoiding or mitigating an environmental effect, and would not affect coastal public access. Therefore, Alternative 2 would result in the ***same impact conclusion*** on land use and recreation as the proposed project, less than significant.

Cumulative Analysis

No facility siting and operations-period effects would occur that could contribute to cumulative effects. Therefore, the geographic scope of analysis for cumulative impacts related to land use and recreation for Alternative 2 is defined by the lands and recreational resources that would be affected by Alternative 2 construction, and is the same as that described for the proposed project in Section 4.2.6, with the exception of the different location of the seawater intake system (Moss Landing), and alternative source water pipeline route. Concurrent construction and operation of Alternative 2 and projects in the cumulative scenario, including the DeepWater Desal Project (No. 34 in **Table 4.1-2** in Section 4.1), would increase the duration and geographic extent of recreational access disruptions within the study area. The impacts of Alternative 2 on recreational access would be significant, and if other projects were to affect recreational access concurrently, the cumulative impact would be significant and the contribution of Alternative 2 would be cumulatively considerable. With implementation of **Mitigation Measure 4.9-1**, this contribution would be reduced to a level that is not cumulatively considerable. Alternative 2 would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

5.5.8.6 Direct and Indirect Effects of Project Alternative 3 – Monterey Bay Regional Water Project (MBRWP or DeepWater Desal Project)

Alternative 3 includes the construction and operation of a screened open ocean intake system and a brine discharge system located on the seafloor in Monterey Bay within MBNMS, subsurface pipelines connecting to these intake and discharge systems, a seawater desalination facility and

co-located data center, and associated components to provide up to 25,000 afy of potable water and data transmission and storage services. The pipelines for the intake and discharge systems would be installed using HDD. The alternative would also include 6.5 miles of desalinated water pipeline to connect with the CalAm system and up to an additional 25 miles of pipelines to convey the desalinated water to other areas (total of 31.5 miles of additional pipeline). Several components would be identical to the proposed project: the new Transmission Main, new desalinated water pipeline south of the "Connection to CalAm" Point on **Figure 5.4-3**, ASR 5 and 6 wells and ASR pipeline, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be as described in Chapter 3, Description of the Proposed Project. Because this alternative would have an open water intake that would eliminate the need for returning source water drawn from the Salinas Valley Groundwater Basin, the Castroville Pipeline, Pipeline to CSIP Pond, and operational components related to delivering water to CCSD would not be implemented. The desalination plant and data center, open water intake system, brine discharge system, and the additional 31.5 miles of desalinated water pipeline are the components unique to Alternative 3 (see **Figure 5.4-3**). Therefore, the impact analysis of Alternative 3 focuses primarily on these components; however, impact conclusions are made for the whole of Alternative 3.

Construction

Similar to the proposed project, and based upon an initial review of consistency, effects from construction of components of Alternative 3 that are common with the proposed project would be temporary, and therefore would not be expected to conflict with applicable land use policies related to land use and recreation that were adopted for the purpose of avoiding or mitigating an environmental effect. Alternative 3 facilities in Moss Landing would also be subject to the Moss Landing Community Plan. The effects of components unique to Alternative 3 are presented below.

- The proposed screened open water intake and brine disposal structures in MBNMS, the intake pump station, the source water pipeline, and the brine discharge pipeline are coastal-dependent land uses because they depend upon proximity to the coast in order to function. The intake/outfall structures and pipelines would generally occur in areas without land use or zoning regulations and would be permissible on adjacent lands with a CDP. The intake pump station would occur on a site reserved for heavy industrial uses, where public utility facilities are permissible with a CDP. The East Tank Farm Parcel land use and zoning designations allow public utility facilities and other industrial-type facilities with a CDP.

- Intake pump station, pipelines, and East Tank Farm Parcel facilities construction activities, including vehicle ingress and egress, equipment and materials staging, trenching, and stockpiling, would disrupt public access and recreational opportunities in the coastal zone through increased traffic and potential lane closures. During the 24-month construction period, travel to or along the coast could take longer than usual. Similarly, recreational boating and other open-water recreational activities could be disrupted in the vicinity of offshore barges during intake/outfall construction (approximately 1,300 feet offshore). These effects would be limited to the construction period and would not preclude other public access or recreational opportunities in the area. For these reasons, components unique to Alternative 3 would not result in conflicts with plans, policies or regulations related to land use or recreation. Additional discussion of traffic and transportation is provided in Section 5.5.9. Public beach access is discussed further below.

Installation of the intake/outfall, intake pump station and East Tank Farm Parcel facilities along Dolan Road, and the additional length of pipelines would not conflict with plans and policies related to land use or recreation and would be compatible with existing land use and zoning designations. Therefore, Alternative 3 would result in the ***same impact conclusion*** as the proposed project, less than significant.

Similar to the proposed project, construction-related impacts on public access to or along the coast would be significant for the new Transmission Main. Facilities unique to Alternative 3 would not preclude public shoreline access but would disrupt public access and recreational opportunities in the coastal zone during the 24-month construction period through increased traffic and potential lane closures; travel to or along the coast could take longer than usual. Similarly, recreational boating and other open-water recreational activities could be disrupted in the vicinity of offshore barges during intake/outfall construction (approximately 1,300 feet offshore). With implementation of **Mitigation Measure 4.9-1** (**Traffic Control and Safety Assurance Plan**), Alternative 3 would result in the ***same impact conclusion*** on coastal public access as the proposed project, less than significant with mitigation.

Operational and Facility Siting Impacts

Alternative 3 would not result in any above-ground facilities that would conflict with plans and policies related to land use or recreation that were adopted for the purpose of avoiding or mitigating an environmental effect, and would not affect coastal public access. Therefore, Alternative 3 would have the ***same impact conclusion*** as the proposed project, less than significant.

Cumulative Analysis

No facility siting and operations-period effects would occur that could contribute to cumulative effects. Therefore, the geographic scope of analysis for cumulative impacts related to land use and recreation for Alternative 3 is defined by the lands and recreational resources that would be affected by Alternative 3 construction. Concurrent construction and operation of Alternative 3 and projects in the cumulative scenario, including the GWR Project (No. 59 in **Table 4.1-2** in Section 4.1), would increase the duration and geographic extent of land use and recreational access impacts within the study area. The impacts of Alternative 3 on recreational access and recreational boating during construction would be significant, and if other projects were to affect recreational access concurrently, the cumulative impact would be significant and the contribution of Alternative 3 would be cumulatively considerable. With implementation of **Mitigation Measure 4.9-1**, this contribution would be reduced to a level that is not cumulatively considerable. Alternative 3 would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

5.5.8.7 Direct and Indirect Effects of Alternative 4 – People's Moss Landing Water Desalination Project (People's Project)

Alternative 4 includes the construction and operation of an open ocean intake, a brine discharge system and pipelines, and supporting ballast rock located on the seafloor in Monterey Bay within MBNMS, as well as a 12 mgd desalination plant and associated facilities to provide 13,400 afy of

water supply to meet the current and future needs of the Monterey Peninsula. Several components would be identical to the proposed project: the new Transmission Main, new desalinated water pipeline south of the "Connection to CalAm" Point on **Figure 5.4-4**, ASR-5 and -6 wells and ASR pipeline, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be as described in Chapter 3, Description of the Proposed Project. Because this alternative would have an open water intake that would eliminate the need for returning source water drawn from the Salinas Valley Groundwater Basin, the Castroville Pipeline, Pipeline to CSIP Pond, and operational components related to delivering water to CCSD would not be implemented. The desalination plant, open water intake system, brine discharge system, and the additional 6.5 miles of desalinated water pipeline are the components unique to Alternative 4 (see **Figure 5.4-4**). Therefore, the impact analysis of Alternative 4 focuses primarily on these components; however, impact conclusions are made for the whole of Alternative 4.

Construction

Similar to the proposed project, and based upon an initial review of consistency, effects from construction of components of Alternative 4 that are common with the proposed project would be temporary, and therefore would not be expected to conflict with applicable land use policies related to land use and recreation that were adopted for the purpose of avoiding or mitigating an environmental effect. Facilities in Moss Landing that are unique to Alternative 4 would also be subject to the Moss Landing Community Plan. The effects of components unique to Alternative 4 are presented below.

- The screened open water intake, the brine discharge structure and the use of the existing caisson at the end of Sandholdt Road along with the desalinated water pipeline, source water pipeline and outfall pipeline, are all coastal-dependent land uses, because they depend upon proximity to the coast in order to function. The pipelines would generally occur in areas without land use or zoning regulations and would be permissible on adjacent lands with a CDP. The intake pump system would occur on a site reserved for light industrial uses, where public utility facilities are permissible with a CDP. The Heavy Industrial zoning designation for the Moss Landing Green Commercial Park, on which the desalination facility would be built, also allows for public utility facilities and water system facilities with a CDP. However, the site's land use plan designation prioritizes coastal-dependent uses. A desalination plant (as opposed to an intake structure) may or may not be considered a coastal-dependent land use. Such a determination would be made by the appropriate regulatory body (e.g., Monterey County and/or California Coastal Commission) at time of permitting. If the use is found to not be coastal-dependent, a variance or other exception would be required for the Alternative 4 desalination plant to gain CDP approval at the proposed location.

- Activities associated with construction of the intake pump system, pipelines, and Moss Landing Green Commercial Park facilities, including vehicle ingress and egress, equipment and materials staging, trenching, and stockpiling, would disrupt public access and recreational opportunities in the coastal zone through increased traffic and potential lane closures. During the construction period, travel to or along the coast could take longer than usual. Similarly, recreational boating and other open-water recreational activities could be disrupted in the vicinity of offshore barges during intake/outfall construction (approximately 300 to 1,400 feet offshore). These effects would be limited to the construction period and would not preclude public access or recreational opportunities in

the area. For these reasons, components unique to Alternative 4 would not result in substantial conflicts with plans, policies or regulations related to land use or recreation. Additional discussion of traffic and transportation is provided in Section 5.5.9. Public beach access is discussed further below.

Installation of the intake/outfall structures, the intake pump station on top of the existing caisson, the desalination plant, and the additional length of pipelines would not conflict with plans and policies related to land use or recreation that were adopted for the purpose of avoiding or mitigating an environmental effect. Overall, construction of Alternative 4 would result in the ***same impact conclusion*** as the proposed project, less than significant.

Construction-related impacts on public access to or along the coast would be significant for the new Transmission Main, and with implementation of **Mitigation Measure 4.9-1** (**Traffic Control and Safety Assurance Plan**), Alternative 4 would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

The public beach access effects of components unique to Alternative 4 are presented below.

- The existing caisson that would be used for the intake pump station is located between Moss Landing Beach and Sandholdt Road and could require construction access from the beach. The beach is generally narrow at this location and would not likely accommodate both on-beach construction and public access. If beach construction were to be required, lateral public access would likely be precluded. The effect would be significant. With implementation of feasible mitigation, such as that described in **Mitigation Measures REC-1a** (**Public Notification**), **REC 1b** (**Beach Access Management Plan**) and **REC-1c** (**Public Access during Construction**), the significant impact would be reduced to a less-than-significant level. Nearby alternative lateral beach access opportunities would remain open.

The effects of Alternative 4 on coastal public access would be increased compared to the proposed project because the construction activities associated with the rehabilitation of the existing caisson and construction of the new pump house would temporarily preclude lateral public access along the shoreline during the 24-month construction period. Implementation of feasible mitigation, such as measures described in **Mitigation Measures REC-1a**, **REC-1b**, and **REC-1c** would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Operational and Facility Siting Impacts

Alternative 4 would not result in any above-ground facilities that would conflict with plans and policies related to land use or recreation that were adopted for the purpose of avoiding or mitigating an environmental effect, and would not affect coastal public access. Therefore, Alternative 4 would have the ***same impact conclusion*** as the proposed project, less than significant.

Cumulative Analysis

No facility siting and operations-period effects would occur that could contribute to cumulative effects. Therefore, the geographic scope of analysis for cumulative impacts related to land use and recreation for Alternative 4 is defined by the lands and recreational resources that would be affected by Alternative 4 construction. Concurrent construction and operation of Alternative 4

and projects in the cumulative scenario, including the DeepWater Desal Project (No. 34 in **Table 4.1-2** in Section 4.1), would increase the duration and geographic extent of recreational access disruptions within the study area. The impacts of Alternative 4 on recreational access and access to the shore at Moss Landing would be significant, and if other projects were to affect recreational or public shore access concurrently, the cumulative impact would be significant and the contribution of Alternative 4 would be cumulatively considerable. With implementation of **Mitigation Measures 4.9-1, REC-1a, REC-1b**, and **REC-1c**, this contribution would be reduced to a level that is not cumulatively considerable. Alternative 4 would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

5.5.8.8 Direct and Indirect Effects of Alternative 5 – Reduced Desal Project 5a (CEMEX) and 5b (Potrero Road)

Alternative 5a would include the seawater intake system at the CEMEX site (the same location as the proposed project), but would include only seven subsurface slant wells (the converted test well and six new wells) and the same source water pipeline as the proposed project. Alternative 5b would include seven new wells at the western end of Potrero Road (the same location as Alternative 1) and the same source water pipeline as Alternative 1. Both Alternatives 5a and 5b would include a reduced-capacity desalination plant (6.4 mgd), and all other components would be the same as the proposed project.

Construction

Because Alternative 5a facilities would be constructed in the same areas as the proposed project, Alternative 5a would temporarily disrupt public access and recreational facilities, but would not conflict with applicable regulatory requirements related to land use or recreation adopted for the purpose of avoiding or mitigating an environmental effect, and Alternative 5a facilities would be similarly compatible with existing land use and zoning designations as the proposed project. Impacts of Alternative 5a would, therefore, result in the ***same impact conclusion*** as the proposed project, less than significant.

The effects of Alternative 5b would be the same as described for Alternative 1. Installation of fewer subsurface slant wells at Potrero Road would not disturb any less area than Alternative 1 since the parking lot is so small, and the construction of the additional length of pipeline from the slant well intakes would not result in a potential conflict with applicable plans, policies, and regulations related to land use and recreation adopted for the purpose of avoiding or mitigating an environmental effect. Therefore, Alternative 5b would have result in the ***same impact conclusion*** as the proposed project, less than significant.

The public shoreline access effects of Alternative 5a would in the same as the proposed project and with implementation of **Mitigation Measure 4.9-1** (**Traffic Control and Safety Assurance Plan**), Alternative 5a would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

The public shoreline access effects of Alternative 5b would be the same as described for Alternative 1. Impacts associated with the subsurface slant wells at Potrero Road would be

increased compared to the proposed project, because construction would require the complete closure of the Potrero Road parking lot and trails, which would temporarily preclude vertical public access to the shore and MBNMS during the 24-month construction period. However, with implementation of **Mitigation Measures REC-1a**, **REC-1b**, and **REC-1c**, Alternative 5b would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Operational and Facility Siting Impacts

Alternatives 5a and 5b would not result in any above-ground facilities that would conflict with plans and policies related to land use or recreation that were adopted for the purpose of avoiding or mitigating an environmental effect, and would not affect coastal public access. Therefore, Alternatives 5a and 5b would have the ***same impact conclusion*** as the proposed project, less than significant.

Cumulative Analysis

Combined Impacts with GWR Project

The GWR Project (No. 59 in **Table 4.1-2** in Section 4.1) would not affect vertical or lateral public access to the shore. Therefore, it would not have impacts that could combine with those of Alternative 5a or 5b; combined impacts would be as described for Alternatives 5a and 5b, above.

Impacts of Full Cumulative Scenario

The geographic scope of impacts and the cumulative scenario relevant to Alternatives 5a and 5b would be as described for the proposed project and Alternative 1, respectively, with the exception that the GWR Project also would be relevant to the cumulative scenario. As noted above, the GWR Project would not contribute to the same potential cumulative effects to which Alternatives 5a and 5b would contribute. Therefore, cumulative impacts would be identical to those described for the proposed project and Alternative 1, and with mitigation identified in those analyses, Alternatives 5a and 5b would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

5.5.9 Traffic and Transportation

The evaluation criteria for Traffic and Transportation address: temporary traffic increases on regional and local roadways from construction vehicle trips; temporary reduction in roadway capacities and increased traffic delays during construction, increased traffic safety hazards during construction; impaired emergency access during construction; temporary disruptions to public transportation, bicycle, and pedestrian facilities during construction; construction vehicle related wear-and-tear on designated haul routes; parking interference during construction; and, long-term traffic increases on regional and local roadways during operation and maintenance. Construction of all facilities would require the use of equipment and vehicles that would travel on local and regional roadways in Monterey County. Pipeline installation could also occupy roadways.

5.5.9.1 Setting/Affected Environment

The components of the alternatives that are common to the proposed project are located south of the Nashua Road/Highway 1 intersection and the setting/affected environment for those facilities is described in Section 4.9, Traffic and Transportation. The setting for the components north of the Nashua Road/Highway 1 intersection is presented in **Table 5.5-12**, which provides roadway characteristics for additional roads that would be affected by the alternatives (i.e., installation of pipelines within road rights-of-way).

TABLE 5.5-12
CHARACTERISTICS OF ADDITIONAL ROADS THAT COULD BE DIRECTLY AFFECTED BY PROJECT CONSTRUCTION ACTIVITIES

Roadway / Segment	No. of Travel Lanes	Average Daily Traffic Volumes[b]	Bike Route?	On-Street Parking?	Public Transit Lines[c]	Figure Reference
Source Water Pipeline (Alternatives 1 and 2) New Desalinated Water Pipeline (Alternatives 3, 4, and 5b)						
Potrero Road: • Highway 1 to Beach parking lot	2 lanes	--	No	No	N/A	Figure 5.4-3
Molera Road • Highway 1 (north) to Highway 1 (south)	2 lanes	--	No	No	N/A	Figure 5.4-3
Nashua Road • Highway 1 to Monte Road	2 lanes	--	No	No	N/A	Figure 5.4-3
New Desalinated Water Pipeline (Alternative 3)						
Dolan Road • Highway 1 to Moss Landing Power Plant East Parcel	2 lanes	--	No	No	N/A	Figure 5.4-5

5.5.9.2 Direct and Indirect Effects of the Proposed Project – Slant Wells at CEMEX

As described in detail in Chapter 3, Description of the Proposed Project, the proposed project (see **Figure 3-2**) would include construction of a desalination plant on 25 acres along Charles Benson Road northeast of the City of Marina, up to nine new subsurface slant wells at the CEMEX active mining area, and conversion of the existing test slant well to a permanent well. The proposed project would also include improvements to the existing Seaside Groundwater Basin aquifer storage and recovery (ASR) system facilities, pump stations, storage tanks, and about 21 miles of new water conveyance pipelines. No construction or placement of facilities on the seafloor would occur.

The following paragraphs briefly summarize the impacts of the proposed project with respect to traffic and transportation. The detailed impact analysis of the proposed project is provided in Section 4.9.

Impact 4.9-1: Temporary traffic increases on regional and local roadways due to construction-related vehicle trips.

Project-related construction activities would result in a temporary increase in traffic from construction workers and trucks traveling to and from the construction work areas. Although the estimated maximum increase in traffic along regional roadways would remain within the carrying capacities of the regional roadways and would not substantially affect traffic flow, construction-related traffic increases along local and neighborhood (residential) streets could result in adverse traffic conditions; this impact would be less than significant for all project components located north of Reservation Road and for the Carmel Valley Pump Station. This impact would be potentially significant for the new Transmission Main, Terminal Reservoir, ASR Conveyance Pipeline, ASR Pump-to-Waste Pipeline, ASR Recirculation Pipeline, ASR-5 and ASR-6 Wells, Ryan Ranch-Bishop Interconnection Improvements, and Main System-Hidden Hills Interconnection Improvements. Implementation of **Mitigation Measure 4.9-1 (Traffic Control and Safety Assurance Plan)** would reduce this potentially significant impact to a less-than-significant level.

Impact 4.9-2: Temporary reduction in roadway capacities and increased traffic delays during construction.

Traffic delays resulting from temporary lane closures and detours would be a potentially significant impact for all of the proposed pipelines, but implementation of **Mitigation Measure 4.9-1 (Traffic Control and Safety Assurance Plan)** would reduce the impact to a less-than-significant level. For all other proposed facilities, the impact would be less than significant because none of the non-linear facilities would require temporary lane closures or detours.

Impact 4.9-3: Increased traffic safety hazards for vehicles, bicyclists, and pedestrians on public roadways during construction.

For all proposed project facilities, construction activities could increase traffic safety hazards in the project area due to conflicts among construction vehicles, automobiles, bicyclists, and

pedestrians using the roadways; traffic issues on public roadways near construction vehicle access points; and confused bicyclists and pedestrians during temporary changes in circulation patterns on recreational trails, bicycle routes, sidewalks, and other public walkways. Potential increases in traffic safety hazards during project construction would be a potentially significant impact. Implementation of **Mitigation Measure 4.9-1 (Traffic Control and Safety Assurance Plan)** would reduce this impact to a less-than-significant level.

Impact 4.9-4: Impaired emergency access during construction.

Pipeline installation activities could require construction within vehicle travel lanes and road shoulders that could temporarily reduce travel lanes and roadway capacity. Delays for emergency vehicles and disruptions of emergency vehicle access to adjacent land uses would result in a potentially significant impact. Implementation of **Mitigation Measure 4.9-1 (Traffic Control and Safety Assurance Plan)**, which contains provisions to maintain access during construction, would reduce the impact to a less-than-significant level.

Construction activities and staging areas for the subsurface slant wells, MPWSP Desalination Plant, ASR-5 and ASR-6 Wells, Terminal Reservoir, and Carmel Valley Pump Station are not expected to require construction in roadways or road shoulders and impacts related to disrupted access to adjacent land uses for emergency vehicles would be less than significant.

Impact 4.9-5: Temporary disruptions to public transportation, bicycle, and pedestrian facilities during construction.

Pipeline installation activities of the Source Water Pipeline, new Desalinated Water Pipeline, new Transmission Main, and Castroville Pipeline, including vehicle ingress and egress, equipment and materials staging, trenching, and stockpiling, could temporarily affect public transportation, bicycle travel, and pedestrian travel along affected roadways and recreational trails in the project area. Construction-related impacts on alternative transportation modes and facilities during pipeline installation activities would be potentially significant. Implementation of **Mitigation Measure 4.9-1 (Traffic Control and Safety Assurance Plan)**, which includes measures to minimize impacts on public transportation and provide for continuity of pedestrian and bicyclist traffic during construction, would reduce the impact to a less-than-significant level. There would be no impacts on public transportation and bicycle and pedestrian facilities from the construction of all other proposed facilities and pipelines.

Impact 4.9-6: Increased wear-and-tear on the designated haul routes used by construction vehicles.

The use of trucks to transport equipment and material to and from the construction work areas could affect road conditions on the designated haul routes by increasing the rate of road wear. The degree to which this impact would occur depends on the roadway design and the existing road condition. Highways 1, 68, 101, 156, 183, and 218, Del Monte Boulevard, and Fremont Boulevard / Fremont Street are designed to handle a mix of vehicle types, including heavy trucks; therefore, the impacts of project-related construction traffic are expected to be negligible on those roads. However, some of the smaller roadways and residential streets may not have been

constructed to support use by heavy construction trucks and vehicles, and project-related increases in construction truck trips could cause excessive wear-and-tear on these roadways, a potentially significant impact. Implementation of **Mitigation Measure 4.9-6 (Roadway Rehabilitation Program)**, which requires rehabilitation of any roadways damaged following construction, would reduce this impact to a less-than-significant level.

Impact 4.9-7: Parking interference during construction.

Use of public parking lots for construction staging areas would result in potentially significant parking impacts due to temporary increases in parking demand associated with construction worker vehicles and/or temporary displacement of parking spaces. Implementation of **Mitigation Measure 4.9-7 (Construction Parking Requirements)** would reduce this impact to a less-than-significant level. Construction activities for the subsurface slant wells and MPWSP Desalination Plant would have no effect on parking. Parking displacement impacts resulting from construction of the proposed ASR-5 and ASR-6 Wells, Terminal Reservoir, Carmel Valley Pump Station, Ryan Ranch-Bishop Interconnection Improvements, Main System-Hidden Hills Interconnection Improvements, and all other proposed pipelines would be less than significant.

Impact 4.9-8: Long-term traffic increases on regional and local roadways during project operations and maintenance.

The impact related to long-term increases in vehicle trips during project operations and maintenance is less than significant for all project facilities due to the low volumes of daily trips that would be generated by the project.

Impact 4.9-C: Cumulative impacts related to traffic and transportation.

Proposed project construction would have a cumulatively considerable contribution to cumulative traffic and transportation impacts, even with implementation of mitigation measures identified in Impacts 4.9-1 through 4.9-7. Implementation of a mitigation measure designed to further reduce the MPWSP's incremental contribution to cumulative impacts, **Mitigation Measure 4.9-C (Construction Traffic Coordination Plan),** proposes coordination among planning agencies in each affected jurisdiction to develop and implement a Construction Traffic Coordination Plan to address construction-related traffic associated with all concurrent project sites in the vicinity of MPWSP project components. Since there is no guarantee that local agencies would participate in such coordination efforts, the proposed project's incremental contribution to potential significant cumulative effect would be cumulatively considerable. Project operations would not have a considerable contribution to cumulative traffic and transportation-related impacts.

5.5.9.3 Direct and Indirect Effects of No Project Alternative

Under the No Project Alternative, no new facilities would be constructed. Consequently, there would be no construction or operational impacts on traffic and transportation. Because the No Project Alternative would have no direct or indirect impacts with respect to traffic and transportation, it could not contribute to cumulative effects related to these topics.

5.5.9.4 Direct and Indirect Effects of Alternative 1 – Slant Wells at Potrero Road

Alternative 1 would site the subsurface intake system at a different location (Potrero Road parking lot), which would require an additional 5.5 miles of source water pipeline. The desalination plant at Charles Benson Road, brine discharge pipeline, Castroville Pipeline, Pipeline to CSIP Pond, new Desalinated Water Pipeline, new Transmission Main, Terminal Reservoir, ASR components, Highway 68 Interconnection Improvements, and Carmel Valley Pump Station would be identical to the proposed project described in Chapter 3, Description of the Proposed Project. The location of the slant wells at Potrero Road and the additional 5.5 miles of source water pipeline are the components unique to Alternative 1 (see **Figure 5.4-1**). Therefore, the traffic and transportation impact analysis of Alternative 1 focuses primarily on the locations for the intake system and source water pipelines that are different from the proposed project; however, impact conclusions are made for the whole of Alternative 1.

Construction Impacts

All construction activities and disturbance for the slant wells would occur in the parking lot at the western terminus of Potrero Road in northern Monterey County, near the southern border of the unincorporated community of Moss Landing. The Potrero Road beach parking lot is owned and operated by the California Department of Parks and Recreation (California State Parks) and the 10 slant wells would be buried 5 feet below the hardened sand parking surface. The approximately 4-foot-wide, 12-foot-long, and 6-foot-high electrical control building, the only above-ground structure at this location, would be located at the edge of the parking lot.

Similar to the proposed project, construction-related traffic would access the work areas using the roads described in Section 4.9 for components similar to the proposed project, except for Alternative 1 facilities located north of Charles Benson Road which would be accessed from the roads listed in **Table 5.5-12**. Similar to the proposed project, construction of Alternative 1 would temporarily affect segments of the roadway network in the project area including roads used for recreation and coastal access by: increasing traffic volumes and congestion; introducing temporary lane closures and detours; increasing traffic safety hazards; reducing roadway capacity; affecting public transportation, bicycle travel, and pedestrian travel along affected roadways and recreational trails; and increasing the rate of road wear.

Construction-related vehicle traffic could result in increased congestion and delays for vehicles on some roadway segments because the source water pipeline for Alternative 1 would be 5.5 miles longer compared to the proposed project and because the longer pipeline would take longer to install it would result in an increased number of vehicle trips. The additional roads affected by construction of the longer source water pipeline and the closure of the beach access parking lot at Potrero Road during the 24-month construction period, would result in traffic directed to other access roads in the area. Alternative 1 would result in an increased potential for regional and local roadway congestion compared to the proposed project, but with implementation of **Mitigation Measure 4.9-1** (**Traffic Control and Safety Assurance Plan**) would result in the ***same impact conclusion*** as the proposed project related to increased traffic congestion, less than significant with mitigation.

Construction associated with the longer source water pipeline would result in additional activities in vehicle travel lanes and road shoulders compared to the proposed project. These lane closures and detours would temporarily result in traffic delays during construction of Alternative 1 greater than the proposed project due to additional length of construction and additional roadways used. However, with implementation of **Mitigation Measure 4.9-1** (**Traffic Control and Safety Assurance Plan**) Alternative 1 would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Construction activities could increase traffic safety hazards in the project area due to conflicts between haul trucks and other large construction vehicles, automobiles, bicyclists, and pedestrians using the roadways and impedance of bicycle and pedestrian circulation. Potential increases in traffic safety hazards during construction of Alternative 1 would be increased compared to the proposed project because of the longer source water pipeline. However, with implementation of **Mitigation Measure 4.9-1** (**Traffic Control and Safety Assurance Plan**), Alternative 1 would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Temporary reductions in travel lanes and roadway capacity to accommodate the construction work areas (for pipeline installation) for Alternative 1 could result in an increase in delays for emergency vehicles, and temporary disruption of emergency vehicle access to adjacent land uses compared to the proposed project. However, with implementation of **Mitigation Measure 4.9-1** (**Traffic Control and Safety Assurance Plan**), Alternative 1 would result in the ***same impact conclusion*** as the proposed project, to less than significant with mitigation.

Pipeline installation activities for Alternative 1 could temporarily affect public transportation, bicycle travel, and pedestrian travel along affected roadways and recreational trails in the project area. Construction-related impacts on alternative transportation modes and facilities during pipeline installation activities would be potentially increased compared to the proposed project. However, with implementation of **Mitigation Measure 4.9-1** (**Traffic Control and Safety Assurance Plan**), Alternative 1 would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

The use of trucks to transport equipment and material to and from the construction work areas could affect road conditions on the designated haul routes by increasing the rate of road wear. Alternative 1 would result in an increase in construction truck trips that could cause excessive wear-and-tear on potentially more roadways compared to the proposed project. However, with implementation of **Mitigation Measure 4.9-6** (**Roadway Rehabilitation Program**), Alternative 1 would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Construction in the Potrero Road beach parking lot would result in potentially significant parking impacts due to temporary increases in parking demand associated with construction worker vehicles and/or temporary displacement of parking spaces. Alternative 1 would result in an increase in construction in parking interference compared to the proposed project. With the implementation of **Mitigation Measure 4.9-7 (Construction Parking Requirements)** Alternative 1 would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Overall, construction of Alternative 1 could have a potential increase in effects on traffic and transportation compared to the proposed project because of the additional 5.5 miles of source water pipeline. However, Alternative 1 impacts would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Operational and Facility Siting Impacts

The impacts of components that are common with the proposed project (i.e., the desalination plant, brine discharge pipeline, Castroville Pipeline, Pipeline to CSIP Pond, new Desalinated Water Pipeline, new Transmission Main, Terminal Reservoir, ASR components, Highway 68 interconnection improvements, and Carmel Valley Pump Station) would be identical to the impacts identified for proposed project, as summarized above in Section 5.5.9.2 (additional details in Section 4.9). The location of the slant wells at Potrero Road and the additional 5.5 miles of source water pipeline are the only components unique to Alternative 1 (see **Figure 5.4-1**) and the operation and maintenance activities would be the same as the proposed project, and the minimal number of daily vehicle trips associated with worker commutes and deliveries would be negligible compared to existing conditions and would not result in a noticeable increase in traffic on adjacent streets. Therefore, Alternative 1 would result in the ***same impact conclusion*** on long-term traffic as the proposed project, less than significant.

Cumulative Analysis

For the same reasons discussed in Section 4.9, Traffic and Transportation, there is no discussion in the alternatives analysis of the cumulative impact of conflicts with an applicable congestion management plan, changes in air traffic patterns, permanent increases in traffic safety hazards, or conflicts with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities.

The geographic scope for the cumulative traffic impacts analysis for Alternative 1 is the same as for the proposed project, described in Section 4.9.6. Due to increased traffic and transportation network disruptions, concurrent construction of Alternative 1 and the projects listed in **Table 4.1-2** in Section 4.1 would result in potentially significant cumulative impacts on traffic and transportation access and facilities, similar to those of the proposed project.

Based on the assumption that long-term vehicle trips generated by Alternative 1 would be similar to those generated by the proposed project, operations and maintenance activities for Alternative 1 would have similar impacts on regional and local roadways as the proposed project, and therefore would not have a cumulatively considerable contribution to a significant cumulative impact.

Similar to the proposed project, for Alternative 1, 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)**, discussed in Sections 4.9.4 and 4.9.5, each of which would lessen Alternative 1's contribution to cumulative construction-related traffic and transportation impacts. **Mitigation Measure 4.9-C (Construction Traffic Coordination Plan)** is designed to further reduce the MPWSP's (and Alternative 1's) incremental contribution to address the potential significant cumulative impact. However, even

though this mitigation measure could reduce Alternative 1's cumulative contribution to a less-than-significant level, the conclusion remains that the incremental contribution to potential significant and unavoidable cumulative effects would be cumulatively considerable, for the same reasons described for the proposed project. Therefore, Alternative 1 would have the *same impact conclusion* as the proposed project for cumulative effects related to traffic and transportation, significant and unavoidable.

5.5.9.5 Direct and Indirect Effects of Alternative 2 – Open-Water Intake at Moss Landing

Alternative 2 would supply seawater to the proposed 9.6 mgd desalination plant located at the Charles Benson Road site using a screened open-water intake system consisting of an intake structure located offshore in MBNMS and southwest of the Moss Landing Harbor entrance, a subsurface intake pipeline, and an intake pump station (described in Section 5.4.4). The desalination plant, brine discharge pipeline, new Desalinated Water Pipeline, new Transmission Main, Terminal Reservoir, ASR components, Highway 68 interconnection improvements, and the Carmel Valley Pump Station would be identical to the proposed project described in Chapter 3, Description of the Proposed Project. Because the open water intake would eliminate the need for returning source water that originated from the Salinas Valley Groundwater Basin, the Castroville Pipeline, the Pipeline to CSIP Pond, and operational components related to delivering water to Castroville Community Services District would not be implemented. The open water intake system and the additional 6.5 miles of source water pipeline are the components unique to Alternative 2 (see **Figure 5.4-2**).

Construction Impacts

Similar to the proposed project, construction-related traffic would access the work areas using the roads described in Section 4.9 for components similar to the proposed project, except for Alternative 2 facilities located north of Charles Benson Road which would be accessed from the roads listed in **Table 5.5-12**. Similar to the proposed project, construction of Alternative 2 would temporarily affect segments of the roadway network in the project area including roads used for recreation and coastal access by: increasing traffic volumes and congestion; introducing temporary lane closures and detours; increasing traffic safety hazards; reducing roadway capacity; affecting public transportation, bicycle travel, and pedestrian travel along affected roadways and recreational trails; and increasing the rate of road wear.

Construction-related vehicle traffic could result in increased congestion and delays for vehicles on some roadway segments compared to the proposed project because the source water pipeline for Alternative 2 would be 6.5 miles longer and because the longer pipeline would take longer to install and would result in an increased number of vehicle trips. The additional roads affected by construction of the longer source water pipeline would result in traffic directed to other access roads in the area. Alternative 2 would result in an increased potential for regional and local roadway congestion compared to the proposed project, but with. implementation of **Mitigation Measure 4.9-1** (**Traffic Control and Safety Assurance Plan**) would result in the ***same impact conclusion*** as the proposed project related to increased traffic congestion, less than significant with mitigation.

Construction associated with the longer source water pipeline would also result in additional activities in vehicle travel lanes and road shoulders compared to the proposed project. These lane closures and detours would temporarily result in traffic delays during construction of Alternative 2 that are greater than the proposed project due to additional length of construction and additional roadways used. However, with implementation of **Mitigation Measure 4.9-1** (**Traffic Control and Safety Assurance Plan**), Alternative 2 would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Construction activities could increase traffic safety hazards in the project area due to conflicts between haul trucks and other large construction vehicles, automobiles, bicyclists, and pedestrians using the roadways and impedance of bicycle and pedestrian circulation. Potential increases in traffic safety hazards during construction of Alternative 2 would be increased compared to the proposed project because of the longer source water pipeline. However, with implementation of **Mitigation Measure 4.9-1** (**Traffic Control and Safety Assurance Plan**), Alternative 2 would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Temporary reductions in travel lanes and roadway capacity to accommodate the construction work areas (for pipeline installation) for Alternative 2 could result in an increase in delays for emergency vehicles, and temporary disruption of emergency vehicle access to adjacent land uses compared to the proposed project. However, with implementation of **Mitigation Measure 4.9-1** (**Traffic Control and Safety Assurance Plan**), Alternative 2 would result in the ***same impact conclusion*** as the proposed project, to less-than-significant with mitigation.

Pipeline installation activities for Alternative 2 could temporarily affect public transportation, bicycle travel, and pedestrian travel along affected roadways and recreational trails in the project area. Construction-related impacts on alternative transportation modes and facilities during pipeline installation activities would potentially increase compared to the proposed project. However, with implementation of **Mitigation Measure 4.9-1** (**Traffic Control and Safety Assurance Plan**), Alternative 2 would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

The use of trucks to transport equipment and material to and from the construction work areas could affect road conditions on the designated haul routes by increasing the rate of road wear. Alternative 2 would result in an increase in construction truck trips that could cause excessive wear-and-tear on potentially more roadways compared to the proposed project. However, with implementation of **Mitigation Measure 4.9-6** (**Roadway Rehabilitation Program**), Alternative 2 would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Construction of Alternative 2 would not impact on-street parking as shown in **Table 5.5-12**, and it is unknown whether parking lots would be used for construction equipment staging. Therefore, Alternative 2 would have a similar level of impact regarding parking interference as the proposed project, which has the potential to be significant. Implementation of **Mitigation Measure 4.9-6 (Roadway Rehabilitation Program)** would reduce impacts to less than significant. Combining

the components unique to Alternative 2 with those in common with the proposed project, Alternative 2 would result in the ***same impact conclusion***, less than significant with mitigation.

Overall, construction of Alternative 2 could have a potential increase in effects on traffic and transportation compared to the proposed project because of the additional 5.5 miles of source water pipeline. However, Alternative 2 impacts would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Operational and Facility Siting Impacts

The impacts of components that are common with the proposed project (i.e., the desalination plant, brine discharge pipeline, new Desalinated Water Pipeline, new Transmission Main, Terminal Reservoir, ASR components, Highway 68 interconnection improvements, and Carmel Valley Pump Station) would be identical to the impacts identified for proposed project, as summarized above in Section 5.5.9.2 (additional details in Section 4.9). The location of the slant wells at Potrero Road and the additional 5.5 miles of source water pipeline are the only components unique to Alternative 2 (see **Figure 5.4-2**), the operation and maintenance activities would be the same as those for the proposed project, and the minimal number of daily vehicle trips associated with worker commutes and deliveries would be negligible compared to existing conditions and would not result in a noticeable increase in traffic on adjacent streets. Therefore, Alternative 2 would result in the ***same impact conclusion*** on long-term traffic as the proposed project, less than significant.

Cumulative Analysis

For the same reasons discussed in Section 4.9, Traffic and Transportation, there is no discussion in the alternatives analysis of the cumulative impact of conflicts with an applicable congestion management plan, changes in air traffic patterns, permanent increases in traffic safety hazards, or conflicts with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities.

The geographic scope for the cumulative traffic impacts analysis for Alternative 2 is the same as for the proposed project. Like Alternative 1, based on the assumption that long-term vehicle trips generated by Alternative 2 would be similar to those generated by the proposed project, operations and maintenance activities for Alternative 2 would have similar impacts on regional and local roadways as the proposed project, and therefore would not have a cumulatively considerable contribution to a significant cumulative impact.

Alternative 2 would have similar contributions to cumulative impacts as described for Alternative 1, and also would be subject to implementation of **Mitigation Measures 4.9-1** (**Traffic Control and Safety Assurance Plan**), **4.9-6** (**Roadway Rehabilitation Program**), **4.9-7** (**Construction Worker Parking Requirements**), and **4.9-C** (**Construction Traffic Coordination Plan**). Similar to the proposed project, even with implementation of mitigation, the incremental contribution of Alternative 2 to potential significant and unavoidable cumulative effects would be cumulatively considerable. Therefore, Alternative 2 would have the ***same impact conclusion*** as the proposed project for cumulative effects related to traffic and transportation, significant and unavoidable.

5.5.9.6 Direct and Indirect Effects of Alternative 3 – Monterey Bay Regional Water Project (MBRWP or DeepWater Desal Project)

Alternative 3 includes the construction and operation of a screened open ocean intake system and a brine discharge system located on the seafloor in Monterey Bay within MBNMS, two subsurface pipelines connecting to each the intake and discharge systems, a seawater desalination facility and co-located data center, and associated components to provide up to 25,000 afy of potable water and data transmission and storage services. The pipelines for the intake and discharge systems would be installed using HDD from the location of the proposed pump station on Dolan Road. The alternative would also include 6.5 miles of desalinated water pipeline to connect with the CalAm system and up to an additional 25 miles of pipelines to convey the desalinated water to other areas (total of 31.5 miles of additional pipeline). Several components would be identical to the proposed project: the new Transmission Main, new desalinated water pipeline south of the "Connection to CalAm" Point on **Figure 5.4-3**, ASR-5 and 6 wells and ASR pipelines, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be as described in Chapter 3, Description of the Proposed Project. Because this alternative would have an open water intake that would eliminate the need for returning source water that originated from the Salinas Valley Groundwater Basin, the proposed project Castroville Pipeline, Pipeline to CSIP Pond, and operational components related to delivering water to CCSD would not be implemented. The desalination plant and co-located data center, open water intake system, brine discharge system, and the additional 31.5 miles of desalinated water pipeline are the components unique to Alternative 3 (see **Figure 5.4-3**). Therefore, the impact analysis of Alternative 3 focuses primarily on these components; however, impact conclusions are made for the whole of Alternative 3.

Construction Impacts

Similar to the proposed project, construction-related traffic would access work areas using the roads described in Section 4.9 for components common to the proposed project south of Charles Benson Road, including the Desalinated Water Pipeline, new Transmission Main, ASR facilities and pipelines, and Terminal Reservoir. Facilities unique to Alternative 3 that would be located north of Charles Benson Road include: 31.5 additional miles of Desalinated Water Pipeline; the desalination plant and co-located data center on the East Tank Farm parcel; the screened open water intake and brine discharge systems in Monterey Bay within MBNMS; the pump station along Dolan Road at the railspur; the two intake and two brine discharge pipelines in Dolan Road between the pump station and the desalination plant, and; treated water pipelines in Dolan Road to Salinas and Santa Cruz counties.

As a result, Alternative 3 could result in potential increases in construction-related vehicle traffic, congestion and delays for vehicles. For the same reasons described above for Alternative 2, Alternative 3 would result in potentially significant impacts from construction-related traffic, road hazards, emergency vehicle access, public transportation, and road wear. These temporary traffic impacts on regional and local roadways would be increased compared to the proposed project because multiple pipelines would be installed via open-trenching in Dolan Road, which would require full closure of that road during construction work hours. While there is an available detour (via Castroville Boulevard and State Route 156), the resulting impact on traffic would be greater

than for the proposed project. However, with implementation of **Mitigation Measure 4.9-1** (**Traffic Control and Safety Assurance Plan**) and **Mitigation Measure 4.9-6** (**Roadway Rehabilitation Program**), Alternative 3 would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Construction of Alternative 3 would not impact on-street parking as shown in **Table 5.5-12**, and it is unknown whether parking lots would be used for construction equipment staging. Therefore, Alternative 3 would have a similar level of impact regarding parking interference as the proposed project, which has the potential to be significant. Implementation of **Mitigation Measure 4.9-6 (Roadway Rehabilitation Program)** would reduce impacts to less than significant. Combining the components unique to Alternative 3 with those in common with the proposed project, Alternative 3 would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Overall, construction of Alternative 3 could have a potential increase in effects on traffic and transportation compared to the proposed project because of the additional 31.5 miles of pipeline. However, Alternative 3 impacts would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Operational and Facility Siting Impacts

The impacts of components that are common with the proposed project would be identical to the impacts identified for proposed project, as summarized above in Section 5.5.9.2 (additional details in Section 4.9). The location of the intake and outfall pipelines, Desalination Plant, and the additional 31.5 miles of pipeline are the only components unique to Alternative 3 on land (see **Figure 5.4-3**) and the operation and maintenance activities on land would be similar to those for the proposed project, and the minimal number of daily vehicle trips associated with worker commutes and deliveries would be negligible compared to existing conditions and would not result in a noticeable increase in traffic on adjacent streets. Therefore, Alternative 3 would result in the ***same impact conclusion*** on long-term traffic as the proposed project, less than significant.

Cumulative Analysis

For the same reasons discussed in Section 4.9, Traffic and Transportation, there is no discussion in the alternatives analysis of the cumulative impact of 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, or conflicts with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities.

The geographic scope for the cumulative traffic impacts analysis for Alternative 3 is the same as for the proposed project. Like Alternative 1, based on the assumption that long-term vehicle trips generated by Alternative 3 would be similar to those generated by the proposed project, operations and maintenance activities for Alternative 3 would have similar impacts on regional and local roadways as the proposed project, and therefore would not have a cumulatively considerable contribution to a significant cumulative impact.

Alternative 3 would have similar contributions to cumulative impacts as described for Alternative 1, and also would be subject to implementation of **Mitigation Measures 4.9-1** (**Traffic Control and Safety Assurance Plan**), **4.9-6** (**Roadway Rehabilitation Program**), **4.9-7** (**Construction Worker Parking Requirements**), and **4.9-C** (**Construction Traffic Coordination Plan**). Similar to the proposed project, even with implementation of mitigation, the incremental contribution of Alternative 3 to potential significant and unavoidable cumulative effects would be cumulatively considerable. Therefore, Alternative 3 would have the ***same impact conclusion*** as the proposed project for cumulative effects related to traffic and transportation, significant and unavoidable.

5.5.9.7 Direct and Indirect Effects of Alternative 4 – Peoples' Moss Landing Water Desalination Project (Peoples' Project)

Alternative 4 includes the construction and operation of an open ocean intake system and intake pipeline and a brine discharge system and discharge pipeline including the placement of ballast rock located on the seafloor in Monterey Bay within MBNMS, as well as a 12 mgd desalination plant and associated facilities to provide 13,400 afy of water supply to meet the current and future needs of the Monterey Peninsula. Several components would be identical to the proposed project: the new Transmission Main, new desalinated water pipeline south of the "Connection to CalAm" Point on **Figure 5.4-4**, ASR-5 and -6 wells and ASR pipeline, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be as described in Chapter 3, Description of the Proposed Project. Because this alternative would have an open water intake that would eliminate the need for returning source water that originated from the Salinas Valley Groundwater Basin, the Castroville Pipeline, Pipeline to CSIP Pond, and operational components related to delivering water to CCSD would not be implemented. The desalination plant, open water intake system, brine discharge system, and the additional 6.5 miles of desalinated water pipeline are the components unique to Alternative 4 (see **Figure 5.4-4**). Therefore, the impact analysis of Alternative 4 focuses primarily on these components; however, impact conclusions are made for the whole of Alternative 4.

Construction Impacts

Similar to the proposed project, construction-related traffic would access the work areas using the roads described in Section 4.9 for components common to the proposed project south of Charles Benson Road, including the Desalinated Water Pipeline, new Transmission Main, ASR facilities and pipelines, and Terminal Reservoir. Facilities unique to Alternative 4 that would be located north of Charles Benson Road include: 6.5 additional miles of Desalinated Water Pipeline; the desalination plant located at the Moss Landing Green Commercial Park; the screened open water intake and brine discharge systems in Monterey Bay within MBNMS; the pump station at the existing caisson at the end of Sandholdt Road, and; the intake and brine discharge pipelines between the caisson and the desalination plant. For the same reasons described above for Alternative 1, Alternative 4 would result in potentially significant impacts from construction-related traffic, lane closures, road hazards, emergency vehicle access, public transportation, and road wear. However, with implementation of **Mitigation Measure 4.9-1** (**Traffic Control and Safety Assurance Plan**) and **Mitigation Measure 4.9-6** (**Roadway Rehabilitation Program**),

Alternative 4 would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Construction of Alternative 4 would not impact on-street parking as shown in **Table 5.5-12**, and it is unknown whether parking lots would be used for construction equipment staging. Therefore, Alternative 4 would have a similar level of impact regarding parking interference as the proposed project, which has the potential to be significant. Implementation of **Mitigation Measure 4.9-6 (Roadway Rehabilitation Program)** would reduce impacts to less than significant. Combining the components unique to Alternative 4 with those in common with the proposed project, Alternative 4 would result in the ***same impact conclusion***, less than significant with mitigation.

Operational and Facility Siting Impacts

Impacts from components that are common with the proposed project would be identical to the impacts identified for these components in Section 4.2. The location of the intake, discharge, desalination plant and the additional 6.5 miles of desalinated water pipeline are the on land components unique to Alternative 4 (see **Figure 5.4-4**); therefore, the components of Alternative 4 located on land would result in a similar level of impact as the proposed project associated with operation and maintenance activities, and the minimal number of daily vehicle trips associated with worker commutes and deliveries would be negligible compared to existing conditions and would not result in a noticeable increase in traffic on adjacent streets. Therefore, Alternative 4 would have the ***same impact conclusion*** as the proposed project, less than significant.

Cumulative Analysis

For the same reasons discussed in Section 4.9, Traffic and Transportation, there is no discussion in the alternatives analysis of the cumulative impact of the proposed project 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, or conflicts with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities.

The geographic scope for the cumulative traffic impacts analysis for Alternative 4 is the same as for the proposed project. Like Alternative 1, based on the assumption that long-term vehicle trips generated by Alternative 4 would be similar to those generated by the proposed project, operations and maintenance activities for Alternative 4 would have similar impacts on regional and local roadways as the proposed project, and therefore would not have a cumulatively considerable contribution to a significant cumulative impact.

Alternative 4 would have similar contributions to cumulative impacts as described for Alternative 1, and also would be subject to implementation of **Mitigation Measures 4.9-1** (**Traffic Control and Safety Assurance Plan**), **4.9-6** (**Roadway Rehabilitation Program**), **4.9-7** (**Construction Worker Parking Requirements**), and **4.9-C** (**Construction Traffic Coordination Plan**). Similar to the proposed project, even with implementation of mitigation, the incremental contribution of Alternative 4 to potential significant and unavoidable cumulative effects would be cumulatively considerable. Therefore, Alternative 4 would have the ***same impact conclusion*** as

the proposed project for cumulative effects related to traffic and transportation, significant and unavoidable.

5.5.9.8 Direct and Indirect Effects of Project Alternative 5 – Reduced Desal Project 5a (CEMEX) and 5b (Potrero Road)

Alternative 5a would include the seawater intake system at the CEMEX site (the same location as the proposed project), but would include only seven subsurface slant wells (the converted test well and six new wells) and the same source water pipeline as the proposed project. Alternative 5b would include seven new wells at the western end of Potrero Road (the same location as Alternative 1) and the same source water pipeline as Alternative 1. Both Alternatives 5a and 5b would include a reduced-capacity desalination plant (6.4 mgd), and all other components would be the same as the proposed project.

Construction Impacts

Similar to the proposed project, construction-related vehicle traffic could result in increased congestion and delays for vehicles. Alternative 5a would have the ***same impact conclusion*** for construction-related vehicle traffic impacts as the proposed project for the same roads as described in Section 4.9, less than significant with mitigation. For Alternative 5b, except for facilities north of Charles Benson Road (5.5 additional miles of source water pipeline and the slant wells at the Potrero Road parking lot), construction-related traffic would access the work areas using the roads described in Section 4.9 for the proposed project. For the same reasons described above for Alternative 1, Alternative 5b would result in potentially significant impacts from construction-related traffic, lane closures, road hazards, emergency vehicle access, public transportation, road wear, and parking interference. However, with implementation of **Mitigation Measures 4.9-1** (**Traffic Control and Safety Assurance Plan**), **4.9-6** (**Roadway Rehabilitation Program**), **4.9-7 (Construction Parking Requirements)** Alternative 5b would result an increased level of impact but the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Operational and Facility Siting Impacts

The operation and maintenance activities for Alternatives 5a and 5b would be the same as those for the proposed project, and the minimal number of daily vehicle trips associated with worker commutes and deliveries would be negligible compared to existing conditions and would not result in a noticeable increase in traffic on adjacent streets. Therefore, Alternatives 5a and 5b would have the ***same impact conclusion*** as the proposed project, less than significant.

Cumulative Analysis

For the same reasons discussed in Section 4.9, Traffic and Transportation, there is no discussion in the alternatives analysis of the cumulative impact of conflicts with an applicable congestion management plan, changes in air traffic patterns, permanent increases in traffic safety hazards, or conflicts with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities.

The geographic scope for the cumulative traffic impacts analysis for Alternatives 5a and 5b is the same as for the proposed project. Like Alternative 1, based on the assumption that long-term vehicle trips generated by Alternatives 5a and 5b would be similar to those generated by the proposed project, operations and maintenance activities for Alternatives 5a and 5b would have similar impacts on regional and local roadways as the proposed project, and therefore would not have a cumulatively considerable contribution to a significant cumulative impact.

Alternatives 5a and 5b would have similar contributions to cumulative impacts as described for Alternative 1, and also would be subject to implementation of **Mitigation Measures 4.9-1** (**Traffic Control and Safety Assurance Plan**), **4.9-6** (**Roadway Rehabilitation Program**), **4.9-7** (**Construction Worker Parking Requirements**), and **4.9-C** (**Construction Traffic Coordination Plan**). Similar to the proposed project, even with implementation of mitigation, the incremental contribution of Alternatives 5a and 5b to potential significant and unavoidable cumulative effects would be cumulatively considerable. Therefore, Alternatives 5a and 5b would have the ***same impact conclusion*** as the proposed project for cumulative effects related to traffic and transportation, significant and unavoidable.

5.5.10 Air Quality

The evaluation criteria for Air Quality address: construction emissions of criteria air pollutants that could violate air quality standards; construction emissions that could conflict with implementation of the applicable air quality plan; exposure of people to health risks and/or objectionable odors during construction; long-term increase in criteria pollutant emissions during operations; and exposure of people to a substantial increase in pollutants and/or objectionable odors during operations. Construction of all facilities would result in significant emissions of criteria pollutants in the Monterey Bay Unified Air Pollution Control District (MBUAPCD).

5.5.10.1 Setting/Affected Environment

The components of the alternatives that are common to the proposed project are located south of the Nashua Road/Highway 1 intersection and the setting/affected environment for those facilities is described in Section 4.10, Air Quality. The setting with respect to sensitive receptors for the alternatives components north of the Nashua Road/Highway 1 intersection is presented below.

Pipeline Alignments North of Nashua Road/Highway 1 Intersection and South of Moss Landing

The Alternative 1 source water pipeline along Potrero Road, between the slant wells in the parking lot and Highway 1, would be located within 50 feet of approximately 20 residences. The additional length of source water pipeline associated with Alternative 1, as well as the source water pipelines associated with Alternatives 2 and 5b, would pass within 100 feet of several residences along Nashua Road, Molera Road, and Highway 1.

Potrero Road Parking Lot

The closest sensitive receptors to the alternative slant wells site at the Potrero Road parking lot are residences along Laguna Place located approximately 1,000 feet east of the slant wells site.

Moss Landing Area

The closest sensitive receptors to the Open Water Intake Pump Station site along Dolan Road associated with Alternatives 2 and 3 are boat slips at Moss Landing Harbor, located approximately 1,600 feet to the west. The boat slips would also be within 200 feet of construction activity associated with the source water pipeline and desalinated water pipeline for Alternatives 2 and 3, respectively. In addition, the northwestern boundary of the People's Moss Landing Desalination Plant site (Alternative 4) at the Moss Landing Green Commercial Park and the desalinated water pipeline alignment associated with this alternative are approximately 300 feet and 200 feet east of boat slips in the southeastern part of the harbor, respectively.

The closest sensitive receptors to the desalination plant and data center site along Dolan Road under Alternative 3 are two residences, one approximately 300 feet from the southern boundary of the site, and the other approximately 1,500 feet from the eastern boundary of the site. The residence near the southern border of the site would be within 100 feet of construction activities associated with the brine, source water, and desalinated water pipelines under Alternatives 2 and 3.

5.5.10.2 Direct and Indirect Effects of Proposed Project (Slant Wells at CEMEX)

The proposed project extends from Castroville in the north to the city of Carmel in the south (see **Figure 3-2**) and would include construction of a desalination plant on 25 acres along Charles Benson Road northeast of the City of Marina, up to nine new subsurface slant wells at the CEMEX active mining area, two new wells (ASR-5 and ASR-6) at the existing Seaside Groundwater Basin ASR system, the Carmel Valley Pump Station, and about 21 miles of water conveyance pipelines. The direct and indirect impacts of the proposed project are described in detail in Section 4.7.5.

Impact 4.10-1: Generate emissions of criteria air pollutants that could contribute to a violation of an ambient air quality standard during construction,

Impact 4.10-2: Construction activities could conflict with implementation of the applicable air quality plan.

Short-term emissions associated with construction of the proposed project could contribute to an exceedance of a state and/or federal standard for ozone, NO_2, and, PM_{10} based on the estimated maximum daily mass emissions levels presented in **Table 4.10-5**, which would exceed the MBUAPCD significance threshold for PM_{10}. However, this impact with respect to the ozone and NO_2 standards would be significant and unavoidable even with implementation of **Mitigation Measures 4.10-1a** and **4.10-1b**. This significant impact could increase the susceptibility of sensitive individuals to respiratory infections. With respect to the PM_{10} standards, this impact would be reduced to a less-than-significant level with implementation of **Mitigation Measures 4.10-1a** through **4.10-1d**. Short-term construction emissions associated with other criteria pollutants, including ROG, CO, and $PM_{2.5}$, would not be expected to contribute to an exceedance of an ambient air quality standard and the associated impact for all other criteria pollutants would be less than significant.

The most recently adopted air quality plan for the project area is the 2012 AQMP which documents the MBUAPCD's progress toward attaining the state 8-hour ozone standard. Any project that could conflict with the MBUAPCD's goal of attaining the state 8-hour ozone standard would be considered to conflict with the intent of the 2012 AQMP. The method used for determining whether construction of the project would conflict with the intent of the 2012 AQMP is to compare the project emissions with the CEQA thresholds of significance for the ozone precursors NOx and ROG.

The project-related short-term construction emissions with mitigation measures incorporated would exceed the significance threshold for NOX (see Impact 4.10-1); therefore, the project would not support the primary goal of the 2012 AQMP, and the impact associated with conflicting or obstructing implementation of the applicable air quality plan would be significant and unavoidable, even with implementation of mitigation.

Impact 4.10-3: Expose sensitive receptors to substantial pollutant concentrations and/or coccidioides immitis spores or create objectionable odors affecting a substantial number of people during construction.

Short-term generation of diesel particulate matter (DPM) emissions from off-road diesel equipment could result in the temporary exposure of local sensitive receptors to toxic air contaminants (TACs) (i.e., DPM). Cancer risk and health hazard index values associated with the project are less than the significance thresholds established by MBUPACD. Therefore, impacts would be less than significant.

Ground-disturbing construction activities could release coccidioides immitis spores. Construction activities are similar to those that occur continually within the County and the project would not result in a substantial increase in spore release. Therefore, construction of the project would not represent an increased risk to public health.

Construction activities could result in temporary odors from use of diesel-fueled equipment. These odors would dissipate quickly, and would be unlikely to create objectionable odors that would affect a substantial number of people.

Impact 4.10-4: Long-term increase of criteria pollutant emissions that could contribute to a violation of an ambient air quality standard during operations.

The combined operational emissions associated with the MPWSP Desalination Plant, Monterey Pump Station, Carmel Valley Pump Station, and the slant wells would not exceed any of the MBUAPCD's significance thresholds; therefore, operational emissions would not be expected to result in or contribute to an exceedance of an ambient air quality standard and the associated impact would be considered to be less than significant. No impact would result from operation and maintenance of all other project components.

Impact 4.10-5: Expose sensitive receptors to substantial pollutant concentrations or create objectionable odors affecting a substantial number of people during operations.

The only DPM emissions sources associated with MPWSP operations would be the emergency standby generators at the MPWSP Desalination Plant, Monterey Pump Station, and the Carmel Valley Pump Station. Routine testing and operation of the emergency generators would generate a negligible amount of DPM emissions. The generator emissions would not exceed the MBUAPCD TAC significance threshold for increased health risks. Therefore, the impact would be less than significant for the MPWSP Desalination Plant, Monterey Pump Station, and the Carmel Valley Pump Station.

None of the other project facilities would include on-site DPM emissions sources. Therefore, no impact related to the exposure of sensitive receptors to substantial pollutant concentrations would result from operation of any other MPWSP facility.

Long-term operations associated with the MPWSP would not create objectionable odors that could affect a substantial number of people because the MPWSP Desalination Plant would be designed with odor control features and operational controls to limit and contain odors. Further,

the MPWSP Desalination Plant site is located at least 2,000 feet away from the closest residences and in an industrial area with existing sources of objectionable odors. Therefore, operational impacts related to the creation of objectionable odors affecting a substantial number of people would be less than significant.

Impact 4.10-C: Cumulative impacts related to air quality,

The cumulative impact of construction emissions associated with the potential to contribute to a violation of an ambient air quality standard and conflict with implementation of the applicable air quality plan and would be significant when combined with the emissions associated with the cumulative projects in **Table 4.1-2**. The cumulative impact with respect to the ozone and NO2 standards would be significant and unavoidable, even with implementation of **Mitigation Measure 4.10-1a** and **4.10-1b**. Therefore, the MPWSP's incremental contribution to this cumulative impact would be cumulatively considerable. With respect to the PM10 standards, the cumulative impact would be reduced to a less-than-significant level with implementation of **Mitigation Measure 4.10-1a** through **4.10-1d**.

5.5.10.3 Direct and Indirect Effects of No Project Alternative

Under the No Project Alternative, no new facilities would be constructed or operated. Consequently, there would be no construction- or operations-related air quality emissions associated with the No Project Alternative. Because the No Project Alternative would have no direct or indirect impacts with respect to air quality emissions, it could not contribute to cumulative effects related to these topics.

5.5.10.4 Direct and Indirect Effects of Alternative 1 – Slant Wells at Potrero Road

Alternative 1 would supply seawater to the proposed 9.6 mgd desalination plant located at the Charles Benson Road site using the same type of subsurface intake system as the proposed project, but at a different location (described in Section 5.4.3). The desalination plant, brine discharge pipeline, Castroville Pipeline, Pipeline to CSIP Pond, new Desalinated Water Pipeline, new Transmission Main, Terminal Reservoir, ASR components, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be identical to the proposed project described in Chapter 3, Description of the Proposed Project. The location of the slant wells at Potrero Road and the additional 5.5 miles of source water pipeline are the components unique to Alternative 1 (see **Figure 5.4-1**).

Construction Impacts

Potential to Violate an Air Quality Standard and Conflict with an Air Quality Plan

The 5.5 miles of additional source water pipeline, and the one additional well required for Alternative 1 (10 new wells at Potrero Road versus 9 new wells plus the converted test well at CEMEX) would result in an overall increase in the generation of short-term criteria pollutant emissions. Although Alternative 1 would increase the duration of pipeline construction activities compared to the proposed project, the daily construction activities associated with Alternative 1

would be same as the proposed project. Therefore, short-term emissions associated with construction of Alternative 1 could contribute to an exceedance of a state and/or federal ambient air quality standard for ozone, NO_2, and PM_{10}. This impact with respect to the ozone and NO_x standards would be significant and unavoidable even with implementation of **Mitigation Measures 4.10-1a** and **4.10-1b**. With respect to the PM_{10} standards, this impact would be reduced to a less-than-significant level with implementation of **Mitigation Measures 4.10-1a** through **4.10-1d**. The overall increase in construction emissions under Alternative 1 compared to the proposed project would increase the potential for this alternative to result in a violation of an air quality standard and conflict with the 2012 Air Quality Management Plan. Therefore, Alternative 1 would result in the ***same impact conclusion*** as the proposed project, significant and unavoidable, even with mitigation.

Impacts on Sensitive Receptors

Construction of Alternative 1 would result in the short-term generation of diesel particulate matter (DPM) emissions from the use of off-road diesel equipment. These emissions could result in the short-term exposure of local sensitive receptors to toxic air contaminants (TACs) (i.e., DPM). Under Alternative 1, the slant well site would be about half the distance to residences compared to the proposed project and the alternative source water pipeline from the Potrero Road parking lot south to Charles Benson Road would be constructed in close proximately to dozens more residences compared to the proposed project Source Water Pipeline. More sensitive receptors would be exposed to DPM and dust emissions that could contain *coccidioides immitis* (Valley Fever) spores under this alternative compared to the proposed project. Construction could result in temporary odors from use of diesel-fueled equipment, which would dissipate quickly and be unlikely to create objectionable odors that would affect a substantial number of people. Although Alternative 1 would have an increase in the number of nearby sensitive receptors compared to the proposed project, given the distance of the alternative slant wells site to the nearest sensitive receptors (i.e., 1,000 feet) and the limited duration of exposure for any given sensitive receptor associated with pipeline construction, Alternative 1 would result in the ***same impact conclusion*** as the proposed project, less than significant.

Operational and Facility Siting Impacts

Alternative 1 would have the ***same impact conclusion*** related to long-term operational emissions and objectionable odors on sensitive receptors as the proposed project, less than significant.

Cumulative Analysis

The geographic scope of analysis for potential cumulative air quality impacts related to Alternative 1 is the North Central Coast Air Basin, same as for the proposed project. As indicated in Section 4.10.6, the air basin does not attain the state ambient air quality standards for ozone or PM_{10}; however, it attains (or is unclassified for) all federal standards. Therefore, conditions in the air basin reflect the contributions of past and ongoing projects that have resulted in an existing significant cumulative impact with respect to attainment of state standards for ozone and PM_{10} concentrations.

As discussed above, with respect to the PM_{10} standards, the impact of Alternative 1 would be significant, but would be reduced to a less-than-significant level with implementation of **Mitigation Measures 4.10-1a** through **4.10-1d**. Therefore, for the reasons described for the proposed project in Section 4.10.6, Alternative 1 would result in a cumulatively considerable contribution to the existing significant cumulative impacts related to PM_{10}, but with mitigation the contribution would be reduced to less than cumulatively considerable.

As discussed above, construction emissions associated with Alternative 1 would exceed the MBUAPCD significance thresholds and therefore could have a significant contribution to an exceedance of a state and/or federal standard for ozone or NO_2 even with mitigation. Therefore, the incremental impact of Alternative 1 associated with the potential to contribute to a violation of an ambient air quality standard and conflict with implementation of the applicable air quality plan would be significant when combined with the emissions associated with the cumulative projects identified in **Table 4.1-2** in Section 4.1, and the incremental contribution to significant cumulative impacts related to ozone and NO_2 would be cumulatively considerable and unavoidable, similar to but more severe than the proposed project.

Operations of Alternative 1 would not cause emissions that would exceed the MBUAPCD significance thresholds. Therefore, Alternative 1 would not have a cumulatively considerable incremental contribution to a significant cumulative impact related to emissions of criteria pollutants.

Alternative 1 would not result in short-term or long-term significant impacts from the exposure of sensitive receptors to TAC emissions, *coccidioides immitis* spores, or objectionable odors and there are no cumulative projects in the vicinity of the Potrero Road slant well site that would emit TACs, dust emissions that could contain *coccidioides immitis* spores, or objectionable odors with which the emissions of that component of Alternative 1 could combine. As a result, no significant cumulative impact would occur as a result of Alternative 1 and the identified projects.

Overall, Alternative 1 would result in the ***same impact conclusion*** as the proposed project for cumulative impacts related to air quality, significant and unavoidable.

5.5.10.5 Direct and Indirect Effects of Alternative 2 – Open-Water Intake at Moss Landing

Alternative 2 would supply seawater to the proposed 9.6 mgd desalination plant located at the Charles Benson Road site using a new, screened open-water intake system consisting of an intake structure located offshore in MBNMS and southwest of the Moss Landing Harbor entrance, a subsurface intake pipeline, and an intake pump station on Dolan Road (described in Section 5.4.4). The desalination plant, brine discharge pipeline, new Desalinated Water Pipeline, new Transmission Main, Terminal Reservoir, ASR components, Highway 68 interconnection improvements, and the Carmel Valley Pump Station would be identical to the proposed project described in Chapter 3, Description of the Proposed Project. Because the open water intake would eliminate the need for returning source water drawn from the Salinas Valley Groundwater Basin, the Castroville Pipeline, the Pipeline to CSIP Pond, and operational components related to

delivering water to CCSD would not be implemented. The open water intake system and the additional 6.5 miles of source water pipeline are the components unique to Alternative 2 (see **Figure 5.4-2**). Therefore, the impact analysis of Alternative 2 focuses primarily on the locations for the intake system and source water pipelines that are different from the proposed project; however, impact conclusions are made for the whole of Alternative 2.

Construction Impacts

Potential to Violate an Air Quality Standard and Conflict with an Air Quality Plan

The construction of a new screened open water intake system in Monterey Bay that would require the use of marine vessel(s) and/or barge(s), and land-based Horizontal Directional Drilling (HDD) equipment for installation of a 36-inch-diameter 3,600-foot-long pipeline from the Intake Pump Station on Dolan Road to the intake location on the seafloor within MBNMS. Total emissions from these activities would likely be similar to those that would occur for the construction of the nine new slant wells for the proposed project. The additional 6.5-mile length of the alternative source water pipeline would result in a net increase in pipeline construction even though Alternative 2 would not include construction of the proposed 4.5-mile-long Castroville Pipeline or the proposed 1.2-mile-long Pipeline to the CSIP Pond. The net increase in pipeline construction would occur even though the net pipeline length under the alternative would be reduced compared to the proposed project because the diameter of the Source Water Pipeline would be much larger (i.e., 42 inches) than the Castroville Pipeline or the Pipeline to the CSIP (12-inch diameters).

Alternative 2 would result in an overall increase in construction emissions compared to the proposed project from the increase in duration of pipeline construction activities compared to the proposed project. However, the daily construction activities associated with Alternative 2 would be the same as the proposed project. Short-term emissions associated with construction of Alternative 2 could contribute to an exceedance of a state and/or federal standard for ozone, NO_2, and/or PM_{10}. This impact with respect to the ozone and NO_2 standards would be significant and unavoidable even with implementation of **Mitigation Measures 4.10-1a** and **4.10-1b**. With respect to PM_{10} standards, this impact would be reduced to a less-than-significant level with implementation of **Mitigation Measures 4.10-1a** through **4.10-1d**. Construction emissions under Alternative 2 would be increased compared to the proposed project due to the longer construction period and thus more days of exceedances, increasing the potential for this alternative to result in a violation of an air quality standard and conflict with the 2012 Air Quality Management Plan. However, Alternative 2 would result in the ***same impact conclusion*** as the proposed project, significant and unavoidable, even with mitigation.

Impacts on Sensitive Receptors

Construction of Alternative 2 would result in the short-term generation of DPM emissions from the use of off-road diesel equipment. These emissions could result in the short-term exposure of local sensitive receptors to TACs. Under Alternative 2, the intake pump station site would be constructed approximately 1,600 feet from the nearest sensitive receptors, which would be closer to sensitive receptors compared to the proposed slant wells site. In addition, the Alternative 2

source water pipeline would be constructed in close proximately to several more residences compared to the proposed project Source Water Pipeline. More sensitive receptors would be exposed to DPM and dust emissions that could contain *coccidioides immitis* spores under this alternative compared to the proposed project. Construction could result in temporary odors from use of diesel-fueled equipment, which would dissipate quickly and be unlikely to create objectionable odors that would affect a substantial number of people. However, given the distance of the Intake Pump Station site to the nearest sensitive receptors and the limited duration of exposure for any given sensitive receptor associated with pipeline construction, Alternative 2 would result in the ***same impact conclusion*** as the proposed project however, less than significant.

Operational and Facility Siting Impacts

Because the source water from the open water intake system would not have the benefit of being filtered through the seafloor, and would require an increased level of pre-treatment at the desalination plant, there would be an increase in the amount of annual emissions and objectionable odors compared to the proposed project. However, in terms of maximum daily emissions, the criterion which significance is based on, long-term operational emissions under Alternative 2 would result in the ***same impact conclusion*** related to sensitive receptors as the proposed project, less than significant.

Cumulative Analysis

The geographic scope of analysis for potential cumulative air quality impacts related to Alternative 2 is the North Central Coast Air Basin, same as for the proposed project. As indicated in Section 4.10.6, the air basin does not attain the state standards for ozone or PM_{10}; however, it attains (or is unclassified for) all federal standards. Therefore, conditions in the air basin reflect the contributions of past and ongoing projects that have resulted in an existing significant cumulative impact with respect to attainment of state standards for ozone and PM_{10} concentrations.

As discussed above, with respect to the PM_{10} standards, the impact of Alternative 2 would be significant, but would be reduced to a less-than-significant level with implementation of **Mitigation Measures 4.10-1a** through **4.10-1d**. Therefore, for the reasons described for the proposed project in Section 4.10.6, Alternative 2 would result in a cumulatively considerable contribution to the existing significant cumulative impacts related to PM_{10}, but with mitigation the contribution would be reduced to less than cumulatively considerable.

As discussed above, construction emissions associated with Alternative 2 would exceed the MBUAPCD significance thresholds and therefore could contribute to an exceedance of a state and/or federal standard for ozone or NO_2 even with mitigation. Therefore, the incremental impact of Alternative 2 associated with the potential to contribute to a violation of an ambient air quality standard and conflict with implementation of the applicable air quality plan would be significant when combined with the emissions associated with the cumulative projects identified in **Table 4.1-2**, and the incremental contribution to existing significant cumulative impacts related to ozone and NO_2 would be cumulatively considerable and the cumulative impact would be significant and unavoidable.

Operations of Alternative 2 would not cause emissions that would exceed the MBUAPCD significance thresholds. Therefore, Alternative 2 would not have a cumulatively considerable contribution to a significant cumulative impact related to emissions of criteria pollutants.

Alternative 2 would not result in short-term or long-term significant impacts from the exposure of sensitive receptors to TAC emissions, dust emissions that contain *coccidioides immitis* spores, or objectionable odors. There is one project in the cumulative scenario described in **Table 4.1-2** and Section 4.1 – the DeepWater Desal Project – that could result in significant impacts on sensitive receptors in the vicinity of the open water intake and pump station; however, given the distance of the Alternative 2 Open Ocean Intake Pump Station site to the nearest sensitive receptors and the limited duration of exposure for any given sensitive receptor associated with Alternative 2 pipeline construction, these components of Alternative 2 would not have a cumulatively considerable contribution to cumulative impacts.

Overall, Alternative 2 would result in the ***same impact conclusion*** as the proposed project for cumulative impacts related to air quality, significant and unavoidable.

5.5.10.6 Direct and Indirect Effects of Alternative 3 – Monterey Bay Regional Water Project (MBRWP or DeepWater Desal Project)

Alternative 3 includes the construction and operation of a screened open ocean intake system and a brine discharge system located on the seafloor in Monterey Bay within MBNMS, subsurface pipelines connecting to these intake and discharge systems, a seawater desalination facility and co-located data center, and associated components to provide up to 25,000 afy of potable water and data transmission and storage services. The pipelines for the intake and discharge systems would be installed using HDD. The alternative would also include 6.5 miles of desalinated water pipeline to connect with the CalAm system and up to an additional 25 miles of pipelines to convey the desalinated water to other areas (total of 31.5 miles of additional pipeline). Several components would be identical to the proposed project: the new Transmission Main, new desalinated water pipeline south of the "Connection to CalAm" Point on **Figure 5.4-3**, ASR-5 and -6 wells and ASR pipeline, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be as described in Chapter 3, Description of the Proposed Project. Because this alternative would have an open water intake that would eliminate the need for returning source water drawn from the Salinas Valley Groundwater Basin, the Castroville Pipeline, Pipeline to CSIP Pond, and operational components related to delivering water to CCSD would not be implemented. The desalination plant and data center, open water intake system, brine discharge system, and the additional 31.5 miles of desalinated water pipeline are the components unique to Alternative 3 (see **Figure 5.4-3**). Therefore, the impact analysis of Alternative 3 focuses primarily on these components; however, impact conclusions are made for the whole of Alternative 3.

Construction Impacts

Potential to Violate an Air Quality Standard and Conflict with an Air Quality Plan

The construction of a new screened open water intake and discharge system in Monterey Bay that would require the use of marine vessel(s) and/or barge(s), and land-based HDD equipment for the

installation of four 42-inch diameter pipelines from the pump station on Dolan Road to the intake and discharge structures on the seafloor in MBNMS, and four 1.1-mile pipelines from the pump station to the desalination/data center site, resulting in 2.5 additional miles of pipeline compared to the proposed project Source Water Pipeline. In addition, the construction of a large data center and cooling system, and 31.5 miles of additional Desalinated Water Pipeline (25 of which would for delivery of water to potential customers in Santa Cruz County, Salinas, or both) would result in a net increase in total construction emissions compared to the proposed project.

Because Alternative 3 would result in greater construction-related emissions of criteria pollutants than the proposed project, short-term emissions associated with construction of Alternative 3 could contribute to an exceedance of a state and/or federal standard for ozone, NO_2, and/or PM_{10}. With respect to the ozone and NO_2 standards, Alternative 3 would result in the same impact conclusion as the proposed project, and would be significant and unavoidable even with implementation of **Mitigation Measures 4.10-1a** and **4.10-1b**.

The desalination facility, the data center, and the cooling system would result in an increased amount of ground disturbance during construction (i.e., 60 acres compared to 25 acres associated with the proposed MPWSP plant site). It is not currently known how construction of these facilities would proceed; however, if the data center and/or cooling system were constructed concurrently with the desalination facility, the combined daily emissions would exceed the MBUAPCD threshold for PM_{10} emissions, resulting in an increased level of impact compared to the proposed project, significant and unavoidable impact even with implementation of **Mitigation Measures 4.10-1a** through **4.10-1d**. Overall, construction emissions would increase the potential for this alternative to result in a violation of an air quality standard and conflict with the 2012 Air Quality Management Plan; therefore Alternative 3 would result in the ***same impact conclusion*** as the proposed project, significant and unavoidable, even with mitigation.

Impacts on Sensitive Receptors

Alternative 3 would result in the short-term generation of DPM emissions from the use of off-road diesel equipment that could result in the short-term exposure of local sensitive receptors to TACs (i.e., DPM). Under Alternative 3, construction of the 60-acre desalination plant and data center would occur within 300 feet of a residence on Dolan Road, and this residence would also be within 100 feet of construction of the brine, source water, and desalinated water pipelines. This residence would be exposed to substantially higher concentrations of DPM, dust emissions that could contain *coccidioides immitis* spores, and objectionable odors from the use of diesel-fueled equipment compared to the exposure of the closest residence to the proposed MPWSP desalination plant site. Given the close proximity to the residence and the substantial amount of construction activities that would occur at the 60-acre site over a 24-month period, this impact would likely be significant and unavoidable due to elevated emissions exposure even with implementation of **Mitigation Measures 4.10-1a** and **4.101b**, which would require the applicant and/or its construction contractor to make a good faith effort to use available construction equipment that meets the highest USEPA-certified tiered emission standards and limit equipment and vehicle idling, respectively. Therefore, Alternative 3 would result in an ***increased impact conclusion*** compared to the proposed project, significant and unavoidable, even with mitigation.

Operational and Facility Siting Impacts

Alternative 3 would include the operation of three natural gas emergency generators that would have a total combined capacity of up to 30 MW of generation, substantially more than the 0.7 MW of emergency generation for the proposed MPWSP desalination plant site. Based on information available about Alternative 3, the proponent expects to operate each generator for up to 1,500 hours per year; however, the MBUAPCD limits operation of standby natural gas engines to no more than 60 hours per year for testing/exercising purposes (MBUAPCD, 2013). Assuming that each of the three generators would be tested for 5 hours once a month on different days and that each of the generators would be subject to MBUAPCD Best Available Control Technology (BACT) requirements for stand-by generators, maximum-day NO_x emissions would be approximately 219 pounds per day, which would exceed the MBUAPCD's significance threshold of 137 pounds per day (refer to Emergency Generator Emissions in **Appendix G1** for details on the emission calculation). This would be a significant impact that would occur three times a month and 36 times a year. However, it is assumed that implementation of a mitigation measure similar to **Mitigation Measure ALT 3-AQ**, below, which would restrict test/exercise operations of the emergency generators to no more than three hours per day, would be required for this alternative to reduce this significant impact to a less-than-significant level.

Although the health risk that would be associated with operating the emergency generators under Alternative 3 may be elevated compared to the proposed project, the associated impact would not be significant if the generators were sited on the north side of the property away from the residence. Further, combustion of natural gas does not result in high concentrations of TACs and no DPM would be generated, therefore objectionable odors would also be minimized. To ensure that the operational health risk impact would be reduced to a less-than-significant level, implementation of **Mitigation Measure ALT 3-AQ** would be required. Therefore, Alternative 3 would result in an ***increased impact conclusion*** compared to the proposed project during operations, less than significant with mitigation.

> **Mitigation Measure ALT 3-AQ: Restrict Daily Testing and Locations of Emergency Generators**
>
> Each of the three 10 MW natural gas emergency generators associated with Alternative 3 shall be restricted to no more than three hours of testing/exercising per day. Only one emergency generator shall be tested per day. The emergency generators shall be located at the site as far as practicable from the nearest residences.

Cumulative Analysis

The geographic scope of analysis for potential cumulative air quality impacts related to Alternative 3 is the North Central Coast Air Basin, same as for the proposed project. As indicated in Section 4.10.6, the air basin does not attain the state standards for ozone or PM_{10}; however, it attains (or is unclassified for) all federal standards. Therefore, conditions in the air basin reflect the contributions of past and ongoing projects that have resulted in an existing significant cumulative impact with respect to attainment of state standards for ozone and PM_{10} concentrations.

As discussed above, construction emissions associated with Alternative 3 would exceed the MBUAPCD significance thresholds and therefore could contribute to an exceedance of a state and/or federal ambient air quality standard for ozone, NO_2, and PM_{10} even with mitigation. Therefore, the cumulative impact of Alternative 3 associated with the potential to contribute to a violation of an ambient air quality standard and conflict with implementation of the applicable air quality plan would be significant and unavoidable when combined with the emissions associated with the cumulative projects identified in **Table 4.1-2** in Section 4.1, and the incremental contribution to the cumulative impact would be cumulatively considerable and the significant and unavoidable impact would be substantially greater than for the proposed project.

Operations of Alternative 3 could cause emissions that would exceed the MBUAPCD significance thresholds. However, implementation of **Mitigation Measure ALT 3-AQ** would reduce the operational emissions to a less-than-significant level. Therefore, Alternative 3 would have a cumulatively considerable incremental contribution to a significant cumulative impact related to emissions of criteria pollutants; however, the incremental contribution would be reduced to a level that is less than cumulatively considerable with implementation of mitigation.

With regard to exposure of sensitive receptors to TAC emissions, *coccidioides immitis* spores, or objectionable diesel fuel-related odors, Alternative 3 could result in a short-term impact that would be significant even with mitigation.

Overall, Alternative 3 would have the ***same impact conclusion*** as the proposed project for cumulative impacts related to air quality, significant and unavoidable.

5.5.10.7 Direct and Indirect Effects of Alternative 4 – People's Moss Landing Water Desalination Project (People's Project)

Alternative 4 includes the construction and operation of an open ocean intake, a brine discharge system and pipelines, and supporting ballast rock located on the seafloor in Monterey Bay within MBNMS, as well as a 12 mgd desalination plant and associated facilities to provide 13,400 afy of water supply to meet the current and future needs of the Monterey Peninsula. Several components would be identical to the proposed project: the new Transmission Main, new desalinated water pipeline south of the "Connection to CalAm" Point on **Figure 5.4-4**, ASR-5 and -6 wells and ASR pipeline, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be as described in Chapter 3, Description of the Proposed Project. Because this alternative would have an open water intake that would eliminate the need for returning source water drawn from the Salinas Valley Groundwater Basin, the Castroville Pipeline, Pipeline to CSIP Pond, and operational components related to delivering water to CCSD would not be implemented. The desalination plant, open water intake system, brine discharge system, and the additional 6.5 miles of desalinated water pipeline are the components unique to Alternative 4 (see **Figure 5.4-4**). Therefore, the impact analysis of Alternative 4 focuses primarily on these components; however, impact conclusions are made for the whole of Alternative 4.

Construction Impacts

Potential to Violate an Air Quality Standard and Conflict with an Air Quality Plan

The construction of a new screened open water intake and discharge system in Monterey Bay would require the use of marine vessel(s) and/or barge(s), and land-based HDD equipment for installation of a portion of the pipelines from the existing caisson to the intake and discharge on the seafloor in MBNMS. Emissions from these sources may be less than those that would be required to construct the nine proposed slant wells that would each be up to 1,000 feet in length. However, this alternative would have a longer desalinated water pipeline (6.5 miles longer), resulting in a net increase in pipeline construction and associated emissions even though it would not include construction of the proposed 4.5-mile-long Castroville Pipeline or the proposed 1.2-mile-long Pipeline to CSIP Pond. Overall, the net emissions associated with Alternative 4 would be similar to those that would occur under the proposed project. Short-term emissions associated with construction of Alternative 4 could contribute to an exceedance of a state and/or federal standard for ozone, NO_2, and/or, PM_{10}. This impact with respect to the ozone and NO_2 standards would be significant and unavoidable even with implementation of **Mitigation Measures 4.10-1a** and **4.10-1b**. With respect to the PM_{10} standards, this impact would be reduced to a less-than-significant level with implementation of **Mitigation Measures 4.10-1a** through **4.10-1d**. The potential for Alternative 4 to result in a violation of an air quality standard and conflict with the 2012 Air Quality Management Plan would be significant and unavoidable, even with mitigation. Therefore, Alternative 4 would result in the ***same impact conclusion*** as the proposed project, significant and unavoidable, even with mitigation.

Impacts on Sensitive Receptors

Construction would result in the short-term generation of DPM emissions from the use of off-road diesel equipment that could result in the short-term exposure of local sensitive receptors to TACs (i.e., DPM). Under Alternative 4, construction of the desalination plant would occur within 200 feet of boat slips at Moss Landing Harbor where people could reside, and receptors would also be within 200 feet of construction activities that would be associated with the longer desalinated water pipeline. These sensitive receptors would be exposed to substantially higher concentrations of DPM, dust emissions that could contain *coccidioides immitis* spores, and objectionable odors from the use of diesel-fueled equipment compared to the closest sensitive receptors to the proposed MPWSP plant site. Given this alternative site's close proximity to sensitive receptors and the amount of construction activities that would occur at the project site over the construction period, this impact would be significant and unavoidable even with implementation of **Mitigation Measures 4.10-1a** and **4.10-1b**, which would require the applicant and/or its construction contractor to make a good faith effort to use available construction equipment that meets the highest USEPA-certified tiered emission standards and limit equipment and vehicle idling, respectively. Therefore, Alternative 4 would have result in an ***increased impact conclusion*** on sensitive receptors compared to the proposed project, significant and unavoidable, even with mitigation.

Operational and Facility Siting Impacts

Because the source water from the open water intake system would not have the benefit of being filtered through the seafloor, and would require an increased level of pre-treatment at the desalination plant, there would be an increase in the amount of annual emissions compared to the proposed project. However, in terms of maximum daily emissions, the criterion which significance is based on, long-term operational emissions under Alternative 4 would result in the ***same impact conclusion*** related to sensitive receptors as the proposed project, less than significant.

Cumulative Analysis

The geographic scope of analysis for potential cumulative air quality impacts related to Alternative 4 is the North Central Coast Air Basin, same as for the proposed project. As indicated in Section 4.10.6, the air basin does not attain the state standards for ozone or PM_{10}; however, it attains (or is unclassified for) all federal standards. Therefore, conditions in the air basin reflect the contributions of past and ongoing projects that have resulted in an existing significant cumulative impact with respect to attainment of state standards for ozone and PM_{10} concentrations.

As discussed above, with respect to the PM_{10} standards, the impact of Alternative 4 would be significant, but would be reduced to a less-than-significant level with implementation of **Mitigation Measures 4.10-1a** through **4.10-1d**. Therefore, for the reasons described for the proposed project in Section 4.10.6, Alternative 4 would have a cumulatively considerable contribution to existing significant cumulative impacts related to PM_{10}, but that contribution would be reduced by mitigation to a less than cumulatively considerable level.

As discussed above, construction emissions associated with Alternative 4 would exceed the MBUAPCD significance thresholds and therefore could contribute to an exceedance of a state and/or federal standard for ozone or NO_2 even with mitigation. Therefore, the cumulative impact of Alternative 4 associated with the potential to contribute to a violation of an ambient air quality standard and conflict with implementation of the applicable air quality plan would be significant when combined with the emissions associated with the cumulative projects identified in **Table 4.1-2** in Section 4.1, and the incremental contribution to the cumulative impact would be cumulatively considerable, and significant and unavoidable.

Operations of Alternative 4 would not cause emissions that would exceed the MBUAPCD significance thresholds. Therefore, Alternative 4 would not have a cumulatively considerable incremental contribution to a significant cumulative impact related to emissions of criteria pollutants.

With regard to exposure of sensitive receptors to TAC emissions, *coccidioides immitis* spores, and objectionable odors from diesel-fueled equipment, Alternative 4 could result in a short-term impact that would be significant even with mitigation. As a result, the cumulative health risk impact of Alternative 4 would also be significant and unavoidable, as would the incremental contribution of Alternative 4.

Overall, Alternative 4 would result in the ***same impact conclusion*** as the proposed project for cumulative impacts related to air quality, significant and unavoidable.

5.5.10.8 Direct and Indirect Effects of Alternative 5 – Reduced Desal Project 5a (CEMEX) and 5b (Potrero Road)

Alternative 5a would include the seawater intake system at the CEMEX site (the same location as the proposed project), but would include only seven subsurface slant wells (the converted test well and six new wells) and the same source water pipeline as the proposed project. Alternative 5b would include seven new wells at the western end of Potrero Road (the same location as Alternative 1) and the same source water pipeline as Alternative 1. Both Alternatives 5a and 5b would include a reduced-capacity desalination plant (6.4 mgd), and all other components would be the same as the proposed project.

Construction Impacts

Potential to Violate an Air Quality Standard and Conflict with an Air Quality Plan

Because the construction of Alternative 5a components would be located in the same location and would have a slightly reduced footprint because of the reduced number of wells compared to the proposed project, Alternative 5a would result in a similar level of impact compared to the proposed project. Likewise, construction of Alternative 5b would result in nearly the same footprint as Alternative 1, and would result in a similar level of impact compared to Alternative 1 and the proposed project. Similar to the proposed project, impacts related to ozone and NO_2 standards would be significant and unavoidable even with implementation of **Mitigation Measures 4.10-1a** and **4.10-1b**. With respect to the PM_{10} standards, this impact would be reduced to a less-than-significant level with implementation of **Mitigation Measures 4.10-1a** through **4.10-1d**. The potential for this alternative to result in a violation of an air quality standard and conflict with the 2012 Air Quality Management Plan would be the same as the propose project. Therefore, Alternatives 5a and 5b would result in the ***same impact conclusion*** as the proposed project, significant and unavoidable, even with mitigation.

Impacts on Sensitive Receptors

Similar to the proposed project, short-term generation of DPM emissions from the use of off-road diesel equipment could result in the short-term exposure of local sensitive receptors to TACs (i.e., DPM). Construction could result in temporary odors from use of diesel-fueled equipment, which would dissipate quickly and be unlikely to create objectionable odors that would affect a substantial number of people. Under Alternative 5a and 5b, construction would result in the same less-than-significant health risk-related impacts as identified for the proposed project and under Alternative 1. Therefore, Alternatives 5a and 5b would result in the ***same impact conclusion*** as the proposed project, less than significant.

Operational and Facility Siting Impacts

Alternative 5a and 5b would result in long-term operational and maintenance emissions and objectionable odors that would be less than significant and would be less than those that would be

generated under the proposed project because there would be three fewer slant wells to maintain and the horsepower rating of the emergency generator at the desalination plant would be reduced. Therefore, Alternatives 5a and 5b would have result in the ***same impact conclusion*** as the proposed project, less than significant.

Cumulative Analysis

Combined Impacts with GWR Project

Because Alternative 5 alone would not meet the project objectives and must be paired with the approved GWR Project in order to do so, for informational purposes, this analysis provides the "subtotal" of the Alternative 5 impacts in combination with the impacts of the GWR Project, even though MBUAPCD project-level thresholds are intended to be applied to projects separately, rather than applied to a combination of projects in a cumulative sense. Although both Alternative 5 and the GWR Project were found to have less-than-significant impacts related to daily PM_{10} emissions after mitigation when viewed individually, if Alternative 5 and the GWR Project are under construction concurrently, the post-mitigation daily PM_{10} emissions of Alternative 5 (i.e., 75 pounds) in combination with the mitigated daily PM_{10} emissions of the GWR Project (i.e., 64 pounds; MRWPCA, 2016) would exceed the MBUAPCD significance threshold of 82 pounds per day, resulting in a significant combined impact that could not be further reduced by mitigation and thus would remain significant and unavoidable. The already significant and unavoidable impact with respect to the ozone and NO_2 standards would be worsened in combination with construction emissions of the GWR Project. The GWR Project could expose several of the same sensitive receptors to emissions of TACs or dust that may contain *coccidioides immitis* spores along the new Desalinated Water Pipeline and new Transmission Main alignments. However, due to the nature of pipeline construction, exposures at these locations would be limited in duration and would not result in a significant impact even if construction occurred concurrently. The operational emissions of Alternative 5 would be well below MBUAPCD thresholds, and the addition of GWR Project operational emissions would not result in an exceedance of these thresholds; therefore, in combination, these projects would not result in a significant air quality impact during operation. Overall, Alternative 5 considered in combination with the GWR Project would result in the ***same impact conclusion*** as the proposed project for cumulative impacts related to air quality, significant and unavoidable.

Impacts of Full Cumulative Scenario

The geographic scope of analysis for potential cumulative air quality impacts related to Alternative 5 is the North Central Coast Air Basin, same as for the proposed project. As indicated in Section 4.10.6, the air basin does not attain the state standards for ozone or PM_{10}; however, it attains (or is unclassified for) all federal standards. Therefore, conditions in the air basin reflect the contributions of past and ongoing projects that have resulted in an existing significant cumulative impact with respect to attainment of state standards for ozone and PM_{10} concentrations.

As discussed above, with respect to the PM_{10} standards, the impact of Alternative 5 would be significant, but would be reduced to a less-than-significant level with implementation of **Mitigation Measures 4.10-1a** through **4.10-1d**. Therefore, for the reasons described for the

proposed project in Section 4.10.6, Alternative 5 would result in a cumulatively considerable contribution to the existing significant cumulative impacts related to PM_{10}, but with mitigation the contribution would be reduced to less than cumulatively considerable.

As discussed above, construction emissions associated with Alternative 5 would exceed the MBUAPCD significance thresholds and therefore could have a significant contribution to an exceedance of a state and/or federal standard for ozone or NO_2 even with mitigation. Therefore, the cumulative impact of Alternative 5 associated with the potential to contribute to a violation of an ambient air quality standard and conflict with implementation of the applicable air quality plan would be significant when combined with the emissions associated with the cumulative projects identified in **Table 4.1-2** in Section 4.1, and the incremental contribution to significant cumulative impact related to ozone and NO_2 would be cumulatively considerable, and significant and unavoidable.

Operations of Alternative 5 would not cause emissions that would exceed the MBUAPCD significance thresholds. Therefore, Alternative 5 would not have a cumulatively considerable incremental contribution to a significant cumulative impact related to emissions of criteria pollutants.

With regard to exposure of sensitive receptors to TAC emissions, *coccidioides immitis* spores, or objectionable odors, Alternative 5 would not result in short-term or long-term significant impacts associated with exposure of sensitive receptors to TAC emissions when combined with the cumulative projects. For the same reasons described for the proposed project in Section 5.10.6, Alternative 5a would not have a cumulatively considerable contribution to cumulative impacts related to exposure to TAC emissions, *coccidioides immitis* spores, or objectionable odors. There are no cumulative projects in the vicinity of the Potrero Road slant well site that would emit TACs or dust emissions that could contain *coccidioides immitis* spores with which the emissions of that component of Alternative 5b could combine. As a result, the cumulative impact on sensitive receptors as a result of Alternative 5 would be less than significant.

Overall, Alternative 5 would result in the ***same impact conclusion*** as the proposed project for cumulative impacts related to air quality, significant and unavoidable.

5.5.10.9 References

Monterey Bay Unified Air Pollution Control District (MBUAPCD), 2013. Basic Requirements for Natural Gas/Propane (LPG) Electric Generators & Water Pumps, Revised June 12, 2013.

Monterey Regional Water Pollution Control Agency (MRWPCA), 2016. Consolidated Final EIR for the Pure Water Monterey GWR Project, Section 4.3, Air Quality and Greenhouse Gas. http://purewatermonterey.org/wp/wp-content/uploads/Volume-I-Consolidated-Final-EIR-Jan-2016.pdf

5.5.11 Greenhouse Gas Emissions

The evaluation criteria for greenhouse gas (GHG) emissions address: contribution to climate change from GHG emissions; conflict with Executive Order B-30-15 Emissions Reduction Goal; and conflict with AB 32 Climate Change Scoping Plan.

5.5.11.1 Setting/Affected Environment

The setting/affected environment related to GHG emissions for the alternatives is the same as described for the MPWSP in Section 4.11, Greenhouse Gas Emissions.

5.5.11.2 Direct and Indirect Effects of Proposed Project (Slant Wells at CEMEX)

The proposed project extends from Castroville in the north to the city of Carmel in the south (see **Figure 3-2**) and would include construction of a desalination plant on 25 acres along Charles Benson Road northeast of the City of Marina, up to nine new subsurface slant wells at the CEMEX active mining area, two new wells (ASR-5 and ASR-6) at the existing Seaside Groundwater Basin ASR system, the Carmel Valley Pump Station, and about 21 miles of water conveyance pipelines. The direct and indirect impacts of the proposed project are described in detail in Section 4.7.5.

Impact 4.11-1: Incremental contribution to climate change from GHG emissions associated with the proposed project.

Impact 4.11-2: Conflict with the Executive Order B-30-15 Emissions Reduction Goal.

Impact 4.11-3: Conflict with AB 32 Climate Change Scoping Plan.

Implementation of the MPWSP would result in short-term construction and long-term operational emissions of GHGs. The sum of GHG emissions generated by MPWSP construction amortized over the 40-year project lifetime and the net annual emissions generated by project operation would total approximately 8,370 metric tons CO2e per year. These emissions would exceed the 2,000 metric tons per year significance threshold; therefore, a significant impact would occur. GHG emissions associated with the proposed project would exceed the emissions significance threshold, which indicates that implementation of the project would not be consistent with the GHG emission reduction goals for year 2030 identified in Executive Order B-30-15. Therefore, it can be concluded that the proposed project would conflict with Executive Order B-30-15 and would result in a potentially significant impact.

The MPWSP Desalination Plant designs include state of the art energy recovery and energy efficient features in place of standard energy saving systems; there may be additional feasible energy reducing features available to further reduce the electrical consumption. CARB has set a 20 percent electricity use reduction target for AB 32 Climate Change Scoping Plan 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 impact associated with the proposed project's consistency with this measure.

Implementation of **Mitigation Measure 4.18-1 (Construction Equipment Efficiency Plan)** would ensure that construction activities are conducted in a fuel-efficient manner and would reduce the overall carbon footprint of the MPWSP. Although implementation of **Mitigation Measure 4.11-1 (GHG Emissions Reduction Plan)** is required to reduce the overall carbon footprint of the proposed project, the Lead Agencies cannot substantiate that the mitigated GHG emissions would be reduced to a less-than-significant level. Therefore, this impact is considered to be significant and unavoidable, even with implementation of mitigation.

Impact 4.11-C: Cumulative impacts related to greenhouse gas emissions
Because GHG emissions have global climate change implications, the evaluation of GHG emissions impacts is inherently a cumulative impact analysis. Implementation of the MPWSP would result in short-term construction and long-term operational emissions of GHGs. Even with implementation of **Mitigation Measures 4.11-1** and **4.18-1**, the project's incremental contribution to the significant cumulative climate change impact related to GHG emissions and conflicts with the AB 32 Climate Change Scoping Plan would remain cumulatively considerable. Therefore cumulative impacts would be significant and unavoidable, even with mitigation.

5.5.11.3 Direct and Indirect Effects of No Project Alternative

Under the No Project Alternative, no new facilities would be constructed or operated. Consequently, there would be no construction- or operations-related direct or indirect adverse effects related to GHG emissions. Because the No Project Alternative would have no direct or indirect impacts with respect to GHG emissions, it could not contribute to cumulative effects related to this topic.

5.5.11.4 Direct and Indirect Effects of Alternative 1 - Slant Wells at Potrero Road

Alternative 1 would supply seawater to the proposed 9.6 mgd desalination plant located at the Charles Benson Road site using the same type of subsurface intake system as the proposed project, but at a different location (Potrero Road). The desalination plant, brine discharge pipeline, Castroville Pipeline, Pipeline to CSIP Pond, new Desalinated Water Pipeline, new Transmission Main, Terminal Reservoir, ASR components, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be identical to the proposed project described in Chapter 3, Description of the Proposed Project. The location of the slant wells at Potrero Road and the additional 5.5 miles of source water pipeline are the components unique to Alternative 1 (see **Figure 5.4-1**).

Construction and Operation Impacts

The 5.5 miles of additional source water pipeline, and the one additional well required for Alternative 1 (10 new wells at Potrero Road versus 9 new wells plus the converted test well at CEMEX) would result in an increase in amortized GHG emissions compared to the proposed project. In addition, due to the increased length of the Source Water Pipeline, there would be more than three times the energy demand to pump source water to the MPWSP Desalination Plant compared to the proposed project. Thus, this alternative would result in increased indirect

GHG emissions associated with electricity usage. Although Alternative 1 would result in the permanent removal of approximately one less acre of scrub vegetation due to the slant wells' location at an existing paved parking lot, the sum of the 40-year amortized construction GHG emissions and the total net operation emissions that would be associated with Alternative 1 would be higher than the emissions shown in **Table 4.11-5** for the proposed project. The emissions of Alternative 1 would exceed the 2,000 metric tons carbon dioxide-equivalent (CO_2e) per year significance threshold resulting in a significant impact. This impact would be significant and unavoidable even with implementation of **Mitigation Measures 4.11-1** and **4.18-1**. Therefore, Alternative 1 would result in the ***same impact conclusion*** as the proposed project, and impacts would be significant and unavoidable, even with mitigation.

Since GHG emissions would exceed the emissions significance threshold, Alternative 1 would conflict with Executive Order B-30-15. As with the proposed project, the only plan that would be directly applicable to Alternative 1 would be the AB 32 Scoping Plan Measure W-3, Water System Energy Efficiency. CARB has set a 20 percent electricity use reduction target from 2006 levels for this measure. The lead agencies cannot substantiate that electricity use under Alternative 1 would be reduced to a less-than-significant level. Therefore, this impact is also considered to be significant and unavoidable, even with implementation of mitigation. Therefore, Alternative 1 would result in the ***same impact conclusion*** as the proposed project, and impacts would be significant and unavoidable, even with mitigation.

Cumulative Analysis

Because GHG emissions have global climate change implications, the evaluation of GHG emissions impacts is inherently a cumulative impact analysis. Thus, all of the projects listed in **Table 4.1-2** in Section 4.1, as well as all other sources of GHG emissions, are relevant to the cumulative impacts discussion, and are not discussed in further detail. Through Executive Orders S-3-05 and B-30-15, as well as 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 emissions reduction goal for 2030 identified in Executive Order B-30-15, the numeric significance threshold used to evaluate operational emissions plus construction emissions amortized over the project's estimated 40-year lifetime is 2,000 metric tons CO_2e per year. The analysis also considers the alternative's consistency with applicable AB 32 Scoping Plan Measure W-3. Since construction and operations under Alternative 1 would result in GHG emissions greater than the significance threshold and would conflict with AB 32 Scoping Plan Measure W-3, Alternative 1 would result in a cumulatively considerable contribution to significant cumulative impacts. Thus, Alternative 1 would result in the ***same impact conclusion*** as the proposed project for cumulative effects related to greenhouse gas emissions, significant and unavoidable, even with mitigation.

5.5.11.5 Direct and Indirect Effects of Alternative 2 - Open-Water Intake at Moss Landing

Alternative 2 would supply seawater to the proposed 9.6 mgd desalination plant located at the Charles Benson Road site using a new, screened open-water intake system consisting of an intake structure located offshore in MBNMS and southwest of the Moss Landing Harbor entrance, a subsurface intake pipeline, and an intake pump station on Dolan Road (described in Section 5.4.4). The desalination plant, brine discharge pipeline, new Desalinated Water Pipeline, new Transmission Main, Terminal Reservoir, ASR components, Highway 68 interconnection improvements, and the Carmel Valley Pump Station would be identical to the proposed project described in Chapter 3, Description of the Proposed Project. Because the open water intake would eliminate the need for returning source water drawn from the Salinas Valley Groundwater Basin, the Castroville Pipeline, the Pipeline to CSIP Pond, and operational components related to delivering water to CCSD would not be implemented. The open water intake system and the additional 6.5 miles of source water pipeline are the components unique to Alternative 2 (see **Figure 5.4-2**). Therefore, the impact analysis of Alternative 2 focuses primarily on the locations for the intake system and source water pipelines that are different from the proposed project; however, impact conclusions are made for the whole of Alternative 2.

Construction and Operation Impacts

Construction of a screened open water intake and system, compared to construction of nine proposed slant wells at CEMEX and a longer source water pipeline from Moss Landing south to Charles Benson Road, would result in a net increase of pipeline length and an associated increase in amortized construction emissions of approximately 50 metric tons per year compared to the proposed project. In addition, due to the increased length of the source water pipeline under Alternative 2 (i.e., 7.7 miles compared to 2.2 miles under the proposed project), there would be nearly four times the energy demand to pump source water to the MPWSP Desalination Plant compared to the proposed project, which would increase the indirect GHG emissions associated with electricity usage.

A recent analysis conducted for the project that compared water quality data from the existing test slant well at the CEMEX site to water quality representative of average open-ocean intake conditions in the vicinity of Monterey Bay found that CO_2 degassing from discharged brine would be about 87 percent less than discharged brine water obtained from subsurface slant wells (**Appendix G2**). Given that Alternative 2 would result in the same amount of discharged brine as the proposed project, but would include an open water intake, CO_2 degassing would be reduced by 640 metric tons CO_2 under Alternative 2 compared to the proposed project. In addition, this alternative would result in approximately 1 less acre of permanent scrub vegetation removal and associated 14 metric tons CO_2 of carbon sequestration compared to the proposed project due to the location of the intake pump station at an existing disturbed area.

The sum of the 40-year amortized construction GHG emissions and the total net operation emissions associated with Alternative 2 would be less than the emissions that would be generated under the proposed project (see **Table 4.11-5**). The emissions of Alternative 2 would exceed the 2,000 metric tons CO_2e per year significance threshold and the impact would be significant and

unavoidable even with implementation of **Mitigation Measures 4.11-1** and **4.18-1**. Therefore, Alternative 2 would result in the ***same impact conclusion*** as the proposed project, significant and unavoidable, even with mitigation.

Since GHG emissions associated with Alternative 2 would exceed the emissions significance threshold, Alternative 2 would conflict with Executive Order B-30-15. As with the proposed project, the only plan that would be directly applicable to Alternative 2 would be the AB 32 Scoping Plan Measure W-3, Water System Energy Efficiency. The lead agencies cannot substantiate that electricity use under Alternative 2 would be reduced to a less-than-significant level. Therefore, this impact is also considered to be significant and unavoidable, even with implementation of mitigation. Therefore, Alternative 2 would result in the ***same impact conclusion*** as the proposed project, significant and unavoidable, even with mitigation.

Cumulative Analysis

Construction and operations under Alternative 2 would result in GHG emissions greater than the applicable numeric significance threshold and would conflict with AB 32 Scoping Plan Measure W-3. Therefore, Alternative 2 would result in a cumulatively considerable contribution to significant cumulative impacts. Overall, Alternative 2 would result in the ***same impact conclusion*** as the proposed project for cumulative effects related to greenhouse gas emissions, significant and unavoidable, even with mitigation.

5.5.11.6 Direct and Indirect Effects of Alternative 3 - Monterey Bay Regional Water Project (MBRWP or DeepWater Desal Project)

Alternative 3 includes the construction and operation of a screened open ocean intake system and a brine discharge system located on the seafloor in Monterey Bay within MBNMS, subsurface pipelines connecting to these intake and discharge systems, a seawater desalination facility and co-located data center, and associated components to provide up to 25,000 afy of potable water and data transmission and storage services. The pipelines for the intake and discharge systems would be installed using HDD. The alternative would also include 6.5 miles of desalinated water pipeline to connect with the CalAm system and up to an additional 25 miles of pipelines to convey the desalinated water to other areas (total of 31.5 miles of additional pipeline). Several components would be identical to the proposed project: the new Transmission Main, new desalinated water pipeline south of the “Connection to CalAm” Point on **Figure 5.4-3**, ASR-5 and -6 wells and ASR pipeline, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be as described in Chapter 3, Description of the Proposed Project. Because this alternative would have an open water intake that would eliminate the need for returning source water drawn from the Salinas Valley Groundwater Basin, the Castroville Pipeline, Pipeline to CSIP Pond, and operational components related to delivering water to CCSD would not be implemented. The desalination plant and data center, open water intake system, brine discharge system, and the additional 31.5 miles of desalinated water pipeline are the components unique to Alternative 3 (see **Figure 5.4-3**). Therefore, the impact analysis of Alternative 3 focuses primarily on these components; however, impact conclusions are made for the whole of Alternative 3.

Construction and Operation Impacts

Construction of a screened open water intake and brine discharge system would require the use of a marine barge(s), and land-based HDD equipment for the installation of four 42-inch diameter pipelines from the pump station on Dolan Road to the intake and discharge structures on the seafloor in MBNMS, and four 1.1-mile pipelines from the pump station to the desalination/data center site, resulting in 2.5 additional miles of pipeline compared to the proposed project Source Water Pipeline. This alternative would also include construction of a larger desalination plant, data center and cooling system, and up to 25 miles of additional desalinated water pipelines to deliver water (in addition to the 9.6 mgd served to CalAm's Monterey District) to potential customers in Santa Cruz County, Salinas, or both. Therefore, there would be an overall increase in amortized annual construction emissions under Alternative 3 compared to the proposed project.

Operations of the data center and cooling system under Alternative 3 would result in a considerable energy demand increase compared to the proposed project. The data center would require 150 megawatts (MW) of electrical power to operate. Compared to the proposed project, which would result in a net power consumption increase of less than 6 MW, Alternative 3 would substantially increase indirect GHG emissions associated with electricity usage. This energy demand would be more than 25 times the net energy demand increase that would occur under the proposed project. This would result in an additional 171,000 metric tons CO_2e per year beyond the indirect emissions that would occur as a result of only the desalination facility. With regard to CO_2 degassing from discharged water, given that Alternative 3 would result in approximately twice the amount of discharged brine as the proposed project, but would include an open-ocean intake, CO_2 degassing would be reduced by 545 metric tons CO_2 under Alternative 3 compared to the proposed project. With regard to the loss of vegetation-related carbon sequestration, Alternative 3 would result in the loss of up to 91 acres of grassland at the desalination facility, data center, and electrical substation location compared to 15 acres of grassland under the proposed project. This would increase the loss of sequestration potential by more than 313 metric tons CO_2 per year. See **Appendix G1** for emissions estimates.

The sum of the 40-year amortized construction GHG emissions and the total net operation emissions associated with Alternative 3 would be substantially higher than the emissions presented in **Table 4.11-5** for the proposed project. The emissions of Alternative 3 would exceed the 2,000 metric tons CO_2e per year significance threshold and the impact would be significant and unavoidable even with implementation of **Mitigation Measures 4.11-1** and **4.18-1**. Therefore, Alternative 3 would result in the ***same impact conclusion*** as the proposed project, significant and unavoidable, even with mitigation.

Since GHG emissions associated with Alternative 3 would exceed the emissions significance threshold, Alternative 3 would conflict with Executive Order B-30-15 and would result in a significant impact even with implementation of mitigation. As with the proposed project, the only plan that would be directly applicable to Alternative 3 would be the AB 32 Scoping Plan Measure W-3, Water System Energy Efficiency. The lead agencies cannot substantiate that electricity use under Alternative 3 would be reduced to a less-than-significant level. Therefore, Alternative 3 would result in the ***same impact conclusion*** as the proposed project, significant and unavoidable, even with mitigation.

Cumulative Analysis

Construction and operations under Alternative 3 would result in GHG emissions greater than the applicable numeric significance threshold and would conflict with AB 32 Scoping Plan Measure W-3. Therefore, Alternative 3 would result in a cumulatively considerable contribution to significant cumulative impacts, but of a higher magnitude than the proposed project. Overall, Alternative 3 would result in the ***same impact conclusion*** as the proposed project for cumulative effects related to greenhouse gas emissions, significant and unavoidable, even with mitigation.

5.5.11.7 Direct and Indirect Effects of Alternative 4 – People's Moss Landing Water Desalination Project (People's Project)

Alternative 4 includes the construction and operation of an open ocean intake, a brine discharge system and pipelines, and supporting ballast rock located on the seafloor in Monterey Bay within MBNMS, as well as a 12 mgd desalination plant and associated facilities to provide 13,400 afy of water supply to meet the current and future needs of the Monterey Peninsula. Several components would be identical to the proposed project: the new Transmission Main, new desalinated water pipeline south of the "Connection to CalAm" Point on **Figure 5.4-4**, ASR-5 and -6 wells and ASR pipeline, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be as described in Chapter 3, Description of the Proposed Project. Because this alternative would have an open water intake that would eliminate the need for returning source water drawn from the Salinas Valley Groundwater Basin, the Castroville Pipeline, Pipeline to CSIP Pond, and operational components related to delivering water to CCSD would not be implemented. The desalination plant, open water intake system, brine discharge system, and the additional 6.5 miles of desalinated water pipeline are the components unique to Alternative 4 (see **Figure 5.4-4**). Therefore, the impact analysis of Alternative 4 focuses primarily on these components; however, impact conclusions are made for the whole of Alternative 4.

Construction and Operation Impacts

Construction of a screened open water intake and brine discharge system would require the use of marine vessel(s) and land-based HDD equipment for installation of a portion of the pipelines from the existing caisson to the intake and discharge on the seafloor in MBNMS. Therefore, there would be an overall increase in amortized construction emissions under Alternative 4 compared to the proposed project.

Long-term operations of the People's Project would produce approximately 25 percent more product water than the proposed project. This increase in product water would result in an approximately 25 percent increase in energy demand, that would increase the net indirect emissions from electricity usage under Alternative 4 to 1,715 metric tons CO_2e per year compared to the proposed project. With regard to CO_2 degassing from discharged water, given that Alternative 4 would result in approximately 32 percent more discharged brine compared to the proposed project, but would include an open water intake, CO_2 degassing would be reduced by 610 metric tons compared to the proposed project. In addition, this alternative would result in approximately one less acre of permanent scrub vegetation removal and 15 less acres of permanent grassland removal compared to the proposed project due to the location of its intake

pump station and desalination plant at existing disturbed areas. This would result in approximately 79 metric tons CO_2e per year additionally sequestered compared to the proposed project. See **Appendix G1** for emissions estimates.

The sum of the 40-year amortized construction GHG emissions and the total net operation emissions associated with Alternative 4 would be higher compared to the proposed project. The emissions of Alternative 4 would exceed the 2,000 metric tons CO_2e per year significance threshold and the impact would be significant and unavoidable even with implementation of **Mitigation Measures 4.11-1** and **4.18-1**. Therefore, Alternative 4 would result in the ***same impact conclusion*** as the proposed project, significant and unavoidable, even with mitigation.

Since GHG emissions associated with Alternative 4 would exceed the emissions significance threshold, Alternative 4 would conflict with Executive Order B-30-15. As with the proposed project, the only plan that would be directly applicable to Alternative 4 would be the AB 32 Scoping Plan Measure W-3, Water System Energy Efficiency. The lead agencies cannot substantiate that electricity use under Alternative 4 would be reduced to a less-than-significant level. Therefore, Alternative 4 would result in the ***same impact conclusion*** as the proposed project, significant and unavoidable, even with mitigation.

Cumulative Analysis

Construction and operations under Alternative 4 would result in GHG emissions greater than the applicable numeric significance threshold and would conflict with AB 32 Scoping Plan Measure W-3. Therefore, Alternative 4 would result in a cumulatively considerable contribution to significant cumulative impacts. Overall, Alternative 4 would result in the ***same impact conclusion*** as the proposed project for cumulative effects related to greenhouse gas emissions, significant and unavoidable, even with mitigation.

5.5.11.8 Direct and Indirect Effects of Alternative 5 – Reduced Desal Project 5a (CEMEX) and 5b (Potrero Road)

Alternative 5a would include the seawater intake system at the CEMEX site (the same location as the proposed project), but would include only seven subsurface slant wells (the converted test well and six new wells) and the same source water pipeline as the proposed project. Alternative 5b would include seven new wells at the western end of Potrero Road (the same location as Alternative 1) and the same source water pipeline as Alternative 1. Both Alternatives 5a and 5b would include a reduced-capacity desalination plant (6.4 mgd), and all other components would be the same as the proposed project.

Construction and Operation Impacts

The facilities that would be constructed under Alternative 5a would be the same as those constructed under the proposed project, with the exception that there would be three fewer slant wells at CEMEX compared to the proposed project. Alternative 5b would locate the seven new slant wells at the Potrero Road parking lot, and include construction of a longer source water pipeline, as under Alternative 1. There would be an overall decrease in amortized construction

emissions of 16 metric tons CO_2e per year under Alternative 5a compared to the proposed project. Given the longer distance of the source water pipeline under Alternative 5b, amortized construction emissions would be increased by approximately 59 metric tons CO_2e per year compared to Alternative 5a, and by approximately 44 metric tons CO_2e per year compared to the proposed project. In addition, due to the increased length of the source water pipeline, Alternative 5b would result in more than three times the energy demand to pump source water to the desalination plant compared to Alternative 5a; however, the overall energy demand associated with Alternative 5b would be less than the proposed project given the lower source water demand than the proposed project.

In addition, due to the desalination plant's decreased product capacity under Alternative 5a or 5b, total operational emissions would be less compared to emissions generated under the proposed project. With regard to CO_2 degassing from discharged water, given that Alternative 5a or 5b would result in approximately two thirds the discharged brine from the MPWSP plant compared to the proposed project, CO_2 degassing would be reduced to 490 metric tons CO_2 per year. It is assumed that approximately the same area would be permanently disturbed under Alternative 5a as the proposed project so the reduction in carbon sequestration would be the same, and under 5b would be less so the carbon sequestration would be greater. As shown in **Table 5.5-13**, the total GHG emissions that would be associated with Alternative 5a would be 5,535 metric tons CO_2e per year, which would be approximately 2,835 metric tons less than would be generated under the proposed project. Alternative 5b would have the higher indirect operational emissions due to increased pumping associated with the longer source water pipeline length, and as described above, would have an additional 34 metric tons CO_2e per year associated with amortized construction emissions compared to Alternative 5a. Therefore, Alternatives 5a and 5b would result in the ***same impact conclusion*** as the proposed project, significant and unavoidable, even with mitigation.

TABLE 5.5-13
TOTAL GHG EMISSIONS ASSOCIATED WITH ALTERNATIVE 5A

Construction Emission Source	CO_2e (metric tons per year)
Amortized Construction[1]	374
Operations[2]	5,161
Total Emissions	5,535

NOTES:

[1] Construction emissions are based on the emissions for the proposed project presented in Table 4.11-3 (rounded) with adjustments to the slant well emissions to account for construction of three fewer slant wells.

[2] Operational emissions are based on emissions from Table 4.11-4 (rounded) with adjustments made to account for lower electricity consumption and emergency generation capacity due to the decreased product water capacity. In addition, due to the reduced capacity of the MPWSP plant under Alternative 5, degassing emissions would be two thirds the degassing emissions identified for proposed project, and because there would be maintenance of three fewer slant wells compared to the proposed project, emissions associated with off-road equipment use to maintain slant wells would be approximately 70 percent of the off-road equipment emissions identified for the proposed project.

SOURCES: ESA, 2016 (**See Appendix G1**).

The emissions of Alternative 5 would exceed the 2,000 metric tons CO_2e per year significance threshold; therefore, a significant impact would occur. This impact would be significant and unavoidable even with implementation of **Mitigation Measures 4.11-1** and **4.18-1**.

Since GHG emissions associated with Alternative 5 would exceed the emissions significance threshold, Alternative 5 would conflict with Executive Order B-30-15. As with the proposed project, the only plan that would be directly applicable to Alternative 5 would be the AB 32 Scoping Plan Measure W-3, Water System Energy Efficiency. The lead agencies cannot substantiate that electricity use under Alternative 5 would be reduced to a less-than-significant level. Therefore, Alternatives 5a and 5b would result in the ***same impact conclusion*** as the proposed project, significant and unavoidable, even with mitigation.

Cumulative Analysis

Combined Impacts with GWR Project

Because Alternative 5 alone would not meet the project objectives and must be paired with the approved GWR Project in order to do so, for informational purposes, this analysis provides the "subtotal" of the Alternative 5 impacts in combination with the impacts of the GWR Project, even though project-specific significance thresholds are not intended to be applied to combined or cumulative emissions levels. The GWR Project would emit amortized GHG emissions of 201 metric tons CO_2e per year and 1,900 metric tons CO_2e per year during operation. These impacts are amortized or would occur over the GWR Project's expected 30-year lifetime (MRWPCA, 2016). Thus, during the years these projects overlap, the total amortized annual GHG emissions would be 7,636 metric tons CO_2e per year for Alternative 5a and slightly higher for Alternative 5b, a significant and unavoidable combined impact. These combined emissions would be approximately 734 metric tons CO_2e per year less than the emissions that would be associated with the proposed project. Overall, Alternative 5 considered in combination with the GWR Project would result in the ***same impact conclusion*** as the proposed project for cumulative impacts related to GHG emissions, significant and unavoidable.

Impacts of Full Cumulative Scenario

Similar to the proposed project, construction and operations under Alternative 5 would result in GHG emissions greater than the significance threshold and would conflict with AB 32 Scoping Plan Measure W-3. Therefore, Alternative 5 would not be considered consistent with the State's GHG reduction goals and the associated impact would result in a cumulatively considerable contribution to significant cumulative impacts, a significant and unavoidable impact (though of a smaller magnitude than the proposed project).

Overall, Alternative 5 would result in the ***same impact conclusion*** as the proposed project for cumulative effects related to greenhouse gas emissions, significant and unavoidable, even with mitigation.

5.5.11.9 References

Monterey Regional Water Pollution Control Agency (MRWPCA), 2016. Consolidated Final EIR for the Pure Water Monterey GWR Project, Section 4.3, Air Quality and Greenhouse Gas. http://purewatermonterey.org/wp/wp-content/uploads/Volume-I-Consolidated-Final-EIR-Jan-2016.pdf

5.5.12 Noise and Vibration

The evaluation criteria for Noise and Vibration address: temporary increases in ambient noise in the vicinity of construction; exposure of people to noise levels in excess of established standards during construction; exposure of people to or generation of excessive groundborne vibration during construction; consistency with construction time limits established by local jurisdictions; substantial permanent increase in ambient noise levels above existing levels during project operations; and, exposure of people to noise levels in excess of established standards during operations. Construction of all project facilities will result in temporary increases in noise.

5.5.12.1 Setting/Affected Environment

The components of the alternatives that are common to the proposed project are located south of the Nashua Road/Highway 1 intersection and the setting/affected environment for those facilities is described in Section 4.12, Noise and Vibration. Alternative components north of the Nashua Road/Highway 1 intersection would primarily affect receptors in unincorporated Monterey County north of Charles Benson Road. This would include the primary residential area of Moss Landing along Potrero Road and Pieri Court, as well as intermittent rural residences along Nashua Road, Molera Road, Dolan Road and Via Tanques Road and houseboats at Moss Landing Harbor. Noise monitoring conducted along Potrero Road indicated daytime noise levels of 54.1 dBA. The regulatory environment of unincorporated Monterey County with respect to noise is discussed in Section 4.12.3 of this EIR/EIS.

5.5.12.2 Direct and Indirect Effects of the Proposed Project (Slant Wells at CEMEX)

The proposed project extends from Castroville in the north to the city of Carmel in the south (see **Figure 3-2**) and would include construction of a desalination plant on 25 acres along Charles Benson Road northeast of the City of Marina, up to nine new subsurface slant wells at the CEMEX active mining area, two new wells (ASR-5 and ASR-6) at the existing Seaside Groundwater Basin aquifer storage and recovery (ASR) system, the Carmel Valley Pump Station, and about 21 miles of water conveyance pipelines. The direct and indirect impacts of the proposed project are described in detail in Section 4.7.5.

Impact 4.12-1: Cause a substantial temporary or periodic increase in ambient noise levels in the project vicinity during construction.

Impact 4.12-2: Expose people to or generate noise levels in excess of standards established in the local general plan, noise ordinance, or applicable standards of other agencies during construction.

Construction of the subsurface slant wells, MPWSP Desalination Plant, Source Water Pipeline, Pipeline to the CSIP Pond, and Brine Discharge Pipeline would result in less-than-significant daytime and nighttime noise impacts. Construction of Terminal Reservoir, ASR Conveyance Pipeline, ASR Recirculation Pipeline, ASR Pump-to-Waste Pipeline, Main System-Hidden Hills Interconnection Improvements, and Ryan Ranch-Bishop Interconnection Improvements would result in a less-than-significant impact related to temporary increases in daytime noise levels and

no impact related to nighttime noise. Significant impacts related to temporary increases in daytime noise levels would result during construction of the ASR-5 and ASR-6 Wells and the Carmel Valley Pump Station, but these impacts would be reduced to less-than-significant levels with implementation of the prescribed mitigation measures. Significant nighttime noise impacts would result during construction of the new Desalinated Water Pipeline, Castroville Pipeline, new Transmission Main, and the ASR-5 and ASR-6 Wells. With the exception of nighttime noise impacts associated with the Castroville Pipeline Optional Alignment 1 and ASR-5 and ASR-6 Wells, 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)** would reduce all other construction-related nighttime noise impacts to a less-than-significant level. Nighttime noise impacts during installation of the Castroville Pipeline Optional Alignment 1 and during drilling and development of the ASR-5 and ASR-6 Wells would remain significant and unavoidable, even with implementation of mitigation.

There are no established construction noise level standards that would apply to the ASR-5 and ASR-6 Wells. Construction of the subsurface slant wells, Source Water Pipeline, Brine Discharge Pipeline, Pipeline to the CSIP Pond, Ryan Ranch-Bishop Interconnection Improvements, Main System-Hidden Hills Interconnection Improvements, Carmel Valley Pump Station, and MPWSP Desalination Plant would result in less-than-significant impacts with regard to the generation of construction noise levels in excess of local noise level standards.

Construction of the remaining project components (new Desalinated Water Pipeline, Castroville Pipeline, new Transmission Main, Terminal Reservoir, ASR Conveyance Pipeline, ASR Recirculation Pipeline, and ASR Pump-to-Waste Pipeline) would generate noise levels in excess of local noise level standards. The new Desalinated Water Pipeline and new Transmission Main would exceed the City of Marina's 60-dBA noise level standard for construction noise, a significant impact. In the absence of project-specific information regarding noise-reduction measures that would be implemented during project construction, it is conservatively assumed that noise resulting from construction of Terminal Reservoir, ASR Conveyance Pipeline, ASR Recirculation Pipeline, and ASR Pump-to-Waste Pipeline would violate Noise Policy B-9 of the Fort Ord Reuse Plan, a significant impact. Implementation of **Mitigation Measures 4.12-1b** and **4.12-1c** would reduce these impacts to a less-than-significant level.

Impact 4.12-3: Exposure of people to or generation of excessive groundborne vibration during construction.

Construction of the subsurface slant wells, MPWSP Desalination Plant, Pipeline to the CSIP Pond, Brine Discharge Pipeline ASR-5 and ASR-6 Wells, Terminal Reservoir, ASR Conveyance Pipeline, ASR Recirculation Pipeline, ASR Pump-to-Waste Pipeline, Ryan Ranch-Bishop Interconnection Improvements, Carmel Valley Pump Station, and Main System-Hidden Hills Interconnection Improvements would result in less-than-significant vibration impacts with regard to both structural damage and human annoyance. There could be significant vibration impacts related to structural damage and human annoyance from construction of the Castroville Pipeline and Source Water Pipeline, as well as the new Desalinated Water Pipeline and new Transmission Main where trenchless construction methods are required for these pipelines. However, with implementation of

the **Mitigation Measures 4.12-3 (Vibration Reduction Measures)** and **4.15-1a (Avoidance and Vibration Monitoring for Pipeline Installation in the Lapis Sand Mining Plant Historic District)**, all significant construction vibration impacts would be reduced to a less-than-significant level.

Impact 4.12-4: Consistency with the construction time limits established by the local jurisdictions.

Several of the proposed facilities could require nighttime construction. Construction of the Slant Wells and Source Water Pipeline would not be subject to the city of Marina's construction time limits, which only apply to outdoor construction activities adjacent to residential land uses. Construction of the Desalinated Water Pipeline and new Transmission Main within the City of Marina would be consistent with construction time limits because work within the City would only be conducted during daytime hours. The southern portion of the new Transmission Main would be constructed within the City of Seaside. Because the City of Seaside Municipal Code will allow construction activity outside listed hours under certain circumstances, the construction activities would not violate local regulations and the impact would be less than significant. All nighttime construction work would be conducted only with prior approval from the relevant jurisdictions. **Mitigation Measure 4.12-1c (Noise Control Plan for Nighttime Pipeline Construction)** would reduce the nighttime construction noise impact but would not change the inconsistency with the restriction of the noise ordinance.

The Desalination Plant, Pipeline to the CSIP Pond, Castroville Pipeline, and Brine Discharge Pipeline could require nighttime construction but there are no local construction time limits that would apply; no impact would result. None of the remaining facilities would require nighttime construction and therefore, the remaining facilities would be consistent with applicable construction time limits.

Impact 4.12-5: Substantial permanent increases in ambient noise levels in the project vicinity above levels existing without the project during operations.

Operation of the subsurface slant wells, MPWSP Desalination Plant, Terminal Reservoir, Ryan Ranch-Bishop Interconnection Improvements, and Carmel Valley Pump Station would result in less-than-significant noise impacts with regard to permanent operational noise increases. Significant noise impacts would result from operation of the ASR-5 and ASR-6 Wells and the booster stations that would be upgraded by the Main System-Hidden Hills Interconnection Improvements; however, implementation of **Mitigation Measure 4.12-5 (Stationary Source Noise Controls**) would reduce all significant operational noise impacts to a less-than-significant level. No impact would result from operation of the proposed pipelines.

Impact 4.12-6: Expose people to or generate noise levels in excess of standards established in the local general plan, noise ordinance, or applicable standards of other agencies during operations.

Operation of the Subsurface Slant Wells, MPWSP Desalination Plant, Source Water Pipeline, Pipeline to the CSIP Pond, Brine Discharge Pipeline, Desalinated Water Pipeline, Transmission Main, Terminal Reservoir, Ryan Ranch-Bishop Interconnection Improvements, Carmel Valley

Pump Station, the booster stations that would be upgraded by the Main System-Hidden Hills Interconnection Improvements would result in less than significant noise impacts with regard to generation of noise levels in excess of local noise level standards. No impact would result from operation of the ASR-5 and ASR-6 Wells with regard to generation of noise in excess of local noise level standards because none would apply to these sources on federal lands. No impact would result from operation of the proposed pipelines because the pipelines would not involve the installation of stationary noise sources.

Impact 4.12-C: Cumulative impacts related to noise and vibration.

MPWSP pipeline construction noise could combine with one or more of five cumulative projects to cause nighttime noise levels to exceed the sleep interference threshold. Nighttime construction noise could have a cumulatively considerable contribution to a significant cumulative effect.

Ten cumulative projects would potentially occur within the 120-foot geographic scope of cumulative vibration impacts analysis. However, the project-specific vibratory impact monitoring required under **Mitigation Measure 4.12-3 (Vibration Reduction Measures)** would also capture vibration contributed by the other seven cumulative projects, should the timing and location of construction overlap, Consequently, no significant cumulative construction-related vibration impact would result.

The MPWSP's project-specific operational noise impacts would be less than significant for the MPWSP Desalination Plant and the Carmel Valley Pump Station. Impacts of the ASR well facilities and the Main System-Hidden Hills Interconnection Improvements would be less than significant with mitigation. There are no cumulative projects within 500 feet of these proposed facilities. Therefore, no other projects could combine with the operational noise effects of the proposed project to result in a significant cumulative impact.

5.5.12.3 Direct and Indirect Effects of No Project Alternative

Under the No Project Alternative, no new facilities would be constructed or operated. Consequently, there would be no construction- or operations-related noise or vibrations associated with the No Project Alternative. Because the No Project Alternative would have no direct or indirect impacts with respect to noise or vibrations, it could not contribute to cumulative effects related to these topics.

5.5.12.4 Direct and Indirect Effects of Alternative 1 - Slant Wells at Potrero Road

Alternative 1 would supply seawater to the proposed 9.6 mgd desalination plant located at the Charles Benson Road site using the same type of subsurface intake system as the proposed project, but at a different location (described in Section 5.3.3.2, Intake Option 3 – Subsurface Slant Wells at Potrero Road). The desalination plant, brine discharge pipeline, Castroville Pipeline, Pipeline to CSIP Pond, new Desalinated Water Pipeline, new Transmission Main, Terminal Reservoir, ASR components and Carmel Valley Pump Station would be identical to the proposed project described in Chapter 3, Description of the Proposed Project. The location of the

slant wells at Potrero Road and the additional 5.5 miles of source water pipeline are the components unique to Alternative 1 (see **Figure 5.4-1**). Therefore, the noise impact analysis of Alternative 1 focuses primarily on the locations for the intake system and source water pipelines that are different from the proposed project; however, impact conclusions are made for the whole of Alternative 1.

Construction Impacts

The construction of the additional pipeline north of the Nashua Road/Highway 1 intersection in unincorporated Monterey County would temporarily increase noise levels at intermittent rural residences along Nashua Road and Molera Road, and at the primary residential area of Moss Landing along Potrero Road. Some of these receptors would be as close as 50 feet from the Source Water Pipeline installation trench.

Construction of the additional Source Water Pipeline under Alternative 1 is estimated to progress at a rate of approximately 250 feet per day, so the maximum noise levels at any one location would be limited to a period of 1 to 3 days. Consequently, although construction noise at adjacent residences could exceed the speech interference threshold of 70 dBA, the duration of the impact at any given sensitive noise receptor would be less than two weeks. While the construction noise impact associated with increases in daytime noise levels along this additional segment of pipeline would be less than significant, construction of other components common to the proposed project would be reduced to a less than significant level with **Mitigation Measures 4.12-1a** (**Neighborhood Notice**), **4.12-1b** (**General Noise Controls for Construction Equipment**). Therefore, Alternative 1 would result in the ***same impact conclusion*** on daytime noise levels as the proposed project, less than significant with mitigation.

If nighttime work were to be conducted along the extended portions of the Source Water Pipeline along Potrero Road, Molera Road and Nashua Road noise from construction equipment could exceed the sleep interference threshold of 60 dBA. 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**) would reduce the severity of this impact but not to below the sleep interference threshold of 60 dBA, L_{eq}. Nighttime noise impacts during installation of the Castroville Pipeline Optional Alignment 1 and during drilling and development of the ASR-5 and ASR-6 Wells would remain significant and unavoidable, even with implementation of mitigation. Consequently, construction related noise increases under Alternative 1 would result in the ***same impact conclusion*** as the proposed project, significant unavoidable, even with mitigation.

Installation of Subsurface Slant Wells under Alternative 1 would occur closer to noise sensitive receptors (1,000 feet) than the proposed project (4,000 feet). However, the distance is still sufficient to attenuate noise to below both the speech interference and sleep interference thresholds and Alternative 1 would result in the ***same impact conclusion*** as the proposed project, less than significant.

Monterey County Policy S-7.9 requires the project sponsor to complete a noise mitigation study if construction noise would exceed the “acceptable” levels listed in Policy S-7.1 within 500 feet of a

noise-sensitive land use during evening hours. Because the Source Water Pipeline west of Highway 1 would be within 100 feet from the nearest receptors on Potrero Road, Molera Road and Nashua Road, **Mitigation Measure 4.12-1c** (**Noise Control Plan for Nighttime Pipeline Construction**) would be required to reduce this impact to less than significant. Therefore, Alternative 1 would result in the ***same impact conclusion*** as the proposed project for noise impacts during construction, less than significant with mitigation.

Vibration impacts would be less than significant for the additional 5.5 mile Source Water Pipeline construction under Alternative 1 because it would no longer occur adjacent to a historic structure (CEMEX building) as it would for the proposed project. Further, vibration impacts on residential uses along the Potrero Road alignment would result in human annoyance impacts from vibration. Implementation of **Mitigation Measure 4.12-3 (Vibration Reduction Measures)** would reduce impacts to less than significant. Therefore, Alternative 1 would result in the ***same impact conclusion*** from vibration as the proposed project, less than significant with mitigation.

Operational and Facility Siting Impacts

Alternative 1 would operate the slant wells closer to noise sensitive receptors (1,000 feet) than the proposed project (4,000 feet). Simultaneous operation of 8 well pumps would conservatively generate a noise level of approximately 66 dBA at 50 feet. At 1,000 feet, slant well pump noise would be reduced to 40 dBA, which is below ambient levels monitored along Potrero Road (54 dBA, L_{eq}) and would not contribute to a substantial permanent increase in ambient noise levels.

All remaining components would be the same as the proposed project and would result in less-than-significant operational noise impacts with implementation of **Mitigation Measure 4.12-5 (Stationary Source Noise Controls)**. Consequently, operation of the slant wells within unincorporated Monterey County would result in less than significant noise impacts with regard to generation of noise levels in excess of local noise level standards as well as to permanent increases in noise levels. Therefore, Alternative 1 would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Policy S-7.6 of the County General Plan Noise Element requires an acoustical analysis for proposed noise generators that produce a noise level exceeding 85 dBA at 50 feet from the source. Simultaneous operation of the 8 slant well pumps would conservatively generate a noise level of approximately 66 dBA at 50 feet and would be consistent with noise policies of the County General Plan. Therefore, Alternative 1 would result in the ***same impact conclusion*** as the proposed project, less than significant.

Cumulative Analysis

No additional cumulative projects would be within the geographic scope of the cumulative analysis for construction-related vibration impacts (within 120 feet of Alternative 1 components whose construction-related vibration could cause damage to structures); therefore, the analysis of cumulative vibration impacts would be the same as that described for the proposed project, with the exception that no construction would occur adjacent to a historic structure (CEMEX

building), so cumulative impacts from construction vibration would be reduced compared to the proposed project. Therefore, Alternative 1 would result in the ***same impact conclusion*** as the proposed project for cumulative effects related to vibration during construction, less than significant with mitigation.

The components of Alternative 1 that would result in operational noise are the same as for the proposed project. Therefore, Alternative 1 would result in the ***same impact conclusion*** as the proposed project for cumulative noise impacts during operation, less than significant.

The geographic scope of analysis for cumulative noise impacts during construction is defined by the presence of sensitive receptors within 500 feet of components whose daytime construction noise could exceed speech interference thresholds or whose nighttime construction noise could exceed sleep interference thresholds. These components include the Source Water Pipeline and the slant wells.

One additional cumulative project described in **Table 4.1-2** in Section 4.1 would have the potential to combine with Alternative 1 to result in cumulative noise impacts during construction: the DeepWater Desal Project (No. 34). 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 conducted. However, it is conservatively assumed that the potential exists for residual (post-mitigation) MPWSP pipeline and slant well construction noise to combine with that of the DeepWater Desal Project 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/EIS is available to further reduce the potential for a cumulatively significant nighttime noise impact. Nighttime construction noise could have a cumulatively considerable contribution to a significant and unavoidable cumulative effect. Therefore, Alternative 1 would result in the ***same impact conclusion*** as the proposed project, significant and unavoidable, even with mitigation.

5.5.12.5 Direct and Indirect Effects of Alternative 2 - Open Water Intake at Moss Landing

Alternative 2 would supply seawater to the proposed 9.6 mgd desalination plant located at the Charles Benson Road site using a new, screened open-water intake system consisting of an intake structure located offshore in MBNMS and southwest of the Moss Landing Harbor entrance, a subsurface intake pipeline, and an intake pump station on Dolan Road (described in Section 5.4.4). The desalination plant, brine discharge pipeline, new Desalinated Water Pipeline, new Transmission Main, Terminal Reservoir, ASR components, Highway 68 interconnection improvements, and the Carmel Valley Pump Station would be identical to the proposed project described in Chapter 3, Description of the Proposed Project. Because the open water intake would eliminate the need for returning source water that originated from the Salinas Valley Groundwater Basin, the Castroville Pipeline, the Pipeline to CSIP Pond, and operational components related to delivering water to Castroville Community Services District would not be implemented. The open water intake system and the additional 6.5 miles of source water pipeline

are the components unique to Alternative 2 (see **Figure 5.4-2**). Therefore, the noise impact analysis of Alternative 2 focuses primarily on the locations for the intake system and source water pipelines that are different from the proposed project; however, impact conclusions are made for the whole of Alternative 2.

Construction Impacts

The construction of a centralized bore pit/pump station and HDD activities associated with the source water pipeline to the open water intake as well as the additional 6.5 miles of open trench pipeline construction, would temporarily increase noise levels at intermittent rural residences along Nashua Road and Molera Road and at the primary residential area of Moss Landing along Potrero Road and Pieri Court. Some of these receptors would be as close as 50 feet from the pipeline installation trench.

Construction of the 6.5 miles of Source Water Pipeline is estimated to progress at a rate of approximately 250 feet per day, so the maximum noise levels at any one location would be limited to a period of 1 to 3 days. Consequently, although construction noise at adjacent residences could exceed the speech interference threshold of 70 dBA, the duration of the impact at any given sensitive noise receptor would be less than two weeks. While the construction noise impact associated with increases in daytime noise levels along this additional segment of pipeline would be less than significant, construction of other components common to the proposed project would be less than significant with **Mitigation Measures 4.12-1a** (**Neighborhood Notice**), **4.12-1b** (**General Noise Controls for Construction Equipment**). Overall, Alternative 2 would, result in the ***same impact conclusion*** on daytime noise levels as the proposed project, less than significant with mitigation.

If nighttime work were to be conducted along the additional 6.5 miles of Source Water Pipeline, noise from construction equipment could exceed the sleep interference threshold of 60 dBA, a potentially significant impact. 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**) would reduce the severity of this impact but not to below the sleep interference threshold of 60 dBA, L_{eq}. However, nighttime noise impacts during installation of the Castroville Pipeline, and drilling and development of the ASR-5 and ASR-6 Wells, would remain significant and unavoidable, even with implementation of mitigation. Consequently, construction related noise increases under Alternative 2 would result in an increased level of impact compared to the proposed project. Therefore, Alternative 2 would have the ***same impact conclusion*** as the proposed project, significant unavoidable, even with mitigation.

Installation of the screened open water intake would occur closer to noise sensitive receptors (1,300 feet) than the subsurface slant wells of the proposed project (4,000 feet). The HDD boring pit would require sheet pile installation and is 1,500 feet from live-aboard residents in the Moss Landing Marina. Additionally, drilling activities would occur at the HDD pit and reaming and pipeline installation would occur from barges approximately 1,300 feet from live-aboard marina residents. Noise from drilling, reaming, and pipeline installation would be 57 dBA, L_{eq}, which

would be below the speech interference threshold for daytime work and below the sleep interference threshold for nighttime work. Sheet pile installation, which would be conducted for railroad and water crossings and would occur during daytime hours, would temporarily generate substantial noise levels that would dominate over other construction activity associated with trenchless construction. Sheet pile installation would generate noise level of 64.4 dBA, L_{eq} which would be below the speech interference threshold for daytime work. Therefore, Alternative 2 would result in the ***same impact conclusion*** as the proposed project, less than significant impact.

For Monterey County-permitted projects, Policy S-7.9 requires the project sponsor to complete a noise mitigation study if construction noise would exceed the "acceptable" levels listed in Policy S-7.1 within 500 feet of a noise-sensitive land use during evening hours. Because the Source Water Pipeline west of Highway 1 would be within 100 feet from the nearest receptors on Potrero Road, Molera Road and Nashua Road, construction activities would be inconsistent with this policy. However, implementation of **Mitigation Measure 4.12-1c** (**Noise Control Plan for Nighttime Pipeline Construction**) would reduce this impact to less than significant. Therefore, Alternative 2 would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Vibration impacts would be reduced under Alternative 2 because construction of the Source Water Pipeline would no longer occur adjacent to a historic structure (CEMEX building) as it would under the proposed project. Vibration impacts on residential uses along the Nashua Road and Molera Road alignments would be similar to those identified for the proposed project for open trench construction. Implementation of **Mitigation Measure 4.12-3 (Vibration Reduction Measures)** would reduce impacts to less than significant. All remaining components of Alternative 2 would be the same as the proposed project and Alternative 2 would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Operational and Facility Siting Impacts

The Pump Station for the screened open water intake would operate closer to noise sensitive receptors (1,500 feet) than the Slant Well pumps under the proposed project (4,000 feet). It would contain four centrifugal intake pumps (three operating and one stand-by), each with a rated capacity of approximately 12,000 GPM. The pumps would be located below grade and the simultaneous operation would conservatively generate a noise level of approximately 61 dBA at 50 feet, accounting for attenuation resulting from their below grade location and the presence of the surrounding building and, thereby consistent with noise policies of the County General Plan. Therefore Alternative 2 would result in the ***same impact conclusion*** as the proposed project, less than significant.

At 1,500 feet, the intake Pump Station noise would be reduced to 32 dBA, which is below ambient levels and would not contribute meaningfully to ambient levels. All remaining components would be the same as the proposed project with implementation of **Mitigation Measure 4.12-5 (Stationary Source Noise Controls)**. Therefore, Alternative 2 would result in ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Cumulative Analysis

No additional cumulative projects would be within the geographic scope of the cumulative analysis for vibration impacts (within 120 feet of Alternative 2 components whose construction-related vibration could cause damage to structures); therefore, the analysis of cumulative vibration impacts would be the same as that described for the proposed project. The components of Alternative 2 that would result in operational noise are the same as for the proposed project; therefore, Alternative 2 would result in the ***same impact conclusion*** as the proposed project for cumulative effects related to vibration during construction, less than significant with mitigation.

The geographic scope of analysis for cumulative noise impacts during construction is defined by the presence of sensitive receptors within 500 feet of components whose daytime construction noise could exceed speech interference thresholds or whose nighttime construction noise could exceed sleep interference thresholds. These components include the Source Water Pipeline, screened seawater intake, and Intake Pump Station.

One additional cumulative project described in **Table 4.1-2** in Section 4.1 would have the potential to combine with Alternative 2 to result in cumulative noise impacts during construction: the DeepWater Desal Project (No. 34). 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) pipeline, Intake and Pump Station construction noise to combine with that of the DeepWater Desal Project 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/EIS is available to further reduce the potential for a cumulatively significant nighttime noise impact. Therefore, nighttime construction noise could have a cumulatively considerable contribution to a significant and unavoidable cumulative effect, similar to the proposed project.

Overall, Alternative 2 would result in the ***same impact conclusion*** as the proposed project for cumulative effects related to noise, significant and unavoidable, even with mitigation.

5.5.12.6 Direct and Indirect Effects of Alternative 3 - the Monterey Bay Regional Water Project

Alternative 3 includes the construction and operation of a screened open ocean intake system and a brine discharge system located on the seafloor in Monterey Bay within MBNMS, subsurface pipelines connecting to these intake and discharge systems, a seawater desalination facility and co-located data center, and associated components to provide up to 25,000 afy of potable water and data transmission and storage services. The pipelines for the intake and discharge systems would be installed using HDD. The alternative would also include 6.5 miles of desalinated water pipeline to connect with the CalAm system and up to an additional 25 miles of pipelines to convey the desalinated water to other areas (total of 31.5 miles of additional pipeline). Several components would be identical to the proposed project: the new Transmission Main, new desalinated water pipeline south of the “Connection to CalAm” Point on **Figure 5.4-3**, ASR 5 and

6 wells and ASR pipeline, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be as described in Chapter 3, Description of the Proposed Project. Because this alternative would have an open water intake that would eliminate the need for returning source water that originated from the Salinas Valley Groundwater Basin, the Castroville Pipeline, Pipeline to CSIP Pond, and operational components related to delivering water to CCSD would not be implemented. The desalination plant and data center, open water intake system, brine discharge system, and the additional 31.5 miles of desalinated water pipeline are the components unique to Alternative 3 (see **Figure 5.4-3**). Therefore, the impact analysis of Alternative 3 focuses primarily on these components; however, impact conclusions are made for the whole of Alternative 3.

Construction Impacts

Construction of open trench pipeline installation and a centralized pump station/boring pit north of Nashua Road/Highway 1 intersection would temporarily increase noise levels at intermittent rural residences along Nashua Road and Molera Road and at the primary residential area of Moss Landing along Potrero Road and Pieri Court. Some of the receptors would be as close as 50 feet from the installation trench. In addition, this alternative would include construction of a larger desalination plant, data center and cooling system, and up to 31.5 miles of additional desalinated water pipelines to deliver water (above the 9.6 mgd demand from CalAm's Monterey District service area) to potential customers in Santa Cruz County, Salinas, or both, resulting in more receptors exposed to construction noise.

Construction of the Desalinated Water Pipeline is estimated to progress at a rate of approximately 250 feet per day, so the maximum noise levels at any one location would be limited to a period of 1 to 3 days. Consequently, although construction noise at adjacent residences could exceed the speech interference threshold of 70 dBA, the duration of the impact at any given sensitive noise receptor would be less than two weeks. Therefore, the construction noise impact associated with increases in daytime noise levels would be less than significant.

If nighttime work were to be conducted along the Desalinated Water Pipeline, noise from construction equipment could exceed the sleep interference threshold of 60 dBA, a significant impact. 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**) would reduce the severity of this impact, but not to below the sleep interference threshold of 60 dBA, L_{eq}.

The HDD pit would require sheet pile installation, which is 1,500 feet from live-aboard residents of the Moss Landing Marina. Additionally, drilling activities would occur at the HDD pit and reaming and pipeline installation would occur from barges approximately 1,300 feet from live-aboard marina residents. Noise from drilling reaming and pipeline installation would be 57 dBA, L_{eq}, which would be below the speech interference threshold for daytime work and below the sleep interference threshold for nighttime work and represent a less than significant impact.

Sheet pile installation, which would occur during daytime hours, is estimated to generate a noise level of 64.4 dBA, L_{eq}, which would be below the speech interference threshold for daytime work.

Construction of the desalination facility, data center and cooling system would occur as close as 600 feet from the nearest receptor on Dolan Road. However, this distance is sufficient to attenuate construction noise to 59.0 dBA, which would be below both the speech interference and sleep interference thresholds. All remaining components would be the same as the proposed project. Therefore, Alternative 3 would result in the ***same impact conclusion*** as the proposed project from construction-related noise, significant and unavoidable, even with mitigation.

Alternative 3 would construct pipelines, a desalination facility, and a data center and cooling system within unincorporated Monterey County where, for County-permitted projects, Policy S-7.9 requires the project sponsor to complete a noise mitigation study if construction noise would exceed the "acceptable" levels listed in Policy S-7.1 within 500 feet of a noise-sensitive land use during evening hours. Because the additional length of pipelines, desalination facility, data center and cooling system would be within 100 feet from the nearest receptors on Dolan Road, Via Tanques Road, Potrero Road, Molera Road and Nashua Road, construction activities would be inconsistent with this policy and **Mitigation Measure 4.12-1c** (**Noise Control Plan for Nighttime Pipeline Construction**) would be required to reduce this impact to a less than significant level. All remaining components would be the same as the proposed project and Alternative 3 would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Vibration impacts would not occur adjacent to a historic structure (CEMEX building). All remaining components would be the same as the proposed project, requiring implementation of **Mitigation Measure 4.12-3 (Vibration Reduction Measures)** near residences. Therefore, Alternative 3 would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Operational and Facility Siting Impacts

Alternative 3 would include an addition source of noise not associated with the proposed project. Noise sources associated with the data center and cooling system would include an unspecified number of natural gas fired emergency backup generators of up to 10 MW in size that could operate up to 4 hours per day or 1,500 hours per year. Equipment associated with power plants of this size can result in operational noise levels of approximately 65 dB at 300 feet (Siemens AG, 2005). Thus, the operation of generators has the potential to increase noise levels over 5 dBA above existing noise levels at the nearest sensitive receptors. Mitigation of operational noise levels of natural gas fired emergency backup generators is feasible to establish a performance standard of 5 dBA increase over existing noise levels to address this potential impact. To ensure that the operational noise impact would be reduced to a less-than-significant level, implementation of **Mitigation Measure ALT 3-NO** would be required.

Mitigation Measure ALT 3-NO: Operational Performance Noise Standard for Data Center Generators

Proposed generators shall include acoustical shielding, critical grade exhaust silencers and/or low pressure loss silencers at the intake and exhaust vents sufficient to achieve a noise level no greater than 5 dBA above the existing nighttime noise level at the nearest sensitive receptor.

Thus, in combination with the components unique to Alternative 3 and those in common with the proposed project, Alternative 3 would result in an increased level of impact but the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

As stated earlier, the data center and cooling system would be located 600 feet or further from the nearest receptor on Dolan Road. Policy S-7.4 of the Monterey County General Plan Noise Element requires an acoustical analysis for proposed noise generators that are likely to produce noise levels exceeding the levels shown in the adopted Community Noise Ordinance when received at existing or planned noise-sensitive receptors. The Monterey County Code, Chapter 10.60, Noise Control, Section 10.60.030 limits the operation of any machine, mechanism, device, or contrivance that produces a noise level exceeding 85 dBA at 50 feet from the source. Assuming the data center generators as a point source operating at 65 dB at 300 feet, acoustical equations yield a noise level of 81 dBA at 50 feet. Consequently, the emergency backup generators would be consistent with noise policies of the County General Plan. Therefore Alternative 3 would result in the ***same impact conclusion*** as the proposed project, less than significant.

Cumulative Analysis

No additional cumulative projects would be within the geographic scope of the cumulative analysis for construction-related vibration impacts (within 120 feet of Alternative 3 components whose construction-related vibration could cause damage to structures); therefore, the analysis of cumulative vibration impacts would be the same as that described for the proposed project, with the exception that no construction would occur adjacent to a historic structure (CEMEX building), so cumulative impacts from construction vibration would be reduced compared to the proposed project. The components of Alternative 3 that are common with the proposed project would result in the same operational noise impacts; therefore, the analysis of cumulative noise impacts during operation of those components is the same as described in Section 4.12.6. The desalination plant would be in a different location and the data center and backup generators would be new sources of operational noise compared to the proposed project, but no projects relevant to the cumulative scenario for Alternative 3 would be located within 500 feet of these components and create new sources of noise; therefore, the cumulative analysis associated with these components is the same as described above for Alternative 3 alone.

The geographic scope of analysis for cumulative noise impacts during construction is defined by the presence of sensitive receptors within 500 feet of components whose daytime construction noise could exceed speech interference thresholds or whose nighttime construction noise could exceed sleep interference thresholds. These include the additional pipelines, desalination facility, data center and ancillary equipment.

One additional cumulative project described in **Table 4.1-2** in Section 4.1 would have the potential to combine with Alternative 3 to result in cumulative noise impacts during construction: the GWR Project (No. 59). In the absence of detailed information regarding 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) construction noise to combine with that of the GWR Project to cause nighttime noise levels to exceed the sleep interference threshold. As described in the FEIR for the GWR Project, construction activities associated with the injection well facilities of the GWR Project, which would be located within 500 feet of the southern end of the new Transmission Main, would result in significant and nighttime noise impacts that would be reduced to a less than significant level with implementation of adopted mitigation measures (MRWPCA, 2016). The new Transmission Main also would result in less-than-significant noise impacts after implementation of mitigation, as described in Section 4.12.6.1. As a result, temporary cumulative increases in nighttime construction noise could result in a cumulatively significant nighttime noise impact that would be increased compared to either Alternative 3 or the GWR Project alone, and could remain significant and unavoidable even with mitigation specified for each project. No additional mitigation within the scope of this EIR/EIS is available to further reduce the potential for a cumulatively significant nighttime noise impact. Therefore, nighttime construction noise could have a cumulatively considerable contribution to a significant and unavoidable cumulative impact.

Overall, Alternative 3 would result in the ***same impact conclusion*** as the proposed project for cumulative effects related to noise, significant and unavoidable, even with mitigation.

5.5.12.7 Direct and Indirect Effects of Alternative 4 - the Peoples' Moss Landing Water Desalination Project

Alternative 4 includes the construction and operation of an open ocean intake, a brine discharge system and pipelines, and supporting ballast rock located on the seafloor in Monterey Bay within MBNMS, as well as a 12 mgd desalination plant and associated facilities to provide 13,400 afy of water supply to meet the current and future needs of the Monterey Peninsula. Several components would be identical to the proposed project: the new Transmission Main, new desalinated water pipeline south of the "Connection to CalAm" Point on **Figure 5.4-4**, ASR-5 and -6 wells and ASR pipeline, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be as described in Chapter 3, Description of the Proposed Project. Because this alternative would have an open water intake that would eliminate the need for returning source water that originated from the Salinas Valley Groundwater Basin, the Castroville Pipeline, Pipeline to CSIP Pond, and operational components related to delivering water to CCSD would not be implemented. The desalination plant, open water intake system, brine discharge system, and the additional 6.5 miles of desalinated water pipeline are the components unique to Alternative 4 (see **Figure 5.4-4**). Therefore, the impact analysis of Alternative 4 focuses primarily on these components; however, impact conclusions are made for the whole of Alternative 4.

Construction Impacts

Alternative 4 would construct intake and brine discharge pipelines and a pump station on the beach and adjacent to the Monterey Bay Aquarium Research Institute that would require HDD equipment and marine barge(s), and require additional lengths of Source Water and Desalinated Water Pipelines. Sheet pile installation, which would occur during daytime hours, would generate a noise level of 75.8 dBA, L_{eq} which is above the speech interference threshold for daytime work. Implementation of **Mitigation Measures 4.12-1a (Neighborhood Notice)** and **4.12-1b (General Noise Controls for Construction Equipment)** would reduce impacts to less-than-significant levels.

Construction of the desalination facility would occur as close as 420 feet from the live aboard receptors at Moss Landing Marina. This distance is sufficient to attenuate construction noise to 62.0 dBA, which would be below the speech interference threshold for daytime work but above the sleep interference threshold for nighttime work. Thus, Alternative 4 would result in exposure of additional receptors to nighttime construction noise compared to the proposed project. Implementation of **Mitigation Measures 4.12-1c** (**Noise Control Plan for Nighttime Pipeline Construction**) and **4.12-1e (Offsite Accommodations for Substantially Affected Receptors)** would reduce impacts to less than significant.

Alternative 4 would construct pipelines and a desalination facility within unincorporated Monterey County where, Policy S-7.9 requires the project sponsor to complete a noise mitigation study if construction noise would exceed the "acceptable" levels listed in Policy S-7.1 within 500 feet of a noise-sensitive land use during evening hours. Because the additional length of pipelines and desalination facility would be within 500 feet from the nearest receptors at the Moss Landing Marina, Potrero Road, Molera Road and Nashua Road, construction activities would be inconsistent with this policy and **Mitigation Measure 4.12-1c** (**Noise Control Plan for Nighttime Pipeline Construction**) would be required to reduce this impact to less than significant. All remaining components of Alternative 4 would be the same as the proposed project, and nighttime noise impacts during drilling and development of the ASR-5 and ASR-6 Wells would remain significant an unavoidable. Therefore, Alternative 4 would result in the ***same impact conclusion*** as the proposed project related to noise impacts, significant and unavoidable, even with mitigation.

Because nighttime construction of the additional length of Desalinated Water Pipeline would occur, Alternative 4 would exceed the significance threshold for sleep interference due to the proximity of additional sensitive receptors on Potrero Road and Nashua Road. Implementation of **Mitigation Measures 4.12-1a**, **4.12-1b**, **4.12-1c**, and **4.12-1e** would reduce impacts to a less-than-significant level for the Potrero Road residences, but would not reduce the impact to less than significant for Nashua Road residences. All remaining components would be the same as the proposed project and Alternative 4 would result in the ***same impact conclusion*** as the proposed project, significant and unavoidable, even with mitigation.

Vibration impacts would not occur adjacent to a historic structure (CEMEX building). All remaining components would be the same as the proposed project, requiring implementation of **Mitigation Measure 4.12-3: Vibration Reduction Measures** near residences. Therefore,

Alternative 4 would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Operational and Facility Siting Impacts

Alternative 4 would locate the desalination facility and intake pump station closer to additional sensitive receptors than the proposed project. Operational noise from the desalination plant and pump station could result in a noise impact in excess of 5 dBA above existing levels at live-aboard residences of the Moss Landing Marina, approximately 420 feet away from each respective source. Existing ambient noise levels at the Marina are elevated due to the presence of Highway 1 and operations of the Moss Landing Power Plant. Mitigation measures would likely be required to ensure compliance with a performance standard of no more than a 5 dBA increase over existing noise levels and ensure that plant and inlet pump operations would not result in a significant permanent increase in noise levels. To ensure that the operational noise impact would be reduced to a less-than-significant level, implementation of **Mitigation Measure ALT 4-NO** would be required.

> **Mitigation Measure ALT 4-NO: Operational Performance Noise Standard for Desalination Facilities and Pump Station**
>
> Proposed generators shall include acoustical shielding sufficient to achieve a noise level no greater than 5 dBA above the existing nighttime noise level at the nearest sensitive receptor.

All remaining components of Alternative 4 would result in an increased level of impact compared to the proposed project. Thus, Alternative 4 would have the ***same impact conclusion*** as the proposed project related to operational noise, less than significant impacts with mitigation.

Desalination equipment and pumps would be installed in unincorporated Monterey County. Policy S-7.6 of the County Plan Noise Element requires an acoustical analysis for proposed noise generators that produce a noise level exceeding 85 dBA at 50 feet from the source. The RO system at the Desalination Plant would include a series of pumps, but these would be located inside the treatment building and are not expected to generate substantial noise and would hence be unlikely to generate noise levels exceeding 85 dBA at 50 feet. Alternative 4 would result in an increased level of impact compared to the proposed action, but would have the ***same impact conclusion***, less than significant.

Cumulative Analysis

No additional cumulative projects would be within the geographic scope of the cumulative analysis for construction-related vibration impacts (within 120 feet of Alternative 4 components whose construction-related vibration could cause damage to structures); therefore, the analysis of cumulative vibration impacts would be the same as that described for the proposed project, with the exception that no construction would occur adjacent to a historic structure (CEMEX building). Cumulative impacts from construction vibration would be reduced compared to the proposed project.

The geographic scope of analysis for cumulative noise impacts during construction is defined by the presence of sensitive receptors within 500 feet of components whose daytime construction noise could exceed speech interference thresholds or whose nighttime construction noise could exceed sleep interference thresholds. These include the additional pipelines and the desalination facility.

One additional cumulative project described in **Table 4.1-2** in Section 4.1 would have the potential to combine with Alternative 4 to result in cumulative noise impacts: the DeepWater Desal Project (No. 34). 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) construction noise to combine with that of the DeepWater Desal Project 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/EIS is available to further reduce the potential for a cumulatively significant nighttime noise impact. Therefore, nighttime construction noise of Alternative 4 could have a cumulatively considerable contribution to a significant and unavoidable cumulative effect, similar to the proposed project.

The components of Alternative 4 that are common with the proposed project would result in the same operational noise impacts; therefore, the analysis of cumulative noise impacts during operation of those components is the same as described in Section 4.12.6. The DeepWater Desal desalination plant and data center would be greater than 500 feet from the Alternative 4 facilities and would therefore be outside the geographic scope for cumulative operational noise impacts. No other cumulative projects would be within 500 feet of components unique to Alternative 4 that would generate operational noise.

Overall, Alternative 4 would result in the ***same impact conclusion*** as the proposed project for cumulative effects related to noise and vibration, significant and unavoidable, even with mitigation.

5.5.12.8 Direct and Indirect Effects of Project Alternatives 5a and 5b

Alternative 5a would include the seawater intake system at the CEMEX site (the same location as the proposed project), but would include only seven subsurface slant wells (the converted test well and six new wells) and the same source water pipeline as the proposed project. Alternative 5b would include seven new wells at the western end of Potrero Road (the same location as Alternative 1) and the same source water pipeline as Alternative 1. Both Alternatives 5a and 5b would include a reduced-capacity desalination plant (6.4 mgd), and all other components would be the same as the proposed project.

Construction Impacts

Alternative 5a would construct the same facilities, with fewer slant wells and a smaller desalination plant, in the same locations as the proposed project, and construction-related increases in ambient noise for the slant well installation would be less than significant. All other

construction noise impacts would be the same as the proposed project. Even with implementation of mitigation measures, Alternative 5a would have a significant and unavoidable increase in noise levels during nighttime construction of pipeline segments close to sensitive receptors and at the ASR-5 and ASR-6 wells. Therefore Alternative 5a would result in a ***same impact conclusion*** as the proposed project, significant and unavoidable, even with mitigation.

Alternative 5b would construct the same facilities, with fewer slant wells and a smaller desalination plant, in the same locations as for Alternative 1. Therefore, all construction-related noise impacts would be the same as for Alternative 1, as discussed previously. Alternative 5b would result in the ***same impact conclusion*** as the proposed project, significant and unavoidable, even with mitigation.

Operational and Facility Siting Impacts

Alternative 5a would operate the same facilities in the same locations as the proposed project. A reduced number of subsurface slant wells would be installed, and the operational noise impact of the slant wells would be less than 5 dBA at the nearest receptors for both the project and Alternative 5a. Operation of the ASR-5 and ASR-6 Wells, and the booster stations at the Main System-Hidden Hills Interconnection could result in a significant impact. However, implementation of the **Mitigation Measure 4.12-5 (Stationary Source Noise Controls)** would reduce operational noise impacts to less-than-significant level. Therefore, Alternative 5a would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Subsurface Slant Wells under Alternative 5b would operate closer to noise sensitive receptors (1,000 feet) than the proposed project (4,000 feet). Simultaneous operation of 5 well pumps would conservatively generate a noise level of approximately 63 dBA at 50 feet. At 1,000 feet, slant well pump noise would be reduced to 37 dBA, which is below ambient levels monitored along Potrero Road (54 dBA, L_{eq}) and would not contribute meaningfully to ambient noise levels. Operation of the ASR-5 and ASR-6 Wells, and the booster stations at the Main System-Hidden Hills Interconnection could result in a significant impact. However, implementation of the **Mitigation Measure 4.12-5 (Stationary Source Noise Controls)** would reduce operational noise impacts to less-than-significant level.

Under Alternative 5b, the source water pipeline and subsurface Slant Wells would be installed in unincorporated Monterey County instead of the City of Marina. Policy S-7.6 of the County Plan Noise Element requires an acoustical analysis for proposed noise generators that produce a noise level exceeding 85 dBA at 50 feet from the source. Simultaneous operation of 5 well pumps would be consistent with Noise policies of the County Plan.

Consequently, Alternative 5b would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Cumulative Analysis

No additional cumulative projects would be within the geographic scope of the cumulative analysis for vibration impacts (within 120 feet of Alternative 2 components whose construction-related vibration could cause damage to structures); therefore, the analysis of cumulative

vibration impacts would be the same as that described for the proposed project, with the exception that for Alternative 5a, less construction would occur near an historic structure (CEMEX building), and that for Alternative 5b, no construction would occur adjacent to this structure, so cumulative impacts from construction vibration would be reduced compared to the proposed project. The components of Alternative 5 that would result in operational noise are the same as for the proposed project; therefore, the analysis of cumulative noise impacts during operation is the same as described in Section 4.12.6; no additional projects – including the GWR Project (No. 59 in **Table 4.1-2** in Section 4.1) – would include operational noise-generating components that would be within the geographic scope for operational noise impacts.

The geographic scope of analysis for cumulative noise impacts during construction is defined by the presence of sensitive receptors within 500 feet of components whose daytime construction noise could exceed speech interference thresholds or whose nighttime construction noise could exceed sleep interference thresholds. These include the Source Water Pipeline and the Subsurface Slant Wells.

Two additional cumulative projects described in **Table 4.1-2** in Section 4.1 would have the potential to combine with Alternative 5 to result in cumulative noise impacts: the DeepWater Desal Project (No. 34) and the GWR Project. 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) construction noise to combine with that of the DeepWater Desal and GWR projects to cause nighttime noise levels to exceed the sleep interference threshold. As described in the FEIR for the GWR Project, construction activities associated with the injection well facilities of the GWR Project, which would be located within 500 feet of the southern end of the new Transmission Main, would result in significant and unavoidable nighttime noise impacts even with implementation of adopted mitigation measures (MRWPCA, 2016). As a result, temporary cumulative increases in nighttime construction noise could result in a cumulatively significant nighttime noise impact that would be increased compared to Alternative 5, the DeepWater Desal Project, or the GWR Project alone, and would remain significant and unavoidable even with mitigation specified for each project. No additional mitigation within the scope of this EIR/EIS is available to further reduce the potential for a cumulatively significant nighttime noise impact. Therefore, nighttime construction noise of Alternative 5a and 5b could have a cumulatively considerable contribution to a significant and unavoidable cumulative impact.

Overall, Alternatives 5a and 5b would result in the ***same impact conclusion*** as the proposed project for cumulative effects related to noise, significant and unavoidable, even with mitigation.

5.5.12.9 References

Monterey Regional Water Pollution Control Agency (MRWPCA), 2016. *Consolidated Final Environmental Impact Report for the Pure Water Monterey Groundwater Replenishment Project.* Prepared by Denise Duffy and Associates, January 2016.

5.5.13 Public Services and Utilities

The evaluation criteria for Public Services and Utilities address: disruption or relocation of utilities; exceedance of wastewater treatment requirements; wastewater treatment and outfall capacity; landfill capacity and compliance with solid waste regulations; and corrosion of the existing MRWPCA outfall and diffuser.

5.5.13.1 Setting/Affected Environment

The general environmental setting and regulatory framework for the alternatives would be similar to the proposed project, which includes the public services, utilities, and local and state regulations that apply to Monterey County. As such, descriptions of the environmental setting and regulatory framework for public services and utilities are provided in Section 4.13 and are not repeated in this section.

5.5.13.2 Direct and Indirect Effects of Proposed Project (Slant Wells at CEMEX)

Impact 4.13-1: Disrupt or relocate regional or local utilities during construction.

Proposed project construction, including trenching, excavation, and pipeline installation, could damage or interfere with existing water, sewer, stormwater drainage, natural gas, electric, or communication utility service lines. Construction could require the permanent relocation of these utility lines, potentially interrupting service. Accidental damage to utility lines during construction could temporarily disrupt utility services and, in the case of high-risk utilities, could result in significant safety hazards for construction workers. This potentially significant impact would be reduced to a less-than-significant level with implementation of **Mitigation Measures 4.13-1a (Locate and Confirm Utility Lines)**, **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 construction contractor(s) to: confirm the location of existing utilities; work with utility service providers to minimize the risk of damage to existing utility lines and ensure prompt reconnection of service in the event of a service disruption; take special precautions when working near high-risk utility lines; clearly outline the procedures to follow in the event of a leak or explosion; and immediately notify local fire departments of any damage to high-risk utility lines. These mitigation measures would apply to all project components.

Impact 4.13-2: Exceed landfill capacity or be out of compliance with federal, state, and local statutes and regulations related to solid waste during construction.

Project construction would generate approximately 25,110 cubic yards total (37,665 tons), or up to 59 tons per day, of excess spoils and construction materials. Instead of being recycled, conservative analysis assumes that all excess spoils and construction debris would be disposed of at the Monterey Peninsula Landfill, which is permitted to receive 3,500 tons of waste per day and has an estimated remaining capacity of 48,560,000 cubic yards. The total amount of excess spoils

and construction debris generated by the project represents approximately 0.05 percent of the landfill's remaining capacity. Therefore, project construction waste would not exceed or substantially deplete the landfill capacity.

Failure to reuse or recycle excavation materials and other construction waste generated during MPWSP construction would conflict with the County's Integrated Waste Management Plan policies and could also adversely affect state-mandated diversion rates. This significant impact would be reduced to a less-than-significant level with implementation of **Mitigation Measure 4.13-2 (Construction Waste Reduction and Recycling Plan)**. This measure would require CalAm's construction contractor(s) to prepare and implement a plan to divert recoverable materials from landfills. This mitigation measure would apply to all project components.

Impact 4.13-3: Exceed landfill capacity or be out of compliance with federal, state, and local statutes and regulations related to solid waste during operations,

MPWSP Desalination Plant operations would generate approximately 5 cubic yards per day (7.5 tons) of solid waste that would be routinely disposed of at the Monterey Peninsula Landfill. There are no known opportunities for reusing or recycling these solids, but the landfill could accept the waste without exceeding its permitted daily tonnage or substantially depleting long-term capacity. Maintenance of the ASR Pump-to-Waste System would generate approximately 240 pounds (less than 1 ton) per year of sediment materials that would be taken to the Waste Management District's materials recovery facility for reuse or recycling. All other proposed facilities would have a very limited potential to generate waste. Impacts related to solid waste disposal and landfill capacity during operations and maintenance would be less than significant.

Impact 4.13-4: Exceed wastewater treatment requirements of the Central Coast RWQCB, or result in a determination by the wastewater treatment provider that it has inadequate treatment or outfall capacity to serve the project.

Brine generated by the MPWSP Desalination Plant would be discharged to Monterey Bay in MBNMS through the MRWPCA's existing ocean outfall and diffuser. Depending upon the season, brine could be discharged without dilution for extended periods, since treated wastewater is used for irrigation in the dry season. The *Waste Discharge Requirements for the Monterey Regional Water Pollution Control Agency Tre*atment Plant [Order No. R3-2014-0013, NPDES Permit No. CA0048551], which regulate discharges from the outfall, would be amended before the MPWSP Desalination Plant starts operating to incorporate the "brine only" and combined discharges. Both the "brine only" and the combined discharges would comply with Ocean Plan water quality objectives for all assessed constituents. However, certain constituent concentrations (as discussed in Section 4.3.5.2, Operational and Facility Siting Impacts), could become elevated to a level that is close to the Ocean Plan standard. Additionally, a compliance determination could not be made for ten individual constituents and consequently, it must be conservatively assumed that an exceedance of Ocean Plan water quality objectives could occur as a result of operational discharges. Exceedances of wastewater treatment requirements would be a significant impact. In addition to amending discharge requirements, **Mitigation Measures 4.3-4 (Operational Discharge Monitoring, Analysis, Reporting, and Compliance)** and **Mitigation Measure 4.3-5 (Implement Protocols to Avoid Exceeding Water Quality Objectives)** are prescribed to

monitor, report and reduce any water quality impacts associated with potential exceedances of the Ocean Plan water quality objective to a less-than-significant level.

Wastewater generated by 25 to 30 employees (approximately 750 gallons per day) at the MPWSP Desalination Plant would require treatment at the MRWPCA Regional Wastewater Treatment Plant. This volume would have a negligible impact on the MRWPCA treatment capacity of 29.6 mgd and discharge capacity of 81.2 mgd. None of the treatment processes at the MPWSP Desalination Plant site and none of the other proposed project facilities would generate wastewater during operations that would require treatment at the MRWPCA Regional Wastewater Treatment Plant. Therefore, project operations would not exceed wastewater treatment capacity and would have a less than significant impact on wastewater treatment capacity.

The MPWSP Desalination Plant would discharge approximately 14 mgd of brine through the MRWPCA outfall and diffuser, which have a physical discharge capacity of between 66.5 and 94.6 mgd and are permitted to discharge up to 81.2 mgd. Between 1998 and 2012, treated wastewater flows on average ranged from 19.78 mgd to 0.90 mgd, depending upon the irrigation season. Maximum instantaneous flows during the same time period ranged from 40.4 mgd to 59.9 mgd. Assuming full outfall capacity of 81.2 mgd, there would be sufficient capacity to accept the brine generated by the MPWSP Desalination Plant combined with maximum instantaneous flow. In case the volume of brine flows, plus maximum instantaneous wastewater flows during large storm events could exceed outfall and diffuser capacity, a 3-million-gallon brine storage basin has sufficient capacity to detain flows from approximately 6 hours of desalination plant operations. Therefore, the impact related to outfall capacity would be less than significant.

Impact 4.13-5: Increased corrosion of the MRWPCA outfall and diffuser as a result of brine discharges associated with project operations.

Turbulence might be expected to occur in the land segment of the outfall, the existing junction drop structure at the shoreline, and approximately the first 100 feet of the offshore pipeline. This turbulence could introduce oxygen into the system and increase the potential for corrosion, which is considered a significant impact. The impact would be reduced to a level that is less than significant with implementation of **Mitigation Measures 4.13-5a (Installation of Protective Lining, Periodic Inspections, and As-Needed Repairs for Offshore Segment of MRWPCA Ocean Outfall),** which requires the application of a protective epoxy coating along the junction box and first 100 feet of the offshore outfall pipeline and periodic inspections of the outfall thereafter, and **4.13-5b (Assess Land Segment of MRWPCA Ocean Outfall and Install Protective Lining, If Needed)**, which requires assessment of the full length land segment and, if needed, the phased application of a protective epoxy coating along all or part of the 13,000-foot-long land segment.

Impact 4.13-C: Cumulative impacts related to public services and utilities.

Cumulative effects related to utility relocation or disruption and to landfill capacity during proposed project construction could be significant since all cumulative projects involving future construction would be applicable, but the proposed project's potentially significant contribution to this impact would be reduced to a less-than-significant level with implementation of mitigation

measures identified in Impacts 4.13-1 and 4.13-2. Proposed project operations would not have a cumulatively considerable contribution to cumulative landfill capacity impacts since operational wastes would have a relatively small effect on daily and absolute landfill receiving capacity. Cumulative effects on effluent flows that could exceed wastewater treatment requirements could be significant, but the proposed project's contribution to this impact would be reduced to a less-than-significant level with implementation of mitigation measures in Impact 4.13-4. Similarly, although cumulative impacts related to corrosion of the MRWPCA outfall and diffuser could be significant, implementation of the mitigation measures identified in Impact 4.13-5 would reduce the proposed project's potentially considerable contribution to cumulative corrosion impacts to less than significant.

5.5.13.3 Direct and Indirect Effects of No Project Alternative

Under the No Project Alternative, no new facilities would be constructed. Consequently, there would be no ground disturbance or placement of new structures that could affect public services or utilities, and therefore, no construction- or operation-related direct or indirect impacts to public services or utilities associated with the No Project Alternative. Because the No Project Alternative would have no direct or indirect impacts with respect to public services and utilities, it could not contribute to cumulative effects related to these topics.

5.5.13.4 Direct and Indirect Effects of Alternative 1 – Slant Wells at Potrero Road

Alternative 1 would supply seawater to the proposed 9.6 mgd desalination plant located at the Charles Benson Road site using the same type of subsurface intake system as the proposed project, but at a different location (described in Section 5.4.3). The desalination plant, brine discharge pipeline, Castroville Pipeline, Pipeline to CSIP Pond, new Desalinated Water Pipeline, new Transmission Main, Terminal Reservoir, ASR components, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be identical to the proposed project described in Chapter 3, Description of the Proposed Project. The location of the slant wells at Potrero Road and the additional 5.5 miles of source water pipeline are the components unique to Alternative 1 (see **Figure 5.4-1**). Therefore, the utilities impact analysis of Alternative 1 focuses primarily on the locations for the intake system and source water pipelines that are different from the proposed project; however, impact conclusions are made for the whole of Alternative 1.

Construction Impacts

Construction of the additional 5.5 miles of source water pipeline in Alternative 1 could result in an increased potential for disruption or relocation of regional or local utilities compared to the proposed project. The potential significant impact would be reduced to a less-than-significant level with implementation of **Mitigation Measures 4.13-1a** (**Locate and Confirm Utility Lines**), **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**). Therefore, combining the impacts of the components common with the proposed project and the addition of 5.5 miles of source water pipeline,

Alternative 1 construction effects on regional or local utilities would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

The additional length of the Alternative 1 source water pipeline would generate slightly more solid waste during construction compared to the proposed project. However, the increased amount would not exceed landfill capacity. As discussed in Section 4.13.2, Regulatory Framework, state and county waste diversion regulations require that specific portions of construction waste be recycled and diverted from landfill. Failure to comply with waste diversion regulations would be a significant impact that would be reduced to a less-than-significant level with implementation of **Mitigation Measure 4.13-2** (**Construction Waste Reduction and Recycling Plan**). Therefore, combining the impacts of the components common with the proposed project with the additional 5.5 miles of source water pipeline, Alternative 1 construction effects on landfill capacity or solid waste regulations would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Operational and Facility Siting Impacts

No components unique to Alternative 1 would create waste during operations. All components that generate operational wastes would be the same as the proposed project. Therefore, Alternative 1 operational effects on landfill capacity or solid waste regulations would result in the ***same impact conclusion*** as the proposed project, less than significant.

Alternative 1 would use the same outfall and desalination plant as the proposed project; therefore, "brine only" and combined discharges would be the same as the proposed project, resulting in the same potentially significant impacts related to wastewater treatment requirements of the RWQCB as those under the proposed project. Implementation of **Mitigation Measures 4.3-4** (**Operational Discharge Monitoring, Analysis, Reporting, and Compliance**) and **4.3-5** (**Implement Protocols to Avoid Exceeding Water Quality Objectives**) would reduce impacts to a less-than-significant level. In addition, Alternative 1 would generate the same volume of brine, approximately 14 mgd, and the same amount of wastewater during operations as the proposed project, which would not exceed wastewater treatment and outfall capacity, resulting in a less-than-significant impact. Therefore, Alternative 1 operational effects on wastewater treatment requirements would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Brine in Alternative 1 would have the same salinity levels as the proposed project, resulting in the same potentially significant impact from increase in corrosion of the MRWPCA outfall and diffuser. Implementation of **Mitigation Measures 4.13-5a** (**Installation of Protective Lining, Periodic Inspections, and As-Needed Repairs for Offshore Segment of MRWPCA Ocean Outfall**) and **4.13-5b** (**Assess Land Segment of MRWPCA Ocean Outfall and Install Protective Lining, If Needed**) would reduce significant impacts to a less-than-significant level. Therefore, Alternative 1 operation would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Cumulative Analysis

The geographic scope of analysis for cumulative impacts related to utilities for Alternative 1 is defined by the location of Alternative 1 components, and is the same as that described for the proposed project in Section 4.13.6, with exception of the different location of the seawater intake system and alternative source water pipeline route. The cumulative scenario for Alternative 1 includes the projects in **Table 4.1-2** in Section 4.1 that have the potential to disrupt utilities during construction and generate waste during construction and operations. That would include the majority of the projects, including the DeepWater Desal project (No. 34). The RUWAP Recycled Water Project (No. 35) and the RUWAP Desalination Element (No. 31) are included since each has the potential to impact MRWPCA outfall capacity, outfall quality as it relates to corrosion of the outfall pipe, and wastewater treatment requirements. The impacts from construction and operation of Alternative 1 would be the same as those described for the proposed project, and have the potential to be cumulatively considerable. With implementation of mitigation measures described above, Alternative 1 would not have a cumulatively considerable contribution to significant cumulative impacts. Therefore, Alternative 1 would result in the ***same impact conclusion*** as the proposed project for cumulative effects related to utilities, less than significant with mitigation.

5.5.13.5 Direct and Indirect Effects of Alternative 2 – Open-Water Intake at Moss Landing

Alternative 2 would supply seawater to the proposed 9.6 mgd desalination plant located at the Charles Benson Road site using a screened open-water intake system consisting of an intake structure located offshore in MBNMS and southwest of the Moss Landing Harbor entrance, a subsurface intake pipeline, and an intake pump station (described in Section 5.4.4). The desalination plant, brine discharge pipeline, new Desalinated Water Pipeline, new Transmission Main, Terminal Reservoir, ASR components, Highway 68 interconnection improvements, and the Carmel Valley Pump Station would be identical to the proposed project described in Chapter 3, Description of the Proposed Project. Because the open water intake would eliminate the need for returning source water drawn from the Salinas Valley Groundwater Basin, the Castroville Pipeline, the Pipeline to CSIP Pond, and operational components related to delivering water to CCSD would not be implemented. The open water intake system and the additional 6.5 miles of source water pipeline are the components unique to Alternative 2 (see **Figure 5.4-2**). Therefore, the utilities impact analysis of Alternative 2 focuses primarily on the locations for the intake system and source water pipelines that are different from the proposed project; however, impact conclusions are made for the whole of Alternative 2.

Construction Impacts

Construction of the additional 6.5 miles of source water pipeline in Alternative 2 could result in an increased potential for disruption or relocation of regional or local utilities compared to the proposed project. The potential significant impact would be reduced to a less-than-significant level with implementation of **Mitigation Measures 4.13-1a** (**Locate and Confirm Utility Lines**), **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**). Therefore, combining the impacts of the components common with the proposed project and the additional 6.5 miles of source water pipeline, Alternative 2 construction effects on regional or local utilities would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

The additional length of the Alternative 2 source water pipeline would generate slightly more solid waste during construction compared to the proposed project. However, the increased amount would not exceed landfill capacity. Since compliance with solid waste diversion rates are required by state and county regulation, failure to comply with such regulations would be a significant impact that would be reduced to a less-than-significant level with implementation of **Mitigation Measure 4.13-2** (**Construction Waste Reduction and Recycling Plan**). Therefore combining the impacts of the components common with the proposed project with the additional 6.5 miles of the source water pipeline, Alternative 2 construction effects on landfill capacity or solid waste requirements would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Operational and Facility Siting Impacts

No components north of the Salinas River would create waste during operations. All components that generate operational wastes south of the Salinas River would be the same as the proposed project. Therefore, Alternative 2 operational effects on landfill capacity and solid waste requirements would result in the ***same impact conclusion*** as the proposed project, less than significant.

Alternative 2 would use the same outfall and desalination plant as the proposed project; therefore, it would have the same impact on wastewater treatment requirements and MRWPCA treatment and outfall capacity as Alternative 1 and the proposed project. The potentially significant impacts on wastewater treatment requirements of the RWQCB would be reduced to a less-than-significant level with implementation of **Mitigation Measures 4.3-4** (**Operational Discharge Monitoring, Analysis, Reporting, and Compliance**) and **4.3-5** (**Implement Protocols to Avoid Exceeding Water Quality Objectives**). Similar to the proposed project, impacts on treatment and outfall capacity would be less than significant. Therefore, Alternative 2 operational effects on wastewater treatment requirements would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Alternative 2 would result in the same potentially significant corrosive impact on the MRWPCA outfall and diffuser as Alternative 1 and the proposed project. Implementation of **Mitigation Measures 4.13-5a** (**Installation of Protective Lining, Periodic Inspections, and As-Needed Repairs for Offshore Segment of MRWPCA Ocean Outfall**) and **4.13-5b** (**Assess Land Segment of MRWPCA Ocean Outfall and Install Protective Lining, If Needed**) would reduce the brine corrosion impact on the MRWPCA outfall lining and diffuser to less than significant. Therefore, Alternative 2 operations would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Cumulative Analysis

The geographic scope of analysis for cumulative utility impacts for Alternative 2 is defined by the location of the Alternative 2 components, and is the same as that described for the proposed project in Section 4.13.6, with exception that the Castroville Pipeline and Pipeline to CSIP are not included, as well as the different location of the open water intake system and alternative source water pipeline. The cumulative scenario for Alternative 2 includes the projects in **Table 4.1-2** in Section 4.1 that have the potential to disrupt utilities during construction and generate waste during construction and operations. That would include the majority of the projects, including the DeepWater Desal project (No. 34). The RUWAP Recycled Water Project (No. 35) and the RUWAP Desalination Element (No. 31) are included since each has the potential to impact MRWPCA outfall capacity, outfall quality as it relates to corrosion of the outfall pipe, and wastewater treatment requirements. The impacts from construction and operation of Alternative 2 would be the same as those described for the proposed project, and have the potential to be cumulatively considerable. With implementation of mitigation measures described above, Alternative 2 would not have a cumulatively considerable contribution to significant cumulative impacts. Therefore, Alternative 2 would result in the ***same impact conclusion*** as the proposed project for cumulative effects related to utilities, less than significant with mitigation.

5.5.13.6 Direct and Indirect Effects of Alternative 3 – Monterey Bay Regional Water Project (MBRWP or DeepWater Desal Project)

Alternative 3 includes the construction and operation of a screened open ocean intake system and a brine discharge system located on the seafloor in Monterey Bay within MBNMS, subsurface pipelines connecting to these intake and discharge systems, a seawater desalination facility and co-located data center, and associated components to provide up to 25,000 afy of potable water and data transmission and storage services. The pipelines for the intake and discharge systems would be installed using HDD. The alternative would also include 6.5 miles of desalinated water pipeline to connect with the CalAm system and up to an additional 25 miles of pipelines to convey the desalinated water to other areas (total of 31.5 miles of additional pipeline). Several components would be identical to the proposed project: the new Transmission Main, new desalinated water pipeline south of the “Connection to CalAm” Point on **Figure 5.4-3**, ASR-5 and -6 wells and ASR pipeline, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be as described in Chapter 3, Description of the Proposed Project. Because this alternative would have an open water intake that would eliminate the need for returning source water drawn from the Salinas Valley Groundwater Basin, the proposed project Castroville Pipeline, Pipeline to CSIP Pond, and operational components related to delivering water to CCSD would not be implemented. The desalination plant and data center, open water intake system, brine discharge system, and the additional 31.5 miles of desalinated water pipeline are the components unique to Alternative 3 (see **Figure 5.4-3**). Therefore, the utility impact analysis of Alternative 3 focuses primarily on these components; however, impact conclusions are made for the whole of Alternative 3.

Construction Impacts

Construction of Alternative 3 would result in an increased potential for disruption or relocation of regional or local utilities compared to the proposed project. The potential significant impact would be reduced to a less than significant level with implementation of **Mitigation Measures 4.13-1a** (**Locate and Confirm Utility Lines**), **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**). Therefore, combining the impacts of the components common with the proposed project and the additional components, construction effects on regional or local utilities would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

While the exact volume is unknown at this time, Alternative 3 would generate more construction solid waste than the proposed project due to the additional length of required pipelines, construction of intake and discharge conveyance, and larger construction footprint of the desalination plant, data center, and substation. However, the additional amount would be unlikely to cause landfill capacity to be exceeded. In addition, state and county waste diversion regulations require that specific portions of construction waste be recycled and diverted from landfill. Failure to comply with waste diversion regulations would be a significant impact that would be reduced to a less-than-significant level with implementation of proposed project **Mitigation Measure 4.13-2** (**Construction Waste Reduction and Recycling Plan**). Therefore, combining the impacts of the components common with the proposed project and those unique to Alternative 3, construction effects on landfill capacity or compliance with solid waste requirements would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Operational and Facility Siting Impacts

Operation of the Alternative 3 desalination plant would generate approximately 8.5 tons per day of dried sludge or cake, compared to the 7.5 tons for the MPWSP Desalination Plant. Maintenance of ASR Pump-to-Waste System, common with the proposed project, would generate approximately 240 pounds per year of operational waste. The additional cake volume from this alternative would not exceed landfill capacity or be out of compliance with federal, state, and local regulations related to solid waste during operations. Therefore, combining the impacts of the components common to the proposed project and the DeepWater desalination plant, Alternative 3 operational effects on landfill capacity or solid waste regulations would result in the ***same impact conclusion*** as the proposed project, less than significant.

Alternative 3 would not discharge brine to a wastewater treatment utility; therefore, brine discharges would have no impact to the MRWPCA's wastewater treatment requirements or outfall capacity. Employees would generate approximately 1,150 gpd of wastewater. Peak flows associated with the discharge of water from the closed-loop cooling system would be expected to occur less than a day per year and would be approximately 588,000 gallons per day. Such wastewater flows would be conveyed to the Castroville Sanitary District sanitary sewer system, which feeds into the MRWPCA wastewater treatment facility and would have a negligible impact on the MRWPCA discharge capacity of 81.2 mgd. Therefore, combining the impacts of the

components common with the proposed project and those unique to Alternative 3, operational effects would result in a decreased level of impact on wastewater treatment requirements (no impact); an increased level of impact on wastewater treatment capacity (less than significant); and a decreased level of impact on outfall capacity (less than significant). Overall, Alternative 3 would result in a ***reduced impact conclusion*** as the proposed project, less than significant.

Alternative 3 would not discharge brine to the MRWPCA outfall; therefore, operational effects related to corrosion of the outfall would result in a ***reduced impact conclusion*** compared to the proposed project, no impact.

Cumulative Analysis

The geographic scope of analysis for cumulative utilities impacts for Alternative 3 is defined by the location of the Alternative 3 components. The cumulative scenario for Alternative 3 includes the projects in **Table 4.1-2** in Section 4.1 that have the potential to disrupt utilities during construction and generate waste during construction and operations. That would include the majority of the projects, including the GWR Project (No. 59). Unlike for the proposed project and Alternatives 1 and 2, the RUWAP projects would not be relevant to the operational cumulative scenario since they would not share a wastewater/brine discharge outfall with Alternative 3.

Impacts from construction of Alternative 3 would be similar to those described for the proposed project, and have the potential to be cumulatively considerable in light of the potentially significant cumulative impacts of multiple simultaneous projects on regional or local utilities and landfill capacity and solid waste regulations. However, with implementation of mitigation measures described above, the contributions of Alternative 3 to significant cumulative impacts would be reduced to a level that would not be cumulatively considerable because the potential for disruption of utilities would be reduced to the extent feasible and the likelihood of overlapping impacts would be minimized, and because Alternative 3 would comply with applicable solid waste regulations, reducing its construction and demolition waste to the extent feasible and required by such regulations. Impacts of Alternative 3 associated with operational wastes would be the same as the proposed project and would not have a cumulatively considerable contribution to a significant cumulative impact on landfill capacity or solid waste regulations. Operation of Alternative 3 would result in negligible impacts on a wastewater treatment utility due to wastewater volume, and would not contribute to cumulative impacts on wastewater treatment requirements or corrosion of the MRWPCA outfall and diffuser. Therefore, Alternative 3 would have the ***same impact conclusion*** as the proposed project for cumulative effects related to utilities, less than significant with mitigation.

5.5.13.7 Direct and Indirect Effects of Alternative 4 – People's Moss Landing Water Desalination Project (People's Project)

Alternative 4 includes the construction and operation of an open ocean intake, a brine discharge system and pipelines, and supporting ballast rock located on the seafloor in Monterey Bay within MBNMS, as well as a 12 mgd desalination plant and associated facilities to provide 13,400 afy of water supply to meet the current and future needs of the Monterey Peninsula. Several components would be identical to the proposed project: the new Transmission Main, new desalinated water

pipeline south of the "Connection to CalAm" Point on **Figure 5.4-4**, ASR-5 and -6 wells and ASR pipeline, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be as described in Chapter 3, Description of the Proposed Project. Because this alternative would have an open water intake that would eliminate the need for returning source water drawn from the Salinas Valley Groundwater Basin, the proposed project Castroville Pipeline, Pipeline to CSIP Pond, and operational components related to delivering water to CCSD would not be implemented. The desalination plant, open water intake system, brine discharge system, and the additional 6.5 miles of desalinated water pipeline are the components unique to Alternative 4 (see **Figure 5.4-4**). Therefore, the utilities impact analysis of Alternative 4 focuses primarily on these components; however, impact conclusions are made for the whole of Alternative 4.

Construction Impacts

Construction of Alternative 4 could result in an increased potential for disruption or relocation of regional or local utilities compared to the proposed project associated with the additional desalinated water pipeline alignment. In particular, to rehabilitate the outfall/diffuser system at the caisson, service to the MLML, Phil's Fish Market, sea lion facilities, and MBARI could be disrupted since these entities draw seawater from two 8-inch intakes that are installed within the outfall/diffuser system. To ensure there would be no disruption in service to these customers during rehabilitation and to avoid a potentially significant impact, Alternative 4 would be required to implement **Mitigation Measures 4.13-1a** (**Locate and Confirm Utility Lines**), **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**). Therefore, combining the impacts of the components common with the proposed project and those unique to Alternative 4, construction effects on regional or local utilities would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Solid waste from construction of Alternative 4 would be approximately 93,250 cy, which is more than three times the volume for the proposed project. The proposed project conservatively assumes that all excess solid waste and construction debris would be disposed at the Monterey Peninsula Landfill, which has an estimated remaining capacity of 48,560,000 cubic yards. The total amount of excess solid waste and construction debris generated by the MPWSP represents approximately 0.06 percent of the landfill's remaining capacity, while disposal of the Alternative 4 solid waste would represent approximately 0.1 percent. In addition, state and county waste diversion regulations require that construction waste be recycled and diverted from landfill at specific levels. Failure to comply with waste diversion regulations would be a significant impact. Alternative 4 would result in an increased potential for a significant impact on landfill capacity during construction compared to the proposed project, if wastes are not diverted. Implementation of **Mitigation Measure 4.13-2** (**Construction Waste Reduction and Recycling Plan**) would reduce impact on landfill capacity to less than significant. Therefore, combining the impacts of the components common with the proposed project and those unique to Alternative 4, construction effects on landfill capacity or compliance with solid waste requirements would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Operational and Facility Siting Impacts

Operation of the Alternative 4 desalination plant would generate approximately 2 tons per day of cake, compared to 7.5 tons per day by the MPWSP Desalination Plant. Therefore, Alternative 4 would have a decreased level of impact on landfill capacity during operations compared to the proposed project. Combining the impacts of the components common to the proposed project and the Alternative 4 desalination plant, operational effects on landfill capacity and compliance with solid waste regulations would result in the ***same impact conclusion*** as the proposed project, less than significant.

Alternative 4 would not discharge brine to a wastewater treatment utility; therefore, brine discharges would have no impact to the MRWPCA's wastewater treatment requirements or outfall capacity. Operation of Alternative 4 would generate approximately 74,500 gpd of wastewater discharge to the Castroville Sanitary District sanitary sewer system, which feeds into the MRWPCA wastewater treatment facility. Such wastewater volumes would have a negligible impact on the MRWPCA discharge capacity of 81.2 mgd. Therefore, combining the impacts of the components common with the proposed project and those unique to Alternative 4, operational effects would result in a decreased level of impact on wastewater treatment requirements (no impact); an increased level of impact on wastewater treatment capacity (less than significant); and a decreased level of impact on outfall capacity (less than significant). Overall, Alternative 4 would result in a ***reduced impact conclusion*** compared to the proposed project, less than significant.

Alternative 4 would not discharge brine to the MRWPCA outfall; therefore, operational effects related to corrosion of the outfall would result in a ***reduced impact conclusion*** compared to the proposed project, no impact.

Cumulative Analysis

The geographic scope of analysis for cumulative utility impacts for Alternative 4 is defined by the location of the Alternative 4 components. The cumulative scenario for Alternative 4 includes the projects in **Table 4.1-2** in Section 4.1 that have the potential to disrupt utilities during construction and generate waste during construction and operations. That would include the majority of the projects, including the DeepWater Desal Project (No. 34). Unlike the proposed project and Alternatives 1 and 2, the RUWAP projects would not be relevant to the operational cumulative scenario since they would not share a wastewater/brine discharge outfall with Alternative 4. Unlike Alternative 3, the GWR Project (No. 59) is not relevant to the operational cumulative scenario for Alternative 4 because Alternative 4 would serve all of CalAm's Monterey District demand.

Impacts from construction of Alternative 4 would be similar to those described for the proposed project, and have the potential to be cumulatively considerable in light of the potentially significant cumulative impacts of multiple simultaneous projects on regional or local utilities and landfill capacity and solid waste regulations. However, with implementation of mitigation measures described above, the contributions of Alternative 4 to significant cumulative impacts would be reduced to a level that would not be cumulatively considerable because the potential for disruption of utilities would be reduced to the extent feasible and the likelihood of overlapping

impacts would be minimized, and because Alternative 4 would comply with applicable solid waste regulations, reducing its construction and demolition waste to the extent feasible and required by such regulations. Impacts of Alternative 4 associated with operational wastes would be the similar to the proposed project and not have a cumulatively considerable contribution to a significant cumulative impact on landfill capacity or compliance with solid waste regulations. Operation of Alternative 4 would result in negligible impacts on a wastewater treatment utility due to wastewater volume, and would not contribute to cumulative impacts on wastewater treatment requirements or corrosion of the MRWPCA outfall and diffuser. Therefore, Alternative 4 would have the ***same impact conclusion*** as the proposed project for cumulative effects related to utilities, less than significant with mitigation.

5.5.13.8 Direct and Indirect Effects of Alternative 5 – Reduced Desal Project 5a (CEMEX) and 5b (Potrero Road)

Alternative 5a would include the seawater intake system at the CEMEX site (the same location as the proposed project), but would include only seven subsurface slant wells (the converted test well and six new wells) and the same source water pipeline as the proposed project. Alternative 5b would include seven new wells at the western end of Potrero Road (the same location as Alternative 1) and the same source water pipeline as Alternative 1. Both Alternatives 5a and 5b would include a reduced-capacity desalination plant (6.4 mgd), and all other components would be the same as the proposed project.

Construction Impacts

Construction of Alternatives 5a and 5b would have the same potential for disruption or relocation of regional or local utilities as the proposed project. The potentially significant impact would be reduced to a less-than-significant level with implementation of **Mitigation Measures 4.13-1a** (**Locate and Confirm Utility Lines**), **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**). Therefore, construction of Alternatives 5a and 5b would result in the ***same impact conclusion*** as the proposed project regarding regional or local utilities, less than significant with mitigation.

Besides constructing fewer slant wells and a smaller capacity desalination plant, Alternative 5a would not result in changes to other proposed project components and would produce a similar volume of construction waste. Alternative 5b would result in a higher volume of construction waste due to the increased length of source water pipeline, but like Alternative 1, would not exceed landfill capacity. Therefore, Alternative 5a would have a similar level of impact on landfill capacity and Alternative 5b would have a slightly increased level of impact on landfill capacity compared to the proposed project. Failing to divert a substantial portion of construction waste could conflict with solid waste regulations, which would be a significant impact. Implementation of **Mitigation Measure 4.13-2** (**Construction Waste Reduction and Recycling Plan**) would reduce impacts related to landfill capacity and compliance with solid waste regulations to less than significant by ensuring that construction waste is reduced and recycled to the extent feasible in compliance with such regulations. Therefore, construction of Alternatives 5a

and 5b would result in the ***same impact conclusion*** as the proposed project regarding landfill capacity and compliance with solid waste regulations, less than significant with mitigation.

Operational and Facility Siting Impacts

Alternatives 5a and 5b would operate the proposed MPWSP desalination plant and ASR Pump-to-Waste System, which are the only features expected to generate waste during operation. The volume of cake would be reduced under Alternatives 5a and 5b compared to the proposed project due to the reduced-capacity desalination plant. Therefore, operation of Alternatives 5a and 5b would result in the ***same impact conclusion*** as the proposed project regarding landfill capacity, less than significant.

Wastewater flows generated by the employees in Alternatives 5a and 5b would be the same as the proposed project. Alternatives 5a and 5b would operate a reduced-capacity desalination plant compared to the proposed project, which would produce reduced volumes of brine relative to the proposed project. Therefore, Alternatives 5a and 5b would have a decreased level of impact on the MRWPCA outfall capacity compared the proposed project. However, the same MRWPCA outfall would be used, and the "brine only" and combined discharges would be of the same quality as the proposed project. Therefore, Alternatives 5a and 5b would have the same level of impact related to wastewater treatment requirements as the proposed project. Potentially significant impacts related to exceedances of wastewater treatment requirements would be reduced to a less-than-significant level with implementation of **Mitigation Measures 4.3-4** (**Operational Discharge Monitoring, Analysis, Reporting, and Compliance**) and **4.3-5** (**Implement Protocols to Avoid Exceeding Water Quality Objectives**). Therefore, Alternatives 5a and 5b would result in the ***same impact conclusion*** as the proposed project regarding wastewater treatment requirements, less than significant with mitigation.

Because Alternatives 5a would draw water from the same location as the proposed project and since Alternative 5b would draw water from an aquifer that contains salt water (same location as Alternative 1), brine generated by Alternatives 5a and 5b would result in the same or similar salinity levels as the proposed project. Like the proposed project and Alternative 1, Alternatives 5a and 5b would utilize the MRWPCA outfall and diffuser. Therefore, Alternatives 5a and 5b would have the same level of impact as the proposed project, resulting in potentially significant impacts on the outfall lining and diffuser, which would be reduced to a less-than-significant level with implementation of **Mitigation Measures 4.13-5a** (**Installation of Protective Lining, Periodic Inspections, and As-Needed Repairs for Offshore Segment of MRWPCA Ocean Outfall**) and **4.13-5b** (**Assess Land Segment of MRWPCA Ocean Outfall and Install Protective Lining, If Needed**). Therefore, Alternatives 5a and 5b would result in the ***same impact conclusion*** as the proposed project regarding corrosion of the MRWPCA outfall, less than significant with mitigation.

Cumulative Analysis

Combined Impacts with GWR Project

The GWR Project would produce approximately 35,000 cubic yards (11,700 tons) of excess construction and demolition waste, or about 30 tons per day (MRWPCA, 2016). If construction were to overlap, combined with the 59 tons per day from Alternative 5a or 5b, the approximately 90 tons per day of waste would not exceed or substantially deplete the landfill capacity, and the combined projects would have the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

During operations, the GWR Project could produce up to 800 lbs/day (less than 1 ton per day) of solid wet waste requiring disposal in a landfill. However, as stated above, the volume of solid waste generated by Alternative 5a or 5b would be reduced compared to the proposed project, balancing out this increase in the combined scenario with the GWR Project. Therefore, the combined operational wastes would result in the ***same impact conclusion*** as the proposed project regarding landfill capacity, less than significant.

Impacts on wastewater treatment requirements from the operational brine stream in Alternatives 5a and 5b would be the same as the proposed project. The addition of GWR Project effluent (analyzed in Section 5.5.3.8) would reduce the volume of treated effluent that would be available to combine with brine flows, but the combined discharges would be of the same quality as analyzed under the proposed project and may result in a significant impact with respect to both wastewater treatment requirements and corrosion of the MRWPCA outfall. With implementation of **Mitigation Measures 4.3-4**, **4.3-5**, **4.13-5a**, and **4.13-5b**, impacts would be reduced to less than significant. Combined impacts on outfall capacity would be less than significant. Therefore, Alternatives 5a and 5b in combination with the GWR Project would result in the ***same impact conclusion*** as the proposed project regarding wastewater treatment requirements and corrosion of the MRWPCA outfall, less than significant with mitigation.

Impacts of Full Cumulative Scenario

The geographic scope of analysis for cumulative utility impacts for Alternatives 5a and 5b is the same as that for the proposed project and Alternative 1. The cumulative scenario for Alternatives 5a and 5b includes the projects in **Table 4.1-2** in Section 4.1 that have the potential to disrupt utilities during construction and generate waste during construction and operations. That would include the majority of the projects, including the DeepWater Desal project (No. 34) and the GWR Project. The RUWAP Recycled Water Project (No. 35) and the RUWAP Desalination Element (No. 31) are included since each has the potential to impact MRWPCA outfall capacity, outfall quality as it relates to corrosion of the outfall pipe, and wastewater treatment requirements.

Cumulative impacts from construction of Alternatives 5a and 5b would be similar to those described for the proposed project, which has the potential to result in cumulatively considerable impacts regarding regional and local utilities and landfill capacity. With implementation of mitigation measures described above, Alternatives 5a and 5b would not have a cumulatively considerable contribution to significant cumulative impacts for the same reasons described for the proposed project in Section 4.13.6.

Impacts from operation of Alternatives 5a and 5b related to landfill capacity and compliance with solid waste regulations would be the same as those described for the proposed project and, with mitigation, would not have a cumulatively considerable contribution to significant cumulative impacts on landfill capacity.

Because Alternatives 5a and 5b would have a reduced desalination plant capacity, they would have a reduced impact on MRWPCA outfall capacity compared to the proposed project. Combined with the effects of the RUWAP Recycled Water Element and the GWR Project, the impact on MRWPCA outfall capacity would be reduced compared to the cumulative scenario for the proposed project due to the increased volume of wastewater effluent that would be recycled instead of discharged through the outfall. Therefore, no significant cumulative impact on outfall capacity would occur. Cumulative impacts from the brine's potential to corrode the MRWPCA outfall in Alternatives 5a and 5b would be the same as described for the proposed project, and with implementation of mitigation measures described above, Alternatives 5a and 5b would not have a cumulatively considerable contribution to significant cumulative impacts. Overall, Alternatives 5a and 5b would result in the ***same impact conclusion*** as the proposed project for cumulative effects related to utilities, less than significant with mitigation.

5.5.13.9 References

Monterey Regional Water Pollution Control Agency (MRWPCA), 2016. *Consolidated Final Environmental Impact Report for the Pure Water Monterey Groundwater Replenishment Project.* Prepared by Denise Duffy and Associates, January 2016.

5.5.14 Aesthetic Resources

The evaluation criteria for Aesthetics address: construction-related impacts on scenic resources or the visual character of the project area and surroundings, temporary sources of light or glare during construction, permanent impacts on scenic resources or the visual character of the project area and surroundings, and permanent sources of light or glare.

5.5.14.1 Setting/Affected Environment

The components of the alternatives that are common to the proposed project are located south of the Nashua Road/Highway 1 intersection and the setting/affected environment for those facilities is described in Section 4.14.2, Setting/Affected Environment. The setting for the components north of the Nashua Road/Highway 1 intersection is presented below.

Pipeline Alignments North of Nashua Road/Highway 1 Intersection

North and west of the Nashua Road/Highway 1 intersection, pipeline alignments for all Alternatives could extend within or alongside segments of Molera Road, Highway 1, Potrero Road, and Dolan Road, in unincorporated Monterey County. These alignments occur within the Agricultural and Urban and Built-up landscape units (see Section 4.14.2 for definitions of these units). There are no designated scenic corridors in the vicinity of these pipeline alignments.

The aesthetic character of the areas south of Moro Cojo Slough is predominantly agricultural, defined by two-lane roads bisecting mostly flat agricultural lands where row crops extend towards the horizon. In the vicinity of Moro Cojo slough, the aesthetic character is more scenic, defined by open views of the broad meandering slough channel, undeveloped grass- and marshlands extending out from the channel edge, and mature vegetation and mixed development visible in the distance. Within Moss Landing, the aesthetic character is defined by Moss Landing Harbor and the industrial Moss Landing Green Commercial Park and Moss Landing Power Plant, views of which are partially obscured by vegetated berms, mature vegetation, and opaque fencing. East of Moss Landing, along Dolan Road, the aesthetic character returns to one that is predominantly agricultural, defined by expanses of undeveloped grasslands and row crops, interspersed with residential and light industrial developments.

Sources of nighttime lighting and glare include residential developments near the Potrero Road/Highway 1 intersection, commercial and industrial development near the Dolan Road/Highway 1 intersection, commercial and institutional developments within Moss Landing Harbor, and headlights from vehicles traveling along area roads. Owing to intensive and largely inharmonious mix of land uses in the vicinity of the alignments, while also considering the broader natural context (e.g., Elkhorn Slough and the Pacific Coast), the visual quality is considered moderate. Given the existing land use patterns and highly modified landforms, the public's expectation for aesthetically pleasing views in the alignment area is limited; the visual sensitivity is, therefore, also considered moderate. Views of the alignments are generally limited to viewers in motion, such as motorists and cyclists traveling along area roads or the California Coastal Trail, and would be fleetingly visible. The landscape exposure is, therefore, considered low. For these reasons, the aesthetic resource value of the alignment area is considered moderate.

Potrero Road Parking Lot

The Potrero Road parking lot, which is the site of slant well construction in Alternative 1, is located approximately 0.4 mile west of Highway 1, within the Beaches and Coastal Dunes landscape unit. The aesthetic character of the Potrero Road parking lot is defined by the Old Salinas River channel and fringing marshes to the east and croplands beyond, and the gently rolling scrub-covered coastal dunes to the west. The nearest potential sources of nighttime lighting and glare are the homes along Laguna Place, approximately 0.25 mile to the east. Given its proximity to a vast expanse of mostly undeveloped coastal dunes and wetlands, and with consideration for its location within a state park, the site is considered to have high visual quality and high visual sensitivity. At the same time, views of the parking area are generally limited to park visitors approaching or within the parking lot. It is not visible from Highway 1 or the beach. Therefore, the site's landscape exposure is considered low. For these reasons, the aesthetic resource value is considered moderate.

Moss Landing Beach

The stretch of Moss Landing Beach in the vicinity of the Alternative 4 intake system, is located on the west side of Moss Landing's southern peninsula, approximately 250 feet west of Sandholdt Road, within the Beaches and Coastal Dunes landscape unit. The aesthetic character is defined by the narrow band of white sand beach, vegetated dunes, and Pacific Ocean to the west and south. The inland extent of the beach is flanked by revetment rock and a seawall; as well as various institutional, commercial, and marine-related industrial developments beyond. Given the types and extents of development along the beach, the aesthetic quality is considered moderate. The visual sensitivity is moderate because visitors to the area are likely drawn by and have expectations for scenic coastal views. However, views of the beach are limited to those on or immediately adjacent to the beach; it is not plainly visible from Highway 1 or other area roads. As such, the landscape exposure is low. For these reasons, the aesthetic resource value is considered moderate. Sources of nighttime lighting and glare include development fronting Sandholdt Road, along the back of the beach.

Moss Landing Green Commercial Park

The Moss Landing Green Commercial Park is located east of and adjacent to Highway 1, and south of Dolan Road and the Moss Landing Power Plant, within the Urban and Built-up landscape unit. Former home to the National Refractories & Minerals Corporation's magnesium production plant, the 200-acre site is highly degraded, characterized by a landscape denuded of all vegetation, and including a tank farm and various industrial warehouse buildings. Views of the site are generally limited to those from Highway 1 and Dolan Road, and are obscured by a vegetated earthen berm, mature vegetation, and opaque fencing. Given the site's industrial legacy and the public's lack of expectation for scenic resources, the site is considered to have a low visual quality and sensitivity. Similarly, given that views into the site are obscured by topography and vegetation, the landscape exposure is also low. For these reasons, the aesthetic resource value is considered low. Sources of nighttime lighting and glare include developments within Moss Landing and the Moss Landing Power Plant.

East Tank Farm Parcel

The East Tank Farm Parcel is located north of and adjacent to Dolan Road, approximately 2 miles east of Highway 1, within the Agricultural landscape unit. The aesthetic character of the site is defined by the large tracts of mostly-flat grasslands, coastal scrub, and marsh and slough, interspersed with various residential, agricultural, and industrial developments. Given its openness and relatively undeveloped character, while accounting for the varied types of developments existent, the site is considered to have a moderate visual quality. The public would have little expectation for scenic views in this area and so the visual sensitivity is considered low. Similarly, public views of the site are limited to those from motorists or cyclists traveling along Dolan Road, and so would be fleeting. Thus, the visual exposure is considered low. For these reasons, the aesthetic resource value of the East Tank Farm Parcel is considered low. Sources of nighttime light and glare in the site's vicinity are few and generally include distant developments and headlights from vehicles traveling along Dolan Road.

5.5.14.2 Direct and Indirect Effects of Proposed Project (Slant Wells at CEMEX)

The proposed project extends from Castroville in the north to the city of Carmel in the south (see **Figure 3-2)** and would include construction of a desalination plant on 25 acres along Charles Benson Road northeast of the City of Marina, up to nine new subsurface slant wells at the CEMEX active mining area, two new wells (ASR-5 and ASR-6) at the existing Seaside Groundwater Basin ASR system, the Carmel Valley Pump Station, and about 21 miles of water conveyance pipelines. The direct and indirect impacts of the proposed project are described in detail in Section 4.7.5.

Impact 4.14-1: Construction-related impacts on scenic resources (vistas, roadways, and designated scenic areas) or the visual character of the project area and its surroundings.

Construction equipment and machinery, spoils stockpiles, vegetation removal, and exposed earth associated with the implementation of many project components would be temporarily visible to motorists, bicyclists, pedestrians, and other observers such as nearby residents and park visitors. Some of these construction activities would be visible from Highways 1, 68, and 156, which are eligible for designation or officially designated as State Scenic Highways. These construction activities could disrupt the visual character of the surrounding areas. However, due to the temporary nature of these construction effects, and because work areas would be restored to their approximate pre-construction condition upon completion of construction, such impacts would be less than significant. Although mitigation is not required to reduce a significant impact under CEQA, this EIR/EIS recommends implementation of **Mitigation Measure 4.14-1 (Maintain Clean and Orderly Construction Sites)**.

Impact 4.14-2: Temporary sources of substantial light or glare during construction,

Project construction activities have the potential to introduce temporary sources of substantial light into the project area. This impact would be significant but mitigable for the subsurface slant wells and the ASR-5 and ASR-6 Wells, as well as for the Source Water Pipeline, Brine Discharge Pipeline, Pipeline to CSIP Pond, Castroville Pipeline, new Desalinated Water Pipeline, new

Transmission Main, and their corresponding optional alignments. Implementation of **Mitigation Measure 4.14-2 (Site-Specific Nighttime Lighting Measures)**, which requires site-specific construction lighting controls, would reduce the potential impacts of nighttime construction lighting to a less-than-significant level. No impacts related to nighttime lighting would result from construction of the ASR pipelines, Terminal Reservoir, Carmel Valley Pump Station, Ryan Ranch- Bishop Interconnection Improvements, and Main System-Hidden Hills Interconnection Improvements.

Impact 4.14-3: Permanent impacts on scenic resources (vistas, roadways, and designated scenic areas) or the visual character of the project area and its surroundings.

Permanent aboveground facilities proposed for the MPWSP could have an adverse impact on scenic resources or the existing visual character of facility sites within the project area. This impact would be significant but mitigable for the subsurface slant wells, ASR-5 and ASR-6 wells, and Terminal Reservoir. This impact would be reduced to a less-than-significant level with implementation of **Mitigation Measures 4.14-3a (Facility Design)** and **4.14-3b (Facility Screening)**, which require that CalAm design the facilities to avoid or minimize contrast with the surrounding setting and ensure the facilities are screened from public views to the extent feasible. Although mitigation is not required for the MPWSP Desalination Plant, or the Carmel Valley Pump Station, this EIR/EIS recommends implementation of **Mitigation Measures 4.14-3a (**and **4.14-3b** for all above-ground project components to further reduce potential aesthetic resources effects and facilitate compatibility of project design with the natural and built environment. No operational impacts related to scenic resources and visual character would result from below-ground facilities, including proposed pipelines and optional alignments.

Impact 4.14-4: Permanent new sources of light or glare.

Project operations would introduce permanent sources of substantial light into the project area. This impact would be significant but mitigable for the ASR injection/extraction wells, Terminal Reservoir, and the Carmel Valley Pump Station. Implementation of **Mitigation Measure 4.14-2 (Site-Specific Nighttime Lighting Measures)**, which requires site-specific lighting controls, would reduce the potential impacts of nighttime operations lighting to a less-than-significant level. Although such mitigation is not required for the MPWSP Desalination Plant or Terminal Reservoir, this EIR/EIS recommends implementation of **Mitigation Measure 4.14-2 (Site-Specific Nighttime Lighting Measures)** for all above-ground project components with permanent sources of nighttime lighting to further reduce potential light spillover and dark night skies impacts. No operational impacts related to nighttime lighting would result from below-ground facilities, including proposed pipelines and optional alignments.

Impact 4.14-C: Cumulative impacts related to aesthetic resources.

Effects of the proposed project in scenic areas could overlap with those of Fort Ord Dunes State Park Campground Project (No. 46) and the Castroville Bicycle and Pedestrian Overcrossing Project (No. 36). The overall duration of the visual disturbance would be temporary, limited to the construction phases of these projects. Effects of the proposed project nighttime construction lighting could overlap with those of the RUWAP Recycled Water Project (No. 35) and possibly

the city of Monterey Sanitary Sewer System Rehabilitation Program (No. 51). However, the combined effects would not exceed the established thresholds of significance. There are no projects in the cumulative scenario whose effects would combine with those of the proposed project to cause a significant cumulative impact. However, following implementation of **Mitigation Measure 4.14-2 (Site-Specific Nighttime Lighting Measures)**, the proposed project would have a less-than-significant impact related to nighttime construction lighting, and its contribution to any cumulative impacts would be reduced to a level that is not cumulatively considerable because this measure would ensure that nighttime lighting has minimal spillover from active construction sites.

5.5.14.3 Direct and Indirect Effects of No Project Alternative

Under the No Project Alternative, no new facilities would be constructed or operated. Consequently, there would be no construction- or operations-related effects on aesthetics associated with the No Project Alternative. Because the No Project Alternative would have no direct or indirect impacts with respect to aesthetics, it could not contribute to cumulative effects related to this topic.

5.5.14.4 Direct and Indirect Effects of Alternative 1 – Slant Wells at Potrero Road

Alternative 1 would supply seawater to the proposed 9.6 mgd desalination plant located at the Charles Benson Road site using the same type of subsurface intake system as the proposed project, but at a different location (Potrero Road). The desalination plant, brine discharge pipeline, Castroville Pipeline, Pipeline to CSIP Pond, new Desalinated Water Pipeline, new Transmission Main, Terminal Reservoir, ASR components and Carmel Valley Pump Station would be identical to the proposed project described in Chapter 3, Description of the Proposed Project. The location of the slant wells at Potrero Road and the additional 5.5 miles of source water pipeline are the components unique to Alternative 1 (see **Figure 5.4-1**).

Construction Impacts

Scenic Resources and Visual Character

Construction equipment and machinery, spoils stockpiles, vegetation removal, and exposed earth associated with the implementation of components common to the proposed project would temporarily disrupt the visual character of the surrounding areas and would be visible to motorists, bicyclists, pedestrians, and other observers such as nearby residents and park visitors. However, because work areas would be restored to their approximate pre-construction condition upon completion of construction, such impacts would be less than significant. Although mitigation is not required to reduce a significant impact under CEQA, this EIR/EIS recommends implementation of **Mitigation Measure 4.14-1 (Maintain Clean and Orderly Construction Sites)**.

The Alternative 1 Source Water Pipeline would be longer compared to the proposed project, and would be constructed mainly in an area considered to have a low aesthetic resource value. The subsurface slant wells at Potrero Road would be constructed in an area of moderate aesthetic

resource value. The construction-period disturbance would be temporary and generally be limited in visibility to residents using Potrero Road to access their homes. Such impacts would be for very short durations, as most viewers would be in motion, either traveling along area roads or walking in the vicinity of the Potrero Road parking lot. The visual impact severity would be low.

Impacts associated with the additional length of pipeline installation would be visible over a larger area, but would not have an increased effect on scenic resources. Therefore, Alternative 1 would result in the ***same impact conclusion*** as the proposed project, less than significant.

Nighttime Lighting and Glare

The additional 5.5 miles of Alternative 1 Source Water Pipeline and the subsurface slant wells at Potrero Road could require nighttime construction, which would temporarily introduce new substantial sources of nighttime light into otherwise dark and near-roadway areas. Such lighting could substantially change the lighting environment and present a nuisance or hazard to area motorists. In addition, construction activities associated with the components common to the proposed project would have the potential to introduce temporary sources of substantial light into the project area. This impact would be significant for the ASR-5 and ASR-6 Wells, as well as for the Source Water Pipeline, Brine Discharge Pipeline, Pipeline to CSIP Pond, Castroville Pipeline, new Desalinated Water Pipeline, new Transmission Main, and their corresponding optional alignments. Implementation of **Mitigation Measure 4.14-2 (Site-Specific Nighttime Lighting Measures)** would reduce the potential impacts of nighttime construction lighting to a less-than-significant level.

Alternative 1 construction would not involve reflective materials that could cause substantial glare impacts. Therefore, Alternative 1 would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Operational and Facility Siting Impacts

Scenic Resources and Visual Character

The subsurface slant wells for Alternative 1would be located in an area identified as having moderate aesthetic resource value. While the wells would be buried below ground surface, an electrical control building for the wells would be constructed at the edge of the parking lot. The structure would measure approximately 12 feet long, 4 feet wide and 6 feet tall. As there are few other structures in the vicinity of the parking lot, the well control structure could contrast with other landscape elements. However, the structure would be subordinate in size relative to the adjacent dunes, which rise some 20 feet above the parking lot, and would not be visible from the beach or otherwise block coastal views. As such, the visual impact severity would be low. Permanent aboveground facilities common with the proposed project could have an adverse impact on scenic resources or the existing visual character of facility sites within the project area. This impact would be significant for the subsurface slant wells, ASR-5 and ASR-6 wells, and Terminal Reservoir and this impact would be reduced to a less-than-significant level with implementation of **Mitigation Measures 4.14-3a (Facility Design)** and **4.14-3b (Facility Screening)**.

Alternative 1 would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Nighttime Lighting and Glare

Project operations would introduce permanent sources of substantial light into the project area. This impact would be significant for the ASR injection/extraction wells, Terminal Reservoir, and the Carmel Valley Pump Station. Implementation of **Mitigation Measure 4.14-2 (Site-Specific Nighttime Lighting Measures)** would reduce the potential impacts of nighttime operations lighting to a less-than-significant level. The Alternative 1 subsurface slant wells control structure would not require nighttime lighting and no additional operational impacts related to nighttime lighting and glare would result.

Alternative 1 would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Cumulative Analysis

The geographic scope of analysis for cumulative impacts related to aesthetics for Alternative 1 is defined by the locations from which a viewer could see the Alternative 1 construction or operations effects, and is the same as that described for the proposed project in Section 4.2.6, with the exception of the different location of the seawater intake system (Potrero Road, instead of CEMEX) and alternative source water pipeline route. Cumulative impacts resulting from the components of Alternative 1 that are common with the proposed project would be the same as those described for the proposed project in Section 4.14.7. Beyond those identified and addressed under Section 4.14.7, there are no additional cumulative projects whose effects could combine with those of Alternative 1 to result in impacts different from those described for the proposed project. For the reasons described in Section 4.14.7, the cumulative effects of the projects in the cumulative scenario could be significant, but the potentially considerable contribution of Alternative 1 would be reduced to a level that is not cumulatively considerable with implementation of **Mitigation Measure 4.14-2**. Therefore, Alternative 1 would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

5.5.14.5 Direct and Indirect Effects of Alternative 2 – Open-Water Intake at Moss Landing

Alternative 2 would supply seawater to the proposed 9.6 mgd desalination plant located at the Charles Benson Road site using a new, screened open-water intake system consisting of an intake structure located offshore in MBNMS and southwest of the Moss Landing Harbor entrance, a subsurface intake pipeline, and an intake pump station on Dolan Road (described in Section 5.4.4). The desalination plant, brine discharge pipeline, new Desalinated Water Pipeline, new Transmission Main, Terminal Reservoir, ASR components, Highway 68 interconnection improvements, and the Carmel Valley Pump Station would be identical to the proposed project described in Chapter 3, Description of the Proposed Project. Because the open water intake would eliminate the need for returning source water drawn from the Salinas Valley Groundwater Basin, the Castroville Pipeline, the Pipeline to CSIP Pond, and operational components related to delivering water to Castroville

Community Services District would not be implemented. The open water intake system and the additional 6.5 miles of source water pipeline are the components unique to Alternative 2 (see **Figure 5.4-2**). Therefore, the impact analysis of Alternative 2 focuses primarily on the locations for the intake system and source water pipelines that are different from the proposed project; however, impact conclusions are made for the whole of Alternative 2.

Construction Impacts

Scenic Resources and Visual Character

Construction equipment and machinery, spoils stockpiles, vegetation removal, and exposed earth associated with the implementation of components common to the proposed project would temporarily disrupt the visual character of the surrounding areas and would be visible to motorists, bicyclists, pedestrians, and other observers such as nearby residents and park visitors. However, because work areas would be restored to their approximate pre-construction condition upon completion of construction, such impacts would be less than significant. Although mitigation is not required to reduce a significant impact under CEQA, this EIR/EIS recommends implementation of **Mitigation Measure 4.14-1 (Maintain Clean and Orderly Construction Sites)**.

The Alternative 2 Source Water Pipeline would be constructed within an area generally considered to have low aesthetic resource value. The intake pump station would be constructed within an existing industrial area generally considered to have a low aesthetic resource value. Barges used for installation of the intake structure would be visible offshore (approximately 1,300 feet). The construction-period disturbance would be temporary for all facilities. Pipeline construction would be fleetingly visible, as most viewers would be in motion, traveling along area roads. Views of the intake pump station construction would be mostly obscured by topography and mature vegetation. The barges would be visible in the distance, but would not impair coastal views. The visual impact severity would be low. The effect on scenic resources and visual character would, therefore, be less than significant.

Impacts associated with the additional length of pipeline installation would be visible over a larger area, but would not have an increased effect on scenic resources compared to the proposed project. Effects of the intake pump station would be similar – involving similar types of activities and occurring within areas of similar aesthetic character. Therefore, Alternative 2 would result in a ***same impact conclusion*** as the proposed project, less than significant.

Nighttime Lighting and Glare

The longer Source Water Pipeline and intake pump station could require nighttime construction. Barges used for intake structure installation and moored offshore could also require nighttime safety lighting. These components of Alternative 2 would temporarily introduce new substantial sources of nighttime light into otherwise dark and near-roadway areas. Such lighting could substantially change the lighting environment and present a nuisance or hazard to area motorists. Alternative 2 construction activities would not involve reflective materials that could cause substantial glare impacts. In addition, construction activities associated with the components common to the proposed project would have the potential to introduce temporary sources of

substantial light into the project area. This impact would be significant for the ASR-5 and ASR-6 Wells, as well as for the Source Water Pipeline, Brine Discharge Pipeline, Pipeline to CSIP Pond, Castroville Pipeline, new Desalinated Water Pipeline, new Transmission Main, and their corresponding optional alignments. Implementation of **Mitigation Measure 4.14-2 (Site-Specific Nighttime Lighting Measures)** would reduce the potential impacts of nighttime construction lighting to a less-than-significant level. Therefore, Alternative 2 would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Operational and Facility Siting Impacts

Scenic Resources and Visual Character

The intake pump station would be the only above-ground facility unique to Alternative 2. The facility would be constructed within an existing industrial area generally considered to have a low aesthetic resource value. The facility would be in keeping with the industrial character of the site, and public views of the intake pump station site would be limited to those from Dolan Road, where the majority of potential viewers would be in vehicles traveling past the site and focused on the road. For these reasons, the visual impact severity would be low and the effect would be less than significant.

The overall effects of Alternative 2 would be reduced compared to the proposed project. There would be fewer above-ground facilities visible within scenic areas (i.e., no wellhead vaults visible at the CEMEX property). The intake pump station may be visible from Dolan Road, but would not further degrade the industrial aesthetic character of the setting. Alternative 2 permanent above-ground facilities common to the proposed project would result in potentially significant impacts on scenic resources and visual quality. However, implementation of **Mitigation Measures 4.14-3** (**Facility Design**) and **4.14-b** (**Facility Screening**) would reduce the impact to less than significant. Therefore, Alternative 2 would have the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Nighttime Lighting and Glare

The intake pump station would be the only above-ground facility unique to Alternative 2 and may require nighttime operations or security lighting. The facility would be sited in an industrial area with existing nighttime lighting and partially screened from Dolan Road. However, new sources of unconfined nighttime lighting in proximity to the road could present a nuisance or hazard to motorists which would be significant. The nighttime lighting effects of Alternative 2 permanent above-ground facilities common to the proposed project would be significant. However, impacts would be reduced to a less than significant level with implementation of **Mitigation Measure 4.12-2** (**Site-Specific Nighttime Lighting Measures**).

The effects of Alternative 2 would be similar to those of the proposed project. Nighttime lighting at the intake pump station site would result in a localized increase in nighttime lighting. Alternative 2 facilities would not utilize large amounts of highly reflective materials that could cause substantial glare impacts. Alternative 2 would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Cumulative Analysis

The geographic scope of analysis for cumulative impacts related to aesthetics for Alternative 2 is defined by the locations from which a viewer could see the Alternative 2 construction or operations effects, and is the same as that described for the proposed project in Section 4.2.6, with the exception of the different location of the seawater intake system Moss Landing) and alternative source water pipeline route. Cumulative impacts resulting from the components of Alternative 2 that are common with the proposed project would be the same as those described for the proposed project in Section 4.14.7. Beyond those identified and addressed under Section 4.14.7, there are two additional reasonably foreseeable future cumulative projects that could overlap in time and space with Alternative 2: the Moss Landing Community Plan (No. 37 in **Table 4.1-2** in Section 4.1) and the DeepWater Desal Project (No. 34). Adoption of the Moss Landing Community Plan could include the enactment of new policies regarding protection of aesthetic resources in the Community Plan area. However, the Community Plan would not authorize development that could have physical aesthetic resources impacts that could combine with those of Alternative 2.

As analyzed above, the Alternative 2 intake pump station and alternative source water pipeline would have a less-than-significant construction impacts with mitigation. The DeepWater Desal Project would include development of similar facilities to those in Alternative 2 in similar or the same locations. The effects would be similar to those described for Alternative 2 components; i.e., increased visual disturbances and nighttime lighting during construction. The effects would generally be confined to the north side of Dolan Road, in the vicinity of the Moss Landing Power Plant, but would also occur offshore in association with the intake/outfall structure barges. It is assumed that nighttime lighting associated with DeepWater Desal Project construction would be controlled to limit spill-over and light pollution. If the projects were constructed sequentially, the duration of effects could be extended. However, given that the landside site is highly industrial, and that the landside and offshore effects would be localized and temporary, the combined effects of these projects would not exceed the established thresholds of significance. If lighting associated with construction of the DeepWater Desal Project were not controlled to limit spill-over, it could result in a significant impact that could combine with the potentially significant impact of Alternative 2 to cause a significant cumulative impact; however, with implementation of **Mitigation Measure 4.14-2**, Alternative 2 would not have a cumulatively considerable contribution to a significant cumulative effect.

Operation of the DeepWater Desal Project would include an intake pump station in a location similar to or the same as that described for Alternative 2. The effects would be similar to those described for Alternative 2 components: additional industrial-looking development adjacent to an existing industrial site, with increased nighttime security lighting. Colocation of the Alternative 2 and DeepWater Desal Project facilities adjacent to the Moss Landing Power Plant site could increase the area of the effect, but would not increase its severity. This is because the site is already highly industrial and contains existing sources of nighttime lighting. For these reasons, the combined effects would not exceed the established thresholds of significance, and the cumulative impact would not be significant. While it is assumed that nighttime lighting associated with the DeepWater Desal Project operations would be controlled to limit spill-over and light pollution, if not controlled, it could result in a significant impact that could combine with the potentially significant impact of Alternative 2 to cause a significant cumulative impact; however,

with implementation of **Mitigation Measure 4.14-2**, Alternative 2 would not have a cumulatively considerable contribution to a significant cumulative effect related to nighttime lighting during operations. Therefore, Alternative 2 would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

5.5.14.6 Direct and Indirect Effects of Project Alternative 3 – Monterey Bay Regional Water Project (MBRWP or DeepWater Desal Project)

Alternative 3 includes the construction and operation of a screened open-water intake system and a brine discharge system located on the seafloor in Monterey Bay within MBNMS, subsurface pipelines connecting to these intake and discharge systems, a seawater desalination facility and co-located data center, and associated components to provide up to 25,000 afy of potable water and data transmission and storage services. The pipelines for the intake and discharge systems would be installed using HDD. The alternative would also include 6.5 miles of desalinated water pipeline to connect with the CalAm system and up to an additional 25 miles of pipelines to convey the desalinated water to other areas (total of 31.5 miles of additional pipeline). Several components would be identical to the proposed project: the new Transmission Main, new desalinated water pipeline south of the "Connection to CalAm" Point on **Figure 5.4-3**, ASR 5 and 6 wells and ASR pipeline, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be as described in Chapter 3, Description of the Proposed Project. Because this alternative would have an open water intake that would eliminate the need for returning source water drawn from the Salinas Valley Groundwater Basin, the Castroville Pipeline, Pipeline to CSIP Pond, and operational components related to delivering water to CCSD would not be implemented. The desalination plant and data center, open water intake system, brine discharge system, and the additional 31.5 miles of desalinated water pipeline are the components unique to Alternative 3 (see **Figure 5.4-3**). Therefore, the impact analysis of Alternative 3 focuses primarily on these components; however, impact conclusions are made for the whole of Alternative 3.

Construction Impacts

Scenic Resources and Visual Character

The segment of the Alternative 3 Desalinated Water Pipeline north of the Nashua Road/Highway 1 intersection and the Source Water Pipeline would be constructed mainly in alignment areas generally considered to have low aesthetic resource value. The intake pump station would also be constructed within an existing industrial area generally considered to have a low aesthetic resource value. Barges used for the intake structure installation would be visible offshore (approximately 1,300 feet). The construction-period disturbance would be temporary for each facility. Pipeline construction would be fleetingly visible, as most viewers would be in motion, traveling along area roads. Views of the intake pump station construction would be mostly obscured by topography and mature vegetation. The barges would be visible in the distance, but would not impair coastal views. The visual impact severity would be low. The effect on scenic resources and visual character would, therefore, be less than significant. Although mitigation is not required to reduce a significant impact, this EIR/EIS recommends implementation of **Mitigation Measure 4.14-1 (Maintain Clean and Orderly Construction Sites)**.

The East Tank Farm Parcel – on which the Alternative 3 desalination plant, data center and ancillary equipment would be constructed – is generally considered to have low aesthetic resource value. Construction activities would not be substantially out of character with the setting or appear dominant on the landscape; various industrial and intensive agricultural operations exist nearby. Nor would these activities impair public views of valued aesthetic resources; the site is not visible from any designated scenic areas or roadways. Views of the site from public vantage points are largely obscured by intervening topography and vegetation. While over 8,000 feet away, elements of the project may be visible from various vantage points within the Elkhorn Slough channel. The views would not be out of character with the existing industrial land uses and the zoning in the area. For these reasons, the visual impact severity would be low. The effect on scenic resources and visual character would, therefore, be less than significant.

Impacts associated with the additional length of desalinated water pipeline installation would be visible over a larger area, but would not have a substantial increased effect on scenic resources compared to the proposed project. Therefore Alternative 3 would result in the ***same impact conclusion*** as the proposed project, less than significant.

Nighttime Lighting and Glare

The Desalinated Water Pipeline north of the Nashua Road/Highway 1 intersection, the Source Water Pipeline, and the intake pump station could require nighttime construction. Barges used for the intake and outfall installations moored offshore could also require nighttime lighting. These elements of Alternative 3 would temporarily introduce new substantial sources of nighttime light into otherwise dark and near-roadway areas. Such lighting could substantially change the lighting environment and present a nuisance or hazard to area motorists.

Alternative 3 facilities at the East Tank Farm Parcel could also require nighttime construction. Such activities would introduce a new substantial source of temporary lighting into an area that is generally dark, with existing sources of lighting distant and limited to residential and industrial security and safety lighting, and the headlights of vehicles traveling along Dolan Road and Via Tanques Road. The site is partially screened from view by intervening topography and vegetation, but other areas are plainly visible from Dolan Road. The nearest residence is approximately 400 feet to the southwest. Such temporary nighttime lighting increases could present a nuisance and hazard to area residents and motorists, respectively.

Nighttime lighting impacts of the proposed project subsurface slant well installation in the vicinity of the CEMEX site would be eliminated, while nighttime lighting effects from barges used for Alternative 3 intake and discharge structure installation would be increased. Lighting effects from pipeline installation north of Nashua Road/Highway 1 intersection, intake pump station installation, and East Tank Farm Parcel work would be similarly increased. In addition, construction activities associated with the components common to the proposed project would have the potential to introduce temporary sources of substantial light into the project area. This impact would be significant for the ASR-5 and ASR-6 Wells, as well as for the Source Water Pipeline, Brine Discharge Pipeline, Pipeline to CSIP Pond, Castroville Pipeline, new Desalinated Water Pipeline, new Transmission Main, and their corresponding optional alignments. Implementation of **Mitigation Measure 4.14-2 (Site-Specific Nighttime Lighting Measures)**

would reduce the potential impacts of nighttime construction lighting to a less-than-significant level. Alternative 3 construction activities would not involve reflective materials that could cause substantial glare impacts. Therefore, Alternative 3 would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Operational and Facility Siting Impacts

Scenic Resources and Visual Character

The Alternative 3 intake pump station would be located within an existing industrial area generally considered to have a low aesthetic resource value. The facility would be in keeping with the industrial character of the site, and public views of the intake pump station site would be limited to those from Dolan Road, where the majority of viewers would be in vehicles traveling past the site and focused on the road. For these reasons, the visual impact severity would be low and the effect would be less than significant.

The East Tank Farm Parcel is generally considered to have low aesthetic resource value. Siting and operation of the Alternative 3 desalination plant, data center and ancillary equipment facilities would not be completely out of character with the setting, as various industrial and intensive agricultural land uses exist nearby. Nor would these facilities impair public views of valued aesthetic resources; the site is not visible from any designated scenic areas or roadways. Given the low density of development in the site's vicinity and the scale and height of existing development, the Alternative 3 facilities proposed for the East Tank Farm Parcel could appear dominant on the landscape. However, views of the site from public vantage points are largely obscured by intervening topography and vegetation. While over 8,000 feet away, elements of the project may be visible from various vantage points within the Elkhorn Slough channel. The views would not be out of character with the existing industrial land uses and the zoning in the area. For these reasons, the visual impact severity would be low. The effect on scenic resources and visual character would, therefore, be less than significant.

Alternative 3 would have fewer above-ground facilities visible within scenic areas (i.e., no wellhead vaults visible at the CEMEX property). Effects of facilities at the East Tank Farm Parcel would be similar to those of the proposed project location of the desalination plant – occurring in proximity to other industrial land uses and ultimately partially screened from public view by trees and fencing. The effects of Alternative 3 permanent above-ground facilities common to the proposed project would be the same as described in Impact 4.14-3, and Alternative 3 would result in a significant impact. Implementation of **Mitigation Measures 4.14-3** (**Facility Design**) and **4.14-b** (**Facility Screening**) would reduce impacts to less than significant.

Overall, Alternative 3 would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Nighttime Lighting and Glare

The Alternative 3 intake pump station may require nighttime operations or security lighting. The facility would be sited in an industrial area with existing nighttime lighting and partially screened

from Dolan Road. However, new sources of unconfined nighttime lighting in proximity to the road could present a nuisance or hazard to motorists, which would be significant.

Alternative 3 facilities at the East Tank Farm Parcel would include outdoor nighttime lighting for access and security. Such activities would introduce a new substantial source of temporary lighting into an area that is generally dark, with existing sources of lighting distant and limited to residential and industrial security and safety lighting, and the headlights of vehicles traveling along Dolan Road and Via Tanques Road. The site is partially screened from view by intervening topography and vegetation, but other areas are plainly visible from Dolan Road. The nearest residence is approximately 400 feet to the southwest. Such nighttime lighting increases could present a nuisance and hazard to area residents and motorists, respectively. Alternative 3 facilities would not utilize large amounts of highly reflective materials that could cause substantial glare impacts.

The nighttime lighting effects of Alternative 3 permanent above-ground facilities, including those common to the proposed project, would result in significant impacts. Implementation of **Mitigation Measure 4.12-2** (**Site-Specific Nighttime Lighting Measures**) would reduce nighttime lighting and glare impacts to less than significant.

Therefore, Alternative 3 would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Cumulative Analysis

The geographic scope of analysis for cumulative impacts related to aesthetics for Alternative 3 is defined by the locations from which a viewer could see the Alternative 3 construction or operations effects. Cumulative impacts resulting from the components of Alternative 3 that are common with the proposed project would be the same as those described for the proposed project in Section 4.14.7. Beyond those identified and addressed under Section 4.14.7, one additional reasonably foreseeable future cumulative project that could overlap in time and space with the components of Alternative 3 that differ from the proposed project: the Moss Landing Community Plan (No. 37 in **Table 4.1-2** in Section 4.1). Adoption of the Moss Landing Community Plan could include the enactment of new policies regarding protection of aesthetic resources in the Community Plan area. However, the Community Plan would not authorize development that could have physical aesthetic resources impacts that could combine with those of Alternative 3. Therefore, because no other projects would contribute to cumulative aesthetic resources impacts in combination with Alternative 3, the cumulative impacts associated with the components of Alternative 3 that differ from the proposed project would be as described for Alternative 3 alone. Therefore, overall, Alternative 3 would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation

5.5.14.7 Direct and Indirect Effects of Alternative 4 – People's Moss Landing Water Desalination Project (People's Project)

Alternative 4 includes the construction and operation of an open ocean intake, a brine discharge system and pipelines, and supporting ballast rock located on the seafloor in Monterey Bay within MBNMS, as well as a 12 mgd desalination plant and associated facilities to provide 13,400 afy of

water supply to meet the current and future needs of the Monterey Peninsula. Several components would be identical to the proposed project: the new Transmission Main, new desalinated water pipeline south of the "Connection to CalAm" Point on **Figure 5.4-4**, ASR-5 and -6 wells and ASR pipeline, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be as described in Chapter 3, Description of the Proposed Project. Because this alternative would have an open water intake that would eliminate the need for returning source water drawn from the Salinas Valley Groundwater Basin, the Castroville Pipeline, Pipeline to CSIP Pond, and operational components related to delivering water to CCSD would not be implemented. The desalination plant, open water intake system, brine discharge system, and the additional 6.5 miles of desalinated water pipeline are the components unique to Alternative 4 (see **Figure 5.4-4**). Therefore, the impact analysis of Alternative 4 focuses primarily on these components; however, impact conclusions are made for the whole of Alternative 4.

Construction Impacts

Scenic Resources and Visual Character

The segment of Alternative 4 Desalinated Water Pipeline north of the Nashua Road/Highway 1 intersection would be constructed mainly within areas generally considered to have low aesthetic resource value. The construction-period disturbance would be temporary and only fleetingly visible, as most viewers would be in motion, traveling along area roads. The visual impact severity would be low. The effect on scenic resources and visual character would, therefore, be less than significant.

The Sandholdt Road pump house structure would be constructed in an area of moderate aesthetic resource value. Construction activity would be visible from Sandholdt Road and the Moss Landing Beach. Given its proximity to the coast and public use areas (e.g., Salinas River State Beach), the construction area could substantially degrade the visual character of the beach if not properly contained and maintained. However, with implementation of feasible mitigation, such as that identified in **Mitigation Measure 4.14-1** (**Maintain Clean and Orderly Construction Sites**) the effect would be reduced to a less-than-significant level.

The Moss Landing Green Commercial Park – on which the Alternative 4 desalination plant would be constructed – is generally considered to have low aesthetic resource value. Construction activities would not be out of character with the setting or appear dominant on the landscape; intensive industrial operations exist at the site and nearby. Nor would these activities impair public views of valued aesthetic resources; the site is not visible from any designated scenic areas or roadways. Views of the site from public vantage points are generally obscured by intervening topography and vegetation. For these reasons, the visual impact severity would be low. The effect on scenic resources and visual character of the Alternative 4 desalination plant construction would, therefore, be less than significant.

Impacts associated with the additional length of pipeline installation would be visible over a larger area, but would not have an increased effect on scenic resources. The effects of Alternative 4 construction, including components common to the proposed project, would be t significant, but would be reduced to less than significant with **Mitigation Measure 4.14-1** (**Maintain Clean and**

Orderly Construction Sites). Therefore, Alternative 4 would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Nighttime Lighting and Glare

The segment of the new Desalinated Water Pipeline north of the Nashua Road/Highway 1 intersection and the Sandholdt Road pump house structure could require nighttime construction, which would temporarily introduce new substantial sources of nighttime light into otherwise dark and near-roadway areas. Alternative 4 construction activities would not involve reflective materials that could cause substantial glare impacts. Barges used for intake and discharge structure installation and be moored offshore and could also require nighttime safety lighting. These elements of Alternative 4 could substantially change the lighting environment and present a nuisance or hazard to area motorists.

If the Alternative 4 desalination facility at the Moss Landing Green Commercial Park required nighttime construction, a new substantial source of temporary lighting would be introduced into the area. Existing sources of lighting in the area are numerous and include outdoor safety and security lighting in the Moss Landing Power Plant, commercial developments along Highway 1, and developments within Moss Landing Harbor. Public views of the site are limited to those from Highway 1 and are mostly screened from view by intervening topography and vegetation. The nearest residence is approximately 1,800 feet (0.34 mile) to the southwest. As a result, any nighttime lighting impacts on area motorists and area residents would be negligible. The temporary lighting impacts associated with nighttime construction at the Moss Landing Green Commercial site would be less than significant.

The effects of Alternative 4 construction lighting, including components common to the proposed project, would result in significant impacts, but would be reduced to less than significant with implementation of **Mitigation Measure 4.12-2** (**Site-Specific Nighttime Lighting Measures**).

Therefore, Alternative 4 would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Operational and Facility Siting Impacts

Scenic Resources and Visual Character

The Moss Landing Green Commercial Park is generally considered to have low aesthetic resource value. Siting and operation of the Alternative 4 desalination plant and ancillary equipment facilities would not be out of character with the setting, as the site is an intensive industrial area. The site is not visible from any designated scenic areas or roadways. Highway 1 is eligible for designation as a scenic highway. However, views to the site from Highway 1 are mostly screened from view by intervening topography and mature vegetation. Due to this screening, the desalination plant and appurtenant facilities would not appear dominant on the landscape, nor would they obstruct public views of valued aesthetic features. For these reasons, the visual impact severity would be low. The effect on scenic resources and visual character would, therefore, be less than significant.

The Sandholdt Road pump house structure would be located near an existing developed area generally considered to be of moderate aesthetic resource value. However, given its location along the beach and seaward of the existing line of development, the facility would contrast and change and contrast with the visual character of existing features along Sandholdt Road and the Salinas River Beach. Rising to a height of approximately 27 feet, the facility would be a dominant feature among surrounding existing heights of other features. Due to its height, the structure could also impede, but would not be expected to impair, important public views of the coast. For these reasons, the pump house would have a significant visual impact. These effects of Alternative 4 permanent above-ground facilities, and those common to the proposed project, would be significant. Implementation of **Mitigation Measures 4.14-3a** (**Facility Design**) and **4.14-3b** (**Facility Screening**) would reduce impacts to less than significant.

Therefore, Alternative 4 would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Nighttime Lighting and Glare

Alternative 4 facilities would not utilize large amounts of highly reflective materials that could cause substantial glare impacts. The desalination plant and associated facilities at the Moss Landing Green Commercial Park would likely include outdoor security and access lighting. These fixtures would introduce additional sources of nighttime lighting into a highly industrialized area with multiple sources of existing nighttime lighting. As noted previously, views of the site are obscured by existing topography and vegetation and the nearest residence is more than 1/3 mile away. As a result, nighttime lighting impacts on area motorists and area residents would be negligible. The temporary lighting impacts associated with nighttime security and access lighting at the Moss Landing Green Commercial site would be less than significant.

Nighttime outdoor security lighting may be required for the Sandholdt Road pump house structure. The installation of such fixtures could introduce substantial sources of nighttime light into an otherwise mostly dark area along the beach, and at an elevation at or above that of nearby structures. These nighttime lighting effects of Alternative 4 permanent above-ground facilities, and of those common to the proposed project, would result in significant impacts. Implementation of **Mitigation Measure 4.12-2** (**Site-Specific Nighttime Lighting Measures**) would reduce impacts to less than significant. Therefore, Alternative 4 would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Cumulative Analysis

The geographic scope of analysis for cumulative impacts related to aesthetics for Alternative 4 is defined by the locations from which a viewer could see the Alternative 4 construction or operations effects. Cumulative impacts resulting from the components of Alternative 4 that are common with the proposed project would be the same as those described for the proposed project in Section 4.14.7. Beyond those identified and addressed under Section 4.14.7, there are two additional reasonably foreseeable future cumulative projects that could overlap in time and space with Alternative 4: the Moss Landing Community Plan (No. 37 in **Table 4.1-2** in Section 4.1) and the DeepWater Desal Project (No. 34). Adoption of the Moss Landing Community Plan could

include the enactment of new policies regarding protection of aesthetic resources in the Community Plan area. However, the Community Plan would not authorize development that could have physical aesthetic resources impacts that could combine with those of Alternative 4.

As analyzed above, the Alternative 4 new Desalinated Water Pipeline and Alternative Source Water Pipeline would have significant construction impacts. Visual impacts of the Alternative 4 desalination plant construction would be less than significant, as they would be mostly shielded from public view by intervening topography and vegetation. Construction of the DeepWater Desal Project would include development of an intake pump station, pipelines, and a desalination plant and associated facilities along the north side of Dolan Road. Concurrent or sequential construction of these project elements would increase or prolong visual disturbance and nighttime lighting impacts in Moss Landing. However, the combined effects of the two projects would not be substantial, because these facilities would not occur in a scenic area, nor would they be plainly visible from the same public vantage point. Intake/outfall construction would increase the number of barges and associated nighttime lighting offshore, but would be distant from the shore and in the same general vicinity. Given that the landside setting is highly industrial, and the landside and offshore effects would be localized and temporary, the combined effects of these projects would not exceed the established thresholds of significance. If lighting associated with construction of the DeepWater Desal Project were not controlled to limit spill-over, it could result in a significant impact that could combine with the potentially significant impact of Alternative 4 to cause a significant cumulative impact; however, with implementation of **Mitigation Measure 4.14-2**, Alternative 4 would not have a cumulatively considerable contribution to a significant cumulative effect.

As analyzed above, the desalination plant and appurtenant facilities at the Moss Landing Green Commercial Park would have a less-than-significant effect because the site is mostly screened from outside public view. Operation of the DeepWater Desal Project's intake pump station would be partially visible from Dolan Road and would introduce a new source of nighttime lighting into the area. However, for the same reasons described for cumulative construction-period effects, the combined effects of project operations would not be substantial. While it is assumed that nighttime lighting associated with the DeepWater Desal Project operations would be controlled to limit spill-over and light pollution, if not controlled, it could result in a significant impact. However, given that the setting is highly industrial and the effects would be localized and largely screened from public view, the combined effects of these projects would not exceed the established thresholds of significance. With implementation of **Mitigation Measure 4.14-2**, Alternative 4 would not have a cumulatively considerable contribution to a significant cumulative effect related to nighttime lighting during operations. Therefore, Alternative 4 would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

5.5.14.8 Direct and Indirect Effects of Alternative 5 – Reduced Desal Project 5a (CEMEX) and 5b (Potrero Road)

Alternative 5a would include the seawater intake system at the CEMEX site (the same location as the proposed project), but would include only seven subsurface slant wells (the converted test well and six new wells) and the same source water pipeline as the proposed project. Alternative 5b would include seven new wells at the western end of Potrero Road (the same location as

Alternative 1) and the same source water pipeline as Alternative 1. Both Alternatives 5a and 5b would include a reduced-capacity desalination plant (6.4 mgd), and all other components would be the same as the proposed project.

Construction Impacts

Scenic Resources and Visual Character

The visual effects of Alternative 5a and 5b construction would be the same as described for the proposed project and Alternative 1, respectively. For the reasons discussed for the proposed project and Alternative 1, Alternatives 5a and 5b would result in the ***same impact conclusions*** as the proposed project, less than significant.

Nighttime Lighting and Glare

The visual effects of Alternative 5a and 5b construction lighting would be the same as described for the proposed project and Alternative 1, respectively. Implementation of **Mitigation Measure 4.12-2 (Site-Specific Nighttime Lighting Measures)** would reduce impacts to less than significant. Alternatives 5a and 5b would result in a ***similar level of impact*** compared to the proposed project and impacts would be less than significant with mitigation.

Operational and Facility Siting Impacts

Scenic Resources and Visual Character

The effects of Alternative 5a and 5b permanent above-ground facilities would be the same as described for the proposed project and Alternative 1, respectively, and would be significant but mitigable to a less-than-significant level with implementation of **Mitigation Measures 4.14-3a (Facility Design)** and **4.14-3b (Facility Screening)**. Alternatives 5a and 5b would result in the ***same impact conclusions*** as the proposed project, less than significant with mitigation.

Nighttime Lighting and Glare

The nighttime lighting effects of Alternative 5a and 5b permanent above-ground facilities would be the same as described for the proposed project and Alternative 1, respectively, and would be significant but mitigable to a less-than-significant level with implementation of **Mitigation Measure 4.12-2 (Site-Specific Nighttime Lighting Measures)**. Alternatives 5a and 5b would result in a ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Cumulative Analysis

Combined Impacts with GWR Project

Construction Impacts

The construction-period effects of Alternative 5 on scenic resources and visual character would be less than significant. Segments of the Alternative 5 New Desalinated Water Pipeline and New Transmission Main would follow an alignment similar to the GWR Project's Product Water Conveyance Coastal Alignment Pipeline. Concurrent pipeline construction could affect the same

viewsheds, including scenic areas along the west side of Highway 1, a State-eligible Scenic Highway. As pipeline installation impacts would be limited to the construction period, and with construction expected to progress at a rate of 150 to 250 feet per day, the aesthetic resources effects from any particular vantage point would generally be limited to a few days to a few weeks. The combined effects would not substantially affect scenic resources or the visual character of the area. The Alternative 5 Terminal Reservoir would be located approximately 1,500 feet east of the ASR conveyance pipelines and 3,500 feet south of the GWR Project's injection well clusters, east of General Jim Moore Boulevard. Given the distance between these facilities and the intervening topography, the sites would not be visible from the same public vantage points. Therefore, concurrent construction would not substantially affect scenic resources or the visual character of the area, and would not combine to result in a significant cumulative effect.

The nighttime construction lighting effects of Alternative 5 would be less than significant with implementation of mitigation. GWR Project components that could require nighttime construction lighting near Alternative 5 components also potentially requiring nighttime construction lighting include the treatment plant facilities and the injection well clusters. The Alternative 5 Pipeline to CSIP Pond construction could occur at the same time and in proximity to the GWR treatment plant facilities. The effects would occur in a remote location, adjacent to existing industrial development (MRWPCA Regional Treatment Plant), with no nearby residential development. Nighttime construction lighting associated with the Alternative 5 ASR Pipelines and GWR injection wells would be visible from residences on the west side of General Jim Moore Boulevard. Considering their distance and the intervening topography, the residual effects of nighttime lighting from both projects following mitigation would not be visible from any single residence. For these reasons, concurrent nighttime construction of Alternative 5 and the GWR Project would not substantially affect the nighttime lighting environment, and therefore would not combine to result in a significant cumulative impact. Therefore, combined with the GWR Project, Alternative 5 would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Operations and Facility Siting Impacts

The operations and facility siting effects of Alternative 5 on scenic resources and visual character and nighttime lighting would be less than significant with mitigation. GWR Project above-ground components that would be located near Alternative 5 above-ground components include the treatment plant facilities and the injection well cluster. The Alternative 5 Desalination Plant would be sited approximately 3,000 feet north of the GWR Project's treatment plant facilities; Terminal Reservoir would be sited approximately 3,500 feet south of the GWR Project's injection well cluster. Both facilities would include nighttime security lighting resulting in individual potentially significant impacts that would be reduced to a less-than-significant level with mitigation. Considering their distance and the intervening topography and vegetation, none of these facilities would be plainly visible from the site of another, nor would multiple facilities be plainly visible from the same public vantage point. Therefore, the residual effects of these facilities following mitigation would not substantially affect the area's scenic resources, visual character, or lighting environment, and cumulative impacts would not be significant. Therefore, combined with the GWR Project, Alternative 5 would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Impacts of Full Cumulative Scenario

The geographic scope of analysis for potential cumulative aesthetic resources impacts encompasses the locations from which a viewer could see the Alternative 5a and 5b construction or operations effects, and would be the same as described for the proposed project and Alternative 1, respectively. Beyond those identified and addressed under Section 4.14.7, there is only one additional reasonably foreseeable future cumulative project that could overlap in time and space with Alternative 5, the GWR Project. As described above, the addition of the GWR Project to the cumulative scenario would not change the magnitude of or significance conclusions for aesthetic resources. Therefore, Alternatives 5a and 5b would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

5.5.15 Cultural and Paleontological Resources

The evaluation criteria for Cultural and Paleontological Resources address: historical resources or historic properties during construction; archeological resources during construction; paleontological resources or sites, or geologic features during construction; and, human remains during construction. The facilities located at the CEMEX site overlap with recorded historical resources.

5.5.15.1 Setting/Affected Environment

The components of the alternatives that are common to the proposed project are located south of the Nashua Road/Highway 1 intersection and the setting/affected environment for those facilities is described in in Section 4.15, Cultural and Paleontological Resources. The setting for the components north of the Nashua Road/Highway 1 intersection is presented below. Site specific information for Alternative 4 components (People's Project) was not available.

Pipeline Alignments North of Nashua Road/Highway 1 Intersection

North and west of the Nashua Road/Highway 1 intersection, alternative pipeline alignments could extend within or alongside segments of Molera Road, Highway 1, Potrero Road, and Dolan Road, in unincorporated Monterey County. ESA conducted a records search at the Northwest Information Center (NWIC) for components north of the Nashua Road/Highway 1 intersection on February 28, 2013 (File No. 12-0934) and May 31, 2016 (File No. 15-1766) in order to: (1) determine whether known cultural resources have been recorded within the alternative locations; (2) assess the likelihood for unrecorded cultural resources to be present based on historical references and the distribution of nearby resources; and (3) develop a context for the identification and preliminary evaluation of cultural resources. As discussed below, several previously recorded prehistoric archaeological sites and historic-era artifact scatters are in the vicinity of the alternative alignments, especially near Moss Landing.

Potrero Road Parking Lot

Based on the results of the ESA records search at the NWIC, there are no recorded cultural resources in the Potrero Road Parking Lot. Previously recorded prehistoric resources are recorded within a 0.25-mile radius of the parking lot. ESA surveyed the parking lot in December 2014 and did not identify any cultural materials or evidence of past human use.

Moss Landing Beach and Monterey Bay

Based on the results of the ESA records search at the NWIC, there are no recorded cultural resources on Moss Landing Beach. Previously recorded prehistoric resources are recorded within a 0.25-mile radius of the parking lot.

Deep Water Desal, LLC contracted with William Self Associates, Inc. (WSA) to review existing literature on the maritime history and archaeology of the offshore locations of Moss Landing in MBNMS (WSA, 2016). WSA reviewed the California State Lands Commission (CSLC) Shipwreck database, and contacted the Monterey Maritime Museum and Monterey Bay National Marine

Sanctuary for information housed in those repositories to determine the likelihood that submerged marine resources are present. WSA also contacted the Bureau of Ocean Energy Management (BOEM) to consult the Bureau's Pacific Coastal Cultural Resources Database to determine if there are recorded submerged cultural resources in the Moss Landing area. The BOEM database identified 15 potential shipwrecks within the region surrounding the locations of the proposed intake and discharge points, but the exact locations of the vessels have not been determined.

Moss Landing Green Commercial Park

Based on the results of the ESA records search at the NWIC, there are no cultural resources recorded in the Moss Landing Green Commercial Park, in part because it has not been surveyed. Several previously recorded cultural resources are within a 0.25-mile radius. Site specific information for the Moss Landing Green Commercial Park was not made available.

East Tank Farm Parcel

WSA conducted a records search and surface survey of the East Tank Farm Parcel. The results of the surface survey indicate sites extend into the DeepWater Desal Project area (WSA, 2016). Two additional prehistoric archaeological sites and three historic-era artifact scatters are also within a 0.25-mile radius of Moss Landing.

5.5.15.2 Direct and Indirect Effects of Proposed Project (Slant Wells at CEMEX)

The proposed project extends from Castroville in the north to the city of Carmel in the south (see **Figure 3-2**) and would include construction of a desalination plant on 25 acres along Charles Benson Road northeast of the City of Marina, up to nine new subsurface slant wells at the CEMEX active mining area and conversion of the test well to a permanent well, two new wells (ASR-5 and ASR-6) at the existing Seaside Groundwater Basin aquifer storage and recovery (ASR) system, the Carmel Valley Pump Station, and about 21 miles of water conveyance pipelines. The direct and indirect impacts of the proposed project are described in detail in Section 4.7.5.

Impact 4.15-1: Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5 of the CEQA Guidelines or historic properties pursuant to 36 CFR 800.5 during construction.

No historical resources listed in or eligible for listing in the California Register, or historic properties listed in or eligible for listing in the National Register, are within the direct or indirect APE of all project components. Therefore, no impact on historical resources or historic properties would result from construction of any project facilities.

Impact 4.15-2: Cause a substantial adverse change in the significance of an archeological resource pursuant to Section 15064.5 of the CEQA Guidelines during construction.

A significant impact on archaeological resources could occur during construction of the proposed Castroville Pipeline at Tembladero Slough and the Source Water Pipeline in the Lapis Sand Mining Plant Historic District; as well as those areas designated as archaeologically sensitive in

the geoarchaeological analysis (Tembladero Slough near Castroville and the Salinas River). The impact or adverse effects would be reduced to a less-than-significant level with implementation of **Mitigation Measure 4.15-2a (Establish Archaeologically Sensitive Area)**.

While no additional impacts or adverse effects on archaeological resources are expected, the possibility of uncovering unknown archaeological resources in the remaining direct APE cannot be entirely discounted. The potential inadvertent discovery of archaeological resources could be a significant impact or adverse effect. Implementation of **Measure 4.15-2b (Inadvertent Discovery of Cultural Resources)** would ensure that potential impacts are less than significant.

Impact 4.15-3: Directly or indirectly destroy a unique paleontological resource or site, or unique geologic feature during construction.

Construction of the proposed project components would require excavation through three geologic units that have the potential to contain paleontological resources, particularly vertebrate fossils. Of these three geologic units, only the Monterey Formation is known to contain vertebrate fossils that would qualify as a unique paleontological resource. However, because construction would occur in a limited area of the Monterey Formation and within previously-disturbed rights-of way of existing roads, potential impacts to unique paleontological resources would be less than significant.

Impact 4.15-4: Disturbance of any human remains, including those interred outside of formal cemeteries, during construction.

While no known human remains have been documented within the proposed project direct APE, the possibility of inadvertently uncovering human remains cannot be entirely discounted. The potential inadvertent discovery of human remains is considered a significant impact. The impact would be reduced to a less-than-significant level with implementation of **Mitigation Measure 4.15-4 (Inadvertent Discovery of Human Remains)**.

Impact 4.15-C: Cumulative impacts related to cultural and paleontological resources.

The geographic scope of analysis for cumulative impacts on cultural resources includes the direct and indirect Area of Potential Effects for the proposed project. The geographic scope of analysis for paleontological resources includes the portion of the aforementioned underlain by the Monterey Formation geologic unit. Applicable projects from **Table 4.1-1** are those that involve ground disturbance or could cause vibratory impacts to historic buildings or structures. Overall, the MPWSP would not contribute to cumulative impacts associated with Impacts 4.15-1 through 4.15-4.

5.5.15.3 Direct and Indirect Effects of No Project Alternative A

Under the No Project Alternative, no new facilities would be constructed or operated. Consequently, there would be no construction- or operations-related impacts on cultural or paleontological resources with the No Project Alternative. Because the No Project Alternative would have no direct or indirect impacts with respect to cultural or paleontological resources, it could not contribute to cumulative effects related to these topics.

5.5.15.4 Direct and Indirect Effects of Alternative 1 – Slant Wells at Potrero Road

Alternative 1 would supply seawater to the proposed 9.6 mgd desalination plant located at the Charles Benson Road site using the same type of subsurface intake system as the proposed project, but at a different location (described in Section 5.4.3). The desalination plant, brine discharge pipeline, Castroville Pipeline, Pipeline to CSIP Pond, new Desalinated Water Pipeline, new Transmission Main, Terminal Reservoir, ASR components, Highway 68 interconnection improvement, and Carmel Valley Pump Station would be identical to the proposed project described in Chapter 3, Description of the Proposed Project. The location of the slant wells at Potrero Road and the additional 5.5 miles of source water pipeline are the components unique to Alternative 1 (see **Figure 5.4-1**).

Construction Impacts

No historical resources listed in or eligible for listing in the California Register, or historic properties listed in or eligible for listing in the National Register, are within the direct or indirect APE of any project components. Therefore, Alternative 1 would result in the same impact and the ***same impact conclusion*** on historical resources or historic properties compared to the proposed project; no impact would result from construction of any project facilities.

Construction of the Alternative 1 Source Water Pipeline along Potrero Road would be adjacent to two previously recorded large prehistoric archaeological sites. The results of a pedestrian survey in December 2014 were inconclusive as to whether these sites extend into the alignment. One additional prehistoric archaeological site and two historic-era artifact scatters are also within a 0.25-mile radius of Alternative 1 components north of the Nashua Road/ Highway 1 intersection. But the potential impacts at CEMEX would be avoided, therefore, the potential for impacts on undiscovered archaeological resources would be the same compared to the proposed project, and the applicant would need to implement **Mitigation Measure ALT 1-CULT (Conduct Subsurface Investigation)** and **Mitigation Measure 4.15-2a** (**Establish Archaeologically Sensitive Area**) to reduce the impact to less than significant.

> **Mitigation Measure ALT 1-CULT (Conduct Subsurface Investigation)**
>
> The applicant shall contract a professional archeologist to conduct a subsurface investigation to disclose whether nearby archaeological sites overlap with the project alignment.

If archaeological resources are found to extend into the Alternative 1 Source Water Pipeline alignment, the applicant would conduct a data recovery investigation or other appropriate measures in accordance with **Mitigation Measure 4.15-2a** (**Establish Archaeologically Sensitive Area**), which includes provisions for an Archaeological Research Design and Treatment Plan in the event a significant archaeological resources cannot be avoided. Implementation of these mitigation measures would reduce the potentially significant impact on archaeological resources and Alternative 1 would result in the ***same impact conclusion*** compared to the proposed project, less than significant with mitigation.

Of the geologic units through which Alternative 1 would require excavation, Older Dune Sands and Terrace Deposits may have the potential for paleontological resources. The University of California Museum of Paleontology (UCMP) database search indicated a few microfossils have been identified from these younger geologic units but none near the location of Alternative 1. Therefore, the potential impact to paleontological resources would be the same as the proposed project and would result in the ***same impact conclusion***, less than significant.

While no known human remains have been documented within the Alternative 1 APE, the possibility of inadvertently uncovering human remains cannot be entirely dismissed. Implementation of **Mitigation Measure 4.15-4** (**Inadvertent Discovery of Human Remains**) would ensure that if human remains are uncovered during project construction the Most Likely Descendant of the deceased Native American is contacted and the remains are treated per the recommendations of the Coroner, reducing impacts to less than significant. Alternative 1 would result in the same impact and the ***same impact conclusion*** compared to the proposed project, less than significant with mitigation.

Operational and Facility Siting Impacts

Impacts on cultural and paleontological resources, if any, would only occur during ground disturbing activity. There would be no operational and facility siting impacts on cultural and paleontological resources and Alternative 1 would have the ***same impact conclusion*** as the proposed project, no impact.

Cumulative Analysis

The geographic scope of analysis for potential cumulative cultural resources impacts encompasses locations where ground disturbing activity would occur under Alternative 1. In addition to the projects relevant to the cumulative scenario for the proposed project, the DeepWater Desal Project (No. 34 in **Table 4.1-2** in Section 4.1) would be located in close proximity to Alternative 1 ground disturbance. This analysis assumes that all of the cumulative projects have a similar potential impact to cultural and paleontological resources. However, because each project's potential impacts would be site-specific to individual components, they would not combine with those of Alternative 1. Therefore, there would be no significant cumulative impact and Alternative 1 would not have a cumulatively considerable contribution to significant cumulative impacts on cultural and paleontological resources. Alternative 1 would have the ***same impact conclusion*** as the proposed project, less than significant.

5.5.15.5 Direct and Indirect Effects of Alternative 2 – Open-Water Intake at Moss Landing

Alternative 2 would supply seawater to the proposed 9.6 mgd desalination plant located at the Charles Benson Road site using a new, screened open-water intake system consisting of an intake structure located offshore in MBNMS and southwest of the Moss Landing Harbor entrance, a subsurface intake pipeline, and an intake pump station on Dolan Road (described in Section 5.4.4). The desalination plant, brine discharge pipeline, new Desalinated Water Pipeline, new Transmission Main, Terminal Reservoir, ASR components, Highway 68 interconnection improvements, and the

Carmel Valley Pump Station would be identical to the proposed project described in Chapter 3, Description of the Proposed Project. Because the open water intake would eliminate the need for returning source water originated from the Salinas Valley Groundwater Basin, the Castroville Pipeline, the Pipeline to CSIP Pond, and operational components related to delivering water to Castroville Community Services District would not be implemented. The open water intake system and the additional 6.5 miles of source water pipeline are the components unique to Alternative 2 (see **Figure 5.4-2**). Therefore, the impact analysis of Alternative 2 focuses primarily on the locations for the intake system and source water pipelines that are different from the proposed project; however, impact conclusions are made for the whole of Alternative 2.

Construction Impacts

No historical resources listed in or eligible for listing in the California Register, or historic properties listed in or eligible for listing in the National Register, are within the direct or indirect APE of any project components. Therefore, Alternative 1 would result in the same impact and the ***same impact conclusion*** on historical resources or historic properties compared to the proposed project; no impact would result from construction of any project facilities.

Similar to Alternative 1, the construction of the Source Water Pipeline along Highway 1 and Dolan Road to Moss Landing would be adjacent to two previously recorded prehistoric archaeological sites. The results of a pedestrian survey in December 2014 were inconclusive as to whether these sites extend into the alignment. Two additional prehistoric archaeological sites and three historic-era artifact scatters are also within a 0.25-mile radius of Alternative 2 components north of Nashua Road and Highway 1 intersection. Alternative 2 would avoid the sites at CEMEX but the potential impacts on undiscovered archaeological resources would be increased compared to the proposed project because of the additional sites. The applicant would implement **Mitigation Measure Alt 1-CULT (Conduct Subsurface Survey)** and in the event that archaeological resources do extend into the Source Water Pipeline alignment, the applicant would avoid or otherwise mitigate significant impacts by conducting a data recovery investigation or other appropriate measures in accordance with **Mitigation Measure 4.15-2a** (**Establish Archaeologically Sensitive Area**) which includes provisions for an Archaeological Research Design and Treatment Plan in the event a significant archaeological resources cannot be avoided.

As stated previously in the setting, there is the potential for shipwrecks to be in the vicinity of Moss Landing. To determine whether shipwrecks or other submerged cultural resources are in the project vicinity, the project sponsor would have to implement a study that included a geophysical survey (magnetometer and side scan sonar) of the project area. Because the locations of all shipwrecks are not mapped, Alternative 2 could result in an increased potential impact compared to the proposed project. Implementation of **Mitigation Measures ALT 1-CULT (Conduct Subsurface Survey)** and **Mitigation Measure 4.15-2a** (**Establish Archaeologically Sensitive Area**) would reduce impacts on archaeological resources and Alternative 2 would result in the ***same impact conclusion*** compared to the proposed project, less than significant with mitigation.

Of the geologic units through which Alternative 2 would require excavation, Older Dune Sands and Terrace Deposits may have the potential for paleontological resources. The UCMP database search indicated a few microfossils have been identified from these younger geologic units but

none near the location of Alternative 2. Therefore, potential impacts on paleontological resources would be increased compared to the proposed project but would result in the ***same impact conclusion***, less than significant.

While no known human remains have been documented within Alternative 2, the possibility of inadvertently uncovering human remains cannot be entirely dismissed. The potential inadvertent discovery of human remains would be increased compared to the proposed project because of the additional 6.5 miles of source water pipeline and could be mitigated to less than significant with implementation of **Mitigation Measure 4.15-4** (**Inadvertent Discovery of Human Remains**), which would ensure that if human remains are uncovered during project construction the Most Likely Descendant of the deceased Native American is contacted and the remains are treated per the recommendations of the Coroner. Alternative 2 would have the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Operational and Facility Siting Impacts

Impacts on cultural and paleontological resources, if any, would only occur during ground disturbing activity. There are no operational and facility siting impacts on cultural and paleontological resources and Alternative 2 would result in the ***same impact conclusions*** as the proposed project, no impact.

Cumulative Analysis

The geographic scope of analysis for potential cumulative cultural resources impacts encompasses locations where ground disturbing activity would occur under Alternative 2. In addition to the projects relevant to the cumulative scenario for the proposed project, the DeepWater Desal Project (No. 34 in **Table 4.1-2** in Section 4.1) would be located in close proximity to or overlapping Alternative 2 ground disturbance. This analysis assumes that all of the cumulative projects have a similar potential impact to cultural and paleontological resources. However, because each project's potential impacts would be site-specific to individual components, they would not combine with those of Alternative 2 to create a significant cumulative effect. Alternative 2 has the potential to disturb shipwrecks, which could be significant. The DeepWater Desal project also would have the potential to disturb shipwrecks, potentially resulting in a significant cumulative impact to which the contribution of Alternative 2 would be cumulatively considerable. However, as described above, implementation of **Mitigation Measures Alt 1-CULT** and **4.15-2a** would result in avoidance of any shipwrecks. Therefore, Alternative 2 would have a greater potential for a cumulatively considerable contribution to a significant cumulative impact on cultural resources, and would result in an ***increased impact conclusion*** compared to the proposed project, less than significant with mitigation.

5.5.15.6 Direct and Indirect Effects of Alternative 3 – Monterey Bay Regional Water Project (MBRWP or DeepWater Desal Project)

Alternative 3 includes the construction and operation of a screened open ocean intake system and a brine discharge system located on the seafloor in Monterey Bay within MBNMS, subsurface pipelines connecting to these intake and discharge systems, a seawater desalination facility and

co-located data center, and associated components to provide up to 25,000 afy of potable water and data transmission and storage services. The two pipelines for the intake and two pipelines for the discharge systems would be installed under the seafloor in MBNMS using HDD. The alternative would also include 6.5 miles of desalinated water pipeline to connect with the CalAm system and up to an additional 25 miles of pipelines to convey the desalinated water to other areas (total of 31.5 miles of additional pipeline). Several components would be identical to the proposed project: the new Transmission Main, new desalinated water pipeline south of the "Connection to CalAm" Point on **Figure 5.4-3**, ASR 5 and 6 wells and ASR pipeline, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be as described in Chapter 3, Description of the Proposed Project. Because this alternative would have an open water intake that would eliminate the need for returning source water that originated from the Salinas Valley Groundwater Basin, the Castroville Pipeline, Pipeline to CSIP Pond, and operational components related to delivering water to CCSD would not be implemented. The desalination plant and data center, open water intake system, brine discharge system, and the additional 31.5 miles of desalinated water pipeline are the components unique to Alternative 3 (see **Figure 5.4-3**). Therefore, the impact analysis of Alternative 3 focuses primarily on these components; however, impact conclusions are made for the whole of Alternative 3.

Construction Impacts

Construction of Alternative 3 near Moss Landing would impact two previously recorded prehistoric archaeological sites that have been evaluated as eligible for listing in the National Register of Historic Places. The results of the surface survey indicate these sites extend into the DeepWater Desal Project area (WSA, 2016). Two additional prehistoric archaeological sites and three historic-era artifact scatters are also within a 0.25-mile radius of Moss Landing, resulting in an increased potential impact on undiscovered resources and the need to implement **Mitigation Measure ALT 1-CULT (Conduct Subsurface Survey).** Further, if site locations cannot be avoided, implementation of **Mitigation Measure 4.15-2a** (**Establish Archaeologically Sensitive Area**) would be necessary to mitigate significant impacts on archaeological resources to less than significant.

As stated previously in the setting, there is also the potential for shipwrecks in the vicinity of Moss Landing. To determine whether shipwrecks or other submerged cultural resources are in the project vicinity, a study would be required that included a geophysical survey (magnetometer and side scan sonar) of the project area. Because the locations of shipwrecks are currently unknown, Alternative 3 could result in an increased potential impacts compared to the proposed project and implementation of **Mitigation Measures ALT 1-CULT** and **Mitigation Measure 4.15-2a** (**Establish Archaeologically Sensitive Area**) would result in an ***increased impact conclusion*** on historic properties or sites, and the ***same impact conclusion*** on archaeological resources compared to the proposed project, less than significant with mitigation.

Of the geologic units through which Alternative 3 would require excavation, Older Dune Sands and Terrace Deposits may have the potential for paleontological resources. The UCMP database search indicated a few microfossils had been identified from these younger geologic units but none near the location of Alternative 3. Therefore, the potential impact to paleontological resources

would be the same compared to the proposed project and would result in the ***same impact conclusion***, less than significant.

While no known human remains have been documented within the Alternative 3 site, the possibility of inadvertently uncovering human remains cannot be entirely dismissed. The potential for inadvertent discovery of human remains would be the same compared to the proposed project and could be mitigated to less than significant with implementation of proposed project **Mitigation Measure 4.15-4** (**Inadvertent Discovery of Human Remains**), which would ensure that if human remains are uncovered during project construction the Most Likely Descendant of the deceased Native American is contacted and the remains are treated per the recommendations of the Coroner. Alternative 3 would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Operational and Facility Siting Impacts

Impacts on cultural and paleontological resources, if any, would only occur during ground disturbing activity. There are no operational and facility siting impacts on cultural and paleontological resources and Alternative 3 would have the ***same impact conclusion*** as the proposed project, no impact.

Cumulative Analysis

The geographic scope of analysis for cumulative cultural resources impacts is defined by the location of the components of Alternative 3 and those of other projects that are located within the same area. The GWR Project (No. 59 in **Table 4.1-2** in Section 4.1) would be located south and east of the Alternative 3 components and would not geographically overlap with the Alternative 3 components. The Moss Landing Community Plan (No. 37) is located geographically near or overlapping some Alternative 3 components, but proposed development under this plan would not have physical impacts on cultural resources that could combine with those of Alternative 3. Other projects that include ground disturbance would be required to comply with similar mitigation to that described for Alternative 3, including inadvertent discovery measures, monitoring, and data recovery, which would reduce impacts to less-than-significant levels. Additionally, Alternative 3 has the potential to disturb shipwrecks, a potentially significant impact that could be reduced to less than significant with mitigation. However, no other project in the cumulative scenario for Alternative 3 would have the potential to disturb shipwrecks; therefore, a cumulative analysis is not relevant to this impact. Alternative 3 would result in an ***increased impact conclusion*** compared to the proposed project, less than significant with mitigation.

5.5.15.7 Direct and Indirect Effects of Alternative 4 – People's Moss Landing Water Desalination Project (People's Project)

Alternative 4 includes the construction and operation of an open ocean intake, a brine discharge system and pipelines, and supporting ballast rock located on the seafloor in Monterey Bay within MBNMS, as well as a 12 mgd desalination plant and associated facilities to provide 13,400 afy of water supply to meet the current and future needs of the Monterey Peninsula. Several components would be identical to the proposed project: the new Transmission Main, new desalinated water

pipeline south of the "Connection to CalAm" Point on **Figure 5.4-4**, ASR-5 and -6 wells and ASR pipeline, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be as described in Chapter 3, Description of the Proposed Project. Because this alternative would have an open water intake that would eliminate the need for returning source water that originated from the Salinas Valley Groundwater Basin, the Castroville Pipeline, Pipeline to CSIP Pond, and operational components related to delivering water to CCSD would not be implemented. The desalination plant, open water intake system, brine discharge system, and the additional 6.5 miles of desalinated water pipeline are the components unique to Alternative 4 (see **Figure 5.4-4**). Therefore, the impact analysis of Alternative 4 focuses primarily on these components; however, impact conclusions are made for the whole of Alternative 4.

Construction Impacts

There are several structures at the proposed location of the Alternative 4 desalination plant on the National Refractories site that have not been evaluated for listing in the California and National Registers and this would be an increased impact on historic structures compared to the proposed project. If determined to be legally significant historical resources/historic properties, impacts from construction of Alternative 4 could result in an ***increased impact conclusion*** compared to the proposed project, significant and unavoidable.

The location of Alternative 4 near Moss Landing would be adjacent to two previously recorded prehistoric archaeological sites. Two additional prehistoric archaeological site and three historic-era artifact scatters are also within a 0.25-mile radius of the Alternative 4 and this would be an increased impact compared to the proposed project. Additionally, there is the potential for shipwrecks to be in Monterey Bay within MBNMS in the vicinity of Moss Landing. To determine whether shipwrecks or other submerged cultural resources are in the project vicinity, a study that includes a geophysical survey (magnetometer and side scan sonar) of the project area would be required. Because the locations of these resources are not entirely known relative to the Alternative 4 components north of the Nashua Road/Highway 1 intersection, there would be potentially significant impact. Implementation of **Mitigation Measure ALT 1-CULT** would reduce impacts to less than significant. Further, if site locations cannot be avoided, implementation of **Mitigation Measure 4.15-2a** (**Establish Archaeologically Sensitive Area**) would impacts on archaeological resources and Alternative 4 would result in the ***same impact conclusion*** compared to the proposed project, less than significant with mitigation.

Of the geologic units through which Alternative 4 would require excavation, Older Dune Sands and Terrace Deposits may have the potential for paleontological resources resource. The UCMP database search indicated a few microfossils from these younger geologic units had been identified but none near the location of Alternative 4. Therefore, the potential impact to paleontological resources would be the same, and Alternative 4 would result in the ***same impact conclusion*** compared to the proposed project, less than significant.

While no known human remains have been documented within the Alternative 4 site, the possibility of inadvertently uncovering human remains cannot be entirely discounted. The potential inadvertent discovery of human remains could be mitigated to less than significant with implementation of **Mitigation Measure 4.15-4** (**Inadvertent Discovery of Human Remains**),

which would ensure that if human remains are uncovered during project construction the Most Likely Descendant of the deceased Native American is contacted and the remains are treated per the recommendations of the Coroner. Alternative 4 would result in the ***same impact conclusion***, less than significant with mitigation.

Operational and Facility Siting Impacts

Impacts on cultural and paleontological resources, if any, would only occur during ground disturbing activity. There are no operational and facility siting impacts on cultural and paleontological resources and Alternative 4 would have the ***same impact conclusion*** as the proposed project, no impact.

Cumulative Analysis

The geographic scope of analysis for cumulative cultural resources impacts is defined by the location of Alternative 4 and those of other projects that are located within the same area. The DeepWater Desal Project (No. 34 in **Table 4.1-2** in Section 4.1) and the Moss Landing Community Plan (No. 37) are located geographically near or overlapping some of the Alternative 4 components. Other projects that include ground disturbance would be required to comply with similar mitigation to that described for Alternative 4, including inadvertent discovery measures, monitoring, and data recovery, which would reduce impacts to less-than-significant levels. Alternative 4 has the potential for significant and unavoidable impacts on historical resources/historic properties at the National Refractories site. However, no other project in the cumulative scenario for Alternative 4 would be located at or result in impacts at the National Refractories site; therefore, a cumulative analysis is not relevant to this impact. Alternative 4 has the potential to disturb shipwrecks, which could be significant. The DeepWater Desal project also would have the potential to disturb shipwrecks, potentially resulting in a significant cumulative impact to which the contribution of Alternative 4 would be cumulatively considerable. However, as described above, implementation of **Mitigation Measures Alt 1-CULT** and **4.15-2a** would result in avoidance of any shipwrecks. Therefore, Alternative 4 would have a greater potential for a cumulatively considerable contribution to a significant cumulative impact on cultural resources, it would result in an ***increased impact conclusion*** compared to the proposed project, less than significant with mitigation.

5.5.15.8 Direct and Indirect Effects of Alternative 5 – Reduced Desal Project 5a (CEMEX) and 5b (Potrero Road)

Alternative 5a would include the seawater intake system at the CEMEX site (the same location as the proposed project), but would include only seven subsurface slant wells (the converted test well and six new wells) and the same source water pipeline as the proposed project. Alternative 5b would include seven new wells at the western end of Potrero Road (the same location as Alternative 1) and the same source water pipeline as Alternative 1. Both Alternatives 5a and 5b would include a reduced-capacity desalination plant (6.4 mgd), and all other components would be the same as the proposed project.

Construction Impacts

Construction of Alternative 5a would occur in the same locations as the proposed project. Construction of Alternative 5b would be located in the same locations as Alternative 1 north of the Nashua Road/Highway 1 intersection. Therefore, even though Alternative 5a and 5b would have fewer wells and a reduced size desalination facility compared to the proposed project, and Alternative 5b would have a longer source water pipeline, Alternatives 5a and 5b would result in the ***same impact conclusions*** as the proposed project for historic properties (No Impact), archaeological resources (less than significant with mitigation), paleontological resources (less than significant) and disturbance of human remains (less than significant with mitigation).

Operational and Facility Siting Impacts

Impacts on cultural and paleontological resources, if any, would only occur during ground disturbing activity. There are no operational and facility siting impacts on cultural and paleontological resources and Alternatives 5a and 5b would have the ***same impact conclusions*** as the proposed project, no impact.

Cumulative Analysis

Combined Impacts with GWR Project

The GWR Project (No. 59 in **Table 4.1-2** in Section 4.1) would have similar potential impacts on cultural and paleontological resources as ground disturbance under Alternatives 5a and 5b. However, because each project's potential impacts would be site-specific to individual components, they would not combine to result in a significant cumulative impact.

Impacts of Full Cumulative Scenario

The cumulative impact analysis for Alternatives 5a and 5b would be the same as that described for the proposed project and Alternative 1, respectively. As described above, the GWR Project would not contribute to a cumulative impact with Alternatives 5a and 5b. Therefore, Alternatives 5a and 5b would have the ***same impact conclusion*** as the proposed project, less than significant.

5.5.15.9 References

William Self Associates (WSA), 2016. *Cultural Resources Assessment Report, Monterey Bay Regional Water Project, Main Facility Site, Moss Landing, Monterey County, California*. Prepared for DeepWater Desal LLC, April 2016.

5.5.16 Agricultural Resources

The evaluation criteria for Agricultural Resources address: disruption of agricultural activities or permanent conversion of farmland to non-agricultural use; conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use; and potential conflicts with zoning for agricultural uses or with Williamson Act contracts.

5.5.16.1 Setting/Affected Environment

The environmental setting and regulatory framework for the alternatives would be similar to the proposed project, which includes local and state regulations that apply to agricultural resources in Monterey County. As such, descriptions of the environmental setting and regulatory framework for agricultural resources are provided in Section 4.16. The environmental setting for the components that are common to the proposed project are also discussed in Section 4.16. This section focuses on the facilities that are unique to the alternatives

The area north of the Salinas River and south of the Moro Cojo Slough is primarily Prime Farmland, with small pockets of Farmland of Statewide Importance, Unique Farmland, and Grazing Lands as designated by the California Department of Conservation (CDC) Farmland Mapping and Monitoring Program (FMMP) (CDC, 2015). Williamson Act contracted lands make up approximately half of the agricultural parcels in this area (CDC, 2016) and the area is primarily zoned for Agricultural Preservation (Monterey County, 2007).

In the Moss Landing area north of the Moro Cojo Slough, lands are designated primarily as Urban and Built-Up, and Other Land (CDC, 2015). No agricultural zoning exists there except for a parcel located one mile from Highway 1 on the north side of Dolan Road that is designated for Agricultural Preservation (Monterey County, 2007).

5.5.16.2 Direct and Indirect Effects of the Proposed Project – Slant Wells at CEMEX

The proposed project extends from Castroville in the north to the city of Carmel in the south (see **Figure 3-2**) and would include construction of a desalination plant on 25 acres along Charles Benson Road northeast of the City of Marina, up to nine new subsurface slant wells at the CEMEX active mining area, two new wells (ASR-5 and ASR-6) at the existing Seaside Groundwater Basin ASR system, the Carmel Valley Pump Station, and about 21 miles of water conveyance pipelines. The direct and indirect impacts of the proposed project are described in detail in Section 4.7.5.

The following paragraphs briefly summarize the impacts of the proposed project with respect to agricultural resources. The detailed impact analysis of the proposed project is provided in Section 4.16.

Impact 4.16-1: Result in changes in the existing environment that, due to their location or nature, could temporarily disrupt agricultural activities or result in the permanent conversion of farmland to non-agricultural use.

Construction of the Source Water Pipeline, new Desalinated Water Pipeline, and Castroville Pipeline that would be installed within a 2,500 foot segment of designated farmland that is currently under cultivation for flower production north of Charles Benson Road would cause physical changes to the environment that could result in the conversion of farmland to non-agricultural uses, a significant impact. Implementation of **Mitigation Measure 4.16-1 (Minimize Disturbance to Farmland)** would reduce this impact to a less-than-significant level. This measure requires coordination with property owners, separation of soil layers when stockpiling during excavation, avoidance of soil compaction measures, and inspection and restoration of all drainage systems.

None of the other proposed facilities or pipeline alignments in areas mapped as designated farmland by the California Department of Conservation would result in conversion of farmland since installation would be confined to rights-of-way or road shoulders where no crops are grown, or land that has been fallow for more than four years prior to the farmland mapping date.

Impact 4.16-2: Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use.

Implementation of the Source Water Pipeline, new Desalinated Water Pipeline, and Castroville Pipeline installed in the farmland north of Charles Benson Road would result in a less-than-significant impact related to the permanent conversion of important farmland to non-agricultural uses since farming practices would resume after construction and important farmland would not be displaced. For all other facilities, no impact would result.

Impact 4.16-3: Conflict with zoning for agricultural uses or with Williamson Act contracts.

None of the proposed facilities would conflict with agricultural zoning. The Source Water Pipeline, new Desalinated Water Pipeline, and Castroville Pipeline installed in farmland north of Charles Benson Road (a portion of which is designated as Williamson Act land) would result in a less-than-significant impact related to conflicts with Williamson Act contracts because existing agricultural uses could resume during operations. All other proposed facilities, including all optional pipeline alignments, would have no impact on Williamson Act land.

Impact 4.16-C: Cumulative impacts related to agricultural resources.

Proposed project construction could have a cumulatively considerable contribution to significant cumulative effects on the conversion of farmland to non-agricultural use because cumulative projects in the project area would temporarily disrupt agricultural uses during construction, but since cumulative projects enlist mitigation measures to reduce construction impacts and because the proposed project would implement mitigation measures identified in Impact 4.16-1, this impact would be reduced to a less-than-significant level. Project operations would not have a considerable contribution to a cumulative impact associated with the conversion of Prime Farmland, Unique

Farmland, Farmland of Statewide Importance to non-agricultural use, nor with land zoned for agricultural uses or with Williamson Act contracts regardless of the impacts of other projects in the cumulative scenario because it would not result in the conversion of such resources during operation.

5.5.16.3 Direct and Indirect Effects of No Project Alternative

Under the No Project Alternative, no new facilities would be constructed. Consequently, there would be no ground disturbance or placement of new structures that could affect agricultural resources, and thus no construction- related direct or indirect impacts on agricultural resources. Additionally, changes in future water supplies described in Section 5.4.2 as a result of the No Project Alternative would not directly or indirectly adversely affect the availability of water currently used for agricultural purposes, and thus would not result in the permanent conversion of farmland to non-agricultural use. Because the No Project Alternative would have no direct or indirect impacts with respect to agricultural resources, it could not contribute to cumulative effects related to these topics.

5.5.16.4 Direct and Indirect Effects of Alternative 1 - Slant Wells at Potrero Road

Alternative 1 would supply seawater to the proposed 9.6 mgd desalination plant located at the Charles Benson Road site using the same type of subsurface intake system as the proposed project, but at a different location (described in Section 5.4.3). The desalination plant, brine discharge pipeline, Castroville Pipeline, Pipeline to CSIP Pond, new Desalinated Water Pipeline, new Transmission Main, Terminal Reservoir, ASR components, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be identical to the proposed project described in Chapter 3, Description of the Proposed Project. The location of the slant wells at Potrero Road and the additional 5.5 miles of source water pipeline are the components unique to Alternative 1 (see **Figure 5.4-1**). Therefore, the agricultural impact analysis of Alternative 1 focuses primarily on locations for the intake system and source water pipelines that are different from the proposed project; however, impact conclusions are made for the whole of Alternative 1.

Construction Impacts

The intakes at the Potrero Road parking lot would not be located within or adjacent to farmland. Therefore, construction of these components would have no impact on agricultural resources. North of the Salinas River, construction of the alternative source water pipeline would not result in the disturbance of agricultural activities or farmland because the disturbance would be contained to rights-of-way, and would not extend into cultivated land. Construction would not affect soil conditions in farmland areas and would not result in the conversion of farmland to non-agricultural uses. No impact on agricultural activities or farmland would result from construction of the source water pipeline north of the Salinas River.

Thus, combining the impacts of the components common to the proposed project and Alternative 1 with the addition of 5.5 miles of source water pipeline and slant wells at Potrero Road, construction of Alternative 1 would have the same potential for disruption to agricultural activities or the conversion of farmland to non-agricultural use, but with implementation of **Mitigation**

Measure 4.16-1 (**Minimize Disturbance to Farmland**), would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Operational and Facility Siting Impacts

The intake system at Potrero Road would not be located within or adjacent to Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, land zoned for agricultural uses, or land under Williamson Act contract. Therefore, operation and siting of the intake system would have no impact on agricultural resources. Since the alternative source water pipeline would be located within rights-of-way and not within cultivated land, the additional 5.5 miles of pipeline would have no impact on Prime Farmland, Farmland of Statewide Importance, or Williamson Act contracts. The source water pipeline would be buried, and therefore, consistent with Section 21.64.160 of the Monterey County Zoning Ordinance, which allows underground public utilities in all zoning districts without obtaining a use permit.

Thus, combining the impacts of components common to the proposed project and Alternative 1 with the addition of 5.5 miles of source water pipeline and slant wells at Potrero Road, operation of Alternative 1 would result in the ***same impact conclusion*** as the proposed project with respect to both operational evaluation criteria, conversion of farmland to non-agricultural use and conflicts with zoning for agricultural uses or with Williamson Act contracts, less than significant.

Cumulative Analysis

The geographic scope of analysis for cumulative impacts related to agricultural resources for Alternative 1 is defined by the location of the Alternative 1 components, and is the same as that described for the proposed project in Section 4.16.6, with the exception of the different location of the seawater intake system (Potrero Road, instead of CEMEX), and the alternative source water pipeline route. The cumulative scenario for Alternative 1 includes the Regional Urban Water Augmentation Project (RUWAP) Recycled Water Project (No. 35), the Monterey Peninsula Light Rail Project (No. 38), and the DeepWater Desal Project (No. 34) described in **Table 4.1-2** in Section 4.1. Cumulative impacts from construction and operation of Alternative 1 would be the same as those described for the proposed project. Construction impacts have the potential to be cumulatively considerable, but with implementation of mitigation measures described above, Alternative 1 would not have a cumulatively considerable contribution to significant cumulative impacts. Operational and facility siting impacts would not have a cumulatively considerable contribution to significant cumulative impacts related to farmland conversion, conflicts with zoning, or Williamson Act lands. Therefore, Alternative 1 would result in the ***same impact conclusion*** as the proposed project for cumulative effects related to agricultural resources, less than significant with mitigation.

5.5.16.5 Direct and Indirect Effects of Alternative 2 – Open-Water Intake at Moss Landing

Alternative 2 would supply seawater to the proposed 9.6 mgd desalination plant located at the Charles Benson Road site using a screened open-water intake system consisting of an intake structure located offshore in MBNMS and southwest of the Moss Landing Harbor entrance, a

subsurface intake pipeline, and an intake pump station (described in Section 5.4.4). The desalination plant, brine discharge pipeline, new Desalinated Water Pipeline, new Transmission Main, Terminal Reservoir, ASR components, Highway 68 interconnection improvements, and the Carmel Valley Pump Station would be identical to the proposed project described in Chapter 3, Description of the Proposed Project. Because the open water intake would eliminate the need for returning source water that originated from the Salinas Valley Groundwater Basin, the Castroville Pipeline, the Pipeline to CSIP Pond, and operational components related to delivering water to Castroville Community Services District would not be implemented. The open water intake system and the additional 6.5 miles of source water pipeline are the components unique to Alternative 2 (see **Figure 5.4-2**). Therefore, the agricultural impact analysis of Alternative 2 focuses primarily on the locations for the intake system and source water pipelines that are different from the proposed project; however, impact conclusions are made for the whole of Alternative 2.

Construction Impacts

The intake system at Moss Landing and the pump station on Dolan Road would not be located within or adjacent to farmland. Therefore, construction of these components would have no impact on agricultural resources. No part of the source water pipeline from Dolan Road to Potrero Road would be constructed within or adjacent to farmland. From Potrero Road south, the alternative source water pipeline would be the same as Alternative 1. There would be no impacts on farmland from construction of Alternative 2 components north of the Salinas River.

Thus, combining the impacts of the components common to the proposed project and Alternative 2 with the addition of 6.5 miles of source water pipeline and the open water intake system, construction of Alternative 2 would have the same potential for disruption to agricultural activities or the conversion of farmland to non-agricultural use, but with implementation of **Mitigation Measure 4.16-1** (**Minimize Disturbance to Farmland**), would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Operational and Facility Siting Impacts

The intake system at Moss Landing and the pump station on Dolan Road would not be located within or adjacent to Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, land zoned for agricultural uses, or land under Williamson Act contract; therefore, operation and siting of the intake system would have no impact on agricultural resources.

No part of the alternative source water pipeline from Dolan Road to Potrero Road would be located within or adjacent to Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, or land under Williamson Act contracts. A small portion of this alignment would be located in the right-of-way adjacent to land zoned for Agricultural Conservation (Monterey County, 2007), but the pipeline would be buried and therefore consistent with Section 21.64.160 of the Monterey County Zoning Ordinance, which allows underground public utilities in all zoning districts, without the necessity of obtaining a use permit.

From Potrero Road south, the alternative source water pipeline would be the same as the source water pipeline in Alternative 1. In sum, there would be no impact on Prime Farmland, Unique

Farmland, or Farmland of Statewide Importance, land zoned for agricultural uses, or Williamson Act contracts from the operation and siting of the source water pipeline north of the Salinas River.

Thus, combining the impacts of the components common to the proposed project and Alternative 2 with the addition of 6.5 miles of source water pipeline and the open water intake system, operation of Alternative 2 would result in the ***same impact conclusion*** as the proposed project with respect to both operational evaluation criteria, conversion of farmland to non-agricultural use and conflicts with zoning for agricultural uses or with Williamson Act contracts, less than significant.

Cumulative Analysis

The geographic scope of analysis for cumulative impacts related to agricultural resources for Alternative 2 is defined by the location of the Alternative 2 components, and is the same as that described for the proposed project in Section 4.16.6, with exception of the different location of the seawater intake system (Moss Landing instead of CEMEX) and the alternative source water pipeline route, and the elimination of the Castroville Pipeline and Pipeline to CSIP. The cumulative scenario for Alternative 2 includes the Regional Urban Water Augmentation Project (RUWAP) Recycled Water Project (No. 35), the Monterey Peninsula Light Rail Project (No. 38) and the DeepWater Desal Project (No. 34) described in **Table 4.1-2** in Section 4.1. Cumulative impacts from construction and operation of Alternative 2 would be the same as those described for the proposed project. Construction impacts have the potential to be cumulatively considerable, but with implementation of **Mitigation Measure 4.16-1**, Alternative 2 would not have a cumulatively considerable contribution to significant cumulative impacts. Operational and facility siting impacts would not have a cumulatively considerable contribution to significant cumulative impacts related to farmland conversion, conflicts with zoning, or Williamson Act lands. Therefore, Alternative 2 would result in the ***same impact conclusion*** as the proposed project for cumulative effects related to agricultural resources, less than significant with mitigation.

5.5.16.6 Direct and Indirect Effects of Alternative 3 – Monterey Bay Regional Water Project (MBRWP or DeepWater Desal Project)

Alternative 3 includes the construction and operation of a screened open ocean intake system and a brine discharge system located on the seafloor in Monterey Bay within MBNMS, subsurface pipelines connecting to these intake and discharge systems, a seawater desalination facility and co-located data center, and associated components to provide up to 25,000 afy of potable water and data transmission and storage services. The pipelines for the intake and discharge systems would be installed using HDD. The alternative would also include 6.5 miles of desalinated water pipeline to connect with the CalAm system and up to an additional 25 miles of pipelines to convey the desalinated water to other areas (total of 31.5 miles of additional pipeline). Several components would be identical to the proposed project: the new Transmission Main, new desalinated water pipeline south of the “Connection to CalAm” Point on **Figure 5.4-3**, ASR 5 and 6 wells and ASR pipeline, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be as described in Chapter 3, Description of the Proposed Project. Because this alternative would have an open water intake that would eliminate the need for returning source water drawn from the Salinas Valley Groundwater Basin, the proposed project Castroville

Pipeline, Pipeline to CSIP Pond, and operational components related to delivering water to CCSD would not be implemented. In addition, proposed project components along Charles Benson Road would not be implemented. The desalination plant and data center, open water intake system, brine discharge system, and the additional 31.5 miles of desalinated water pipeline are the components unique to Alternative 3 (see **Figure 5.4-3**). Therefore, the agricultural impact analysis of Alternative 3 focuses primarily on these components; however, impact conclusions are made for the whole of Alternative 3.

Construction Impacts

The seawater intake system at Moss Landing, source water pipeline, and brine discharge pipeline and outfall would not be located within or adjacent to farmland. Therefore, construction of these components would have no impact on agricultural resources. The desalination plant, data center, and substation would border farmland, but construction activities would be contained to the project area boundary and not disturb agricultural activities or convert farmland to non-agricultural uses. From Dolan Road and Highway 1, the desalinated water pipeline would be the same as the source water pipeline in Alternative 2, and similarly would have no impact on agricultural resources. Up to 25 miles of additional desalinated water pipelines would need to be constructed to deliver excess water (above the 9.6 mgd demand from CalAm's Monterey District service area) to potential customers in Santa Cruz County, Salinas, or both. Due to the presence of farmland between Moss Landing and Santa Cruz County to the north and Salinas to the southeast, it is likely that construction of these pipelines could be located in rights-of-way, but would still have the potential to disturb agricultural activities or result in the conversion of farmland; however, the exact alignments for these pipelines are currently not known.

South of the Salinas River, the desalinated water pipeline would join the proposed project at the "Connection to CalAm" Point. No pipelines would be constructed within farmland north of Charles Benson Road. All pipelines would be constructed within rights-of-way and no disturbance to farmland would result.

Because construction of pipelines between Moss Landing and Santa Cruz County to the north and Salinas to the southeast could disturb agricultural activities or convert farmland, Alternative 3 has an increased potential to impact agricultural resources compared to the proposed project; however, implementation of **Mitigation Measure 4.16-1(Minimize Disturbance to Farmland)** would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Operational and Facility Siting Impacts

The intake system at Moss Landing, source water pipeline, desalination plant, data center, substation, and brine discharge pipeline and outfall would not be located within or adjacent to Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, or land under Williamson Act contract. Therefore, operation of these components would have no impact on agricultural resources. The desalination plant, data center and substation would border land zoned for Agricultural Preservation, but the footprint would not extend into agricultural land and no impact would result.

Operational and facility siting impacts of the desalinated water pipeline would be the same as described for the source water pipeline in Alternative 2; no impact to Prime Farmland, Unique Farmland, Farmland of Statewide Importance, land zoned for agricultural uses, or Williamson Act contracts would result.

Because pipelines between Moss Landing and Santa Cruz County to the north and Salinas to the southeast could be installed within designated farmland or Williamson Act contracts, Alternative 3 has an increased potential to impact agricultural resources compared to the proposed project. However, since underground utilities are allowed in all zoning districts in Monterey County and Santa Cruz County (Santa Cruz County, 2015), and since agricultural uses could resume during operations, Alternative 3 would have the ***same impact conclusion*** as the proposed project with respect to both operational evaluation criteria, conversion of farmland to non-agricultural use and conflicts with zoning for agricultural uses or with Williamson Act contracts, less than significant.

Cumulative Analysis

The geographic scope of analysis for cumulative agricultural impacts for Alternative 3 is defined by the location of the Alternative 3 components. The cumulative scenario for Alternative 3 includes the Regional Urban Water Augmentation Project (RUWAP) Recycled Water Project (No. 35) and the Monterey Peninsula Light Rail Project (No. 38), described in **Table 4.1-2** in Section 4.1. Construction impacts have the potential to be cumulatively considerable, but with implementation of **Mitigation Measure 4.16-1**, Alternative 3 would not have a cumulatively considerable contribution to significant cumulative impacts. Operational and facility siting impacts would not have a cumulatively considerable contribution to significant cumulative impacts related to farmland conversion or Williamson Act lands. Therefore, Alternative 3 would result in the ***same impact conclusion*** as the proposed project for cumulative effects related to agricultural resources, less than significant with mitigation.

5.5.16.7 Direct and Indirect Effects of Alternative 4 – People's Moss Landing Water Desalination Project (People's Project)

Alternative 4 includes the construction and operation of an open ocean intake, a brine discharge system and pipelines, and supporting ballast rock located on the seafloor in Monterey Bay within MBNMS, as well as a 12 mgd desalination plant and associated facilities to provide 13,400 afy of water supply to meet the current and future needs of the Monterey Peninsula. Several components would be identical to the proposed project: the new Transmission Main, new desalinated water pipeline south of the "Connection to CalAm" Point on **Figure 5.4-4**, ASR-5 and -6 wells and ASR pipeline, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be as described in Chapter 3, Description of the Proposed Project. Because this alternative would have an open water intake that would eliminate the need for returning source water drawn from the Salinas Valley Groundwater Basin, the proposed project Castroville Pipeline, Pipeline to CSIP Pond, and operational components related to delivering water to CCSD would not be implemented. In addition, proposed project components along Charles Benson Road would not be implemented. The desalination plant, open water intake system, brine discharge system, and the additional 6.5 miles of desalinated water pipeline are the components unique to Alternative 4 (see

Figure 5.4-4). Therefore, the agricultural impact analysis of Alternative 4 focuses primarily on these components; however, impact conclusions are made for the whole of Alternative 4.

Construction Impacts

The intake system at Moss Landing, source water pipeline, desalination plant, and brine discharge pipeline and outfall would not be located within or adjacent to farmland. Therefore, construction of these components would have no impact on agricultural resources.

From Dolan Road and Highway 1 south, the desalinated water pipeline would be the same as the source water pipeline in Alternative 2, and similarly would have no impact on agricultural resources. Similar to Alternative 3, pipelines south of the Salinas River would be constructed within rights-of-way and no disturbance to farmland would result. Thus, combining the impacts of proposed project components with the addition of the components unique to Alternative 4, construction of Alternative 4 would result in a ***reduced impact conclusion*** compared to the proposed project, no impact.

Operational and Facility Siting Impacts

The intake system at Moss Landing, the source water pipeline, desalination plant, and brine discharge pipeline and outfall would not be located within or adjacent to Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, land zoned for agricultural uses, or land under Williamson Act contract. Therefore, operation of these components would have no impact on agricultural resources.

From Dolan Road and Highway 1 south, the desalinated water pipeline would be the same as the source water pipeline in Alternative 2; therefore there would be no impacts on Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, land zoned for agricultural uses, or Williamson Act contracts from the operation and siting of the source water pipeline north of the Salinas River. No pipelines south of the Salinas River would be installed in areas mapped as designated farmland, land zoned for agricultural uses, or Williamson Act contracts.

Thus, combining the impacts of proposed project components with the addition of components unique to Alternative 4, operation and siting of Alternative 4 would result in a ***reduced impact conclusion*** compared to the proposed project, no impact.

Cumulative Analysis

Because construction and operation of Alternative 4 would have no impact on agricultural resources, Alternative 4 would not contribute to a cumulative impact on agricultural resources. Therefore, Alternative 4 would result in a ***reduced impact conclusion*** compared to the proposed project for cumulative effects related to agricultural resources, no impact.

5.5.16.8 Direct and Indirect Effects of Alternative 5 – Reduced Desal Project 5a (CEMEX) and 5b (Potrero Road)

Alternative 5a would include the seawater intake system at the CEMEX site (the same location as the proposed project), but would include only seven subsurface slant wells (the converted test well and six new wells) and the same source water pipeline as the proposed project. Alternative 5b would include seven new wells at the western end of Potrero Road (the same location as Alternative 1) and the same source water pipeline as Alternative 1. Both Alternatives 5a and 5b would include a reduced-capacity desalination plant (6.4 mgd), and all other components would be the same as the proposed project.

Construction, Operational, and Facility Siting Impacts

Alternatives 5a and 5b would have the same pipeline configurations and facility locations as the proposed project and Alternative 1, respectively. Therefore, Alternatives 5a and 5b would have the same construction impacts on agricultural resources as the proposed project and Alternative 1, respectively. Thus, construction of Alternatives 5a and 5b would have the same potential for disruption to agricultural activities or the conversion of farmland to non-agricultural use, but with implementation of **Mitigation Measure 4.16-1 (Minimize Disturbance to Farmland)**, would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation. Similarly, operation of Alternatives 5a and 5b would result in the ***same impact conclusion*** as the proposed project, less than significant.

Cumulative Analysis

Combined Impacts with GWR Project

As described in the GWR Project FEIR (MRWPCA, 2016), the GWR Project would have no permanent impact on agricultural resources. It would result in temporary disruption to agricultural production during construction of the Salinas Treatment Facility and a portion of the Blanco Drain Diversion that would be of the same nature as temporary impacts described for the proposed project. The GWR Project would not convert farmland to non-agricultural use, and after implementation of adopted GWR FEIR **Mitigation Measure LU-1**, which would minimize disturbance to farmland during construction of these components, GWR Project impacts would be less than significant. The GWR Project would have no impact on the conversion of important farmland during operation, and no impact related to conflicting with zoning for agricultural uses or Williamson Act contracts during construction or operation (MRWPCA, 2016). Therefore, it would not contribute to the less-than-significant impacts of Alternatives 5a and 5b. Because both projects would minimize construction-related disturbance to farmland through mitigation, the combined temporary impact of construction-related disturbance from Alternatives 5a or 5b and the GWR Project would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Impacts of Full Cumulative Scenario

The geographic scope for the cumulative analysis of impacts from Alternative 5a and 5b is the same as that described for the proposed project and Alternative 1, respectively. The cumulative

scenario for Alternatives 5a and 5b includes the same projects discussed for the cumulative analysis of the proposed project, with the addition of the GWR Project, which as described above would not increase the overall cumulative impact. Therefore, Alternatives 5a and 5b would have the same contribution to cumulative impacts on agricultural resources as the proposed project during construction and operation. Construction impacts have the potential to be cumulatively considerable and with implementation of mitigation measures described above, Alternatives 5a and 5b would not have a cumulatively considerable contribution to significant cumulative impacts. Operational and facility siting impacts would not have a cumulatively considerable contribution to cumulative impacts related to farmland conversion, conflicts with zoning, or Williamson Act lands. Therefore, Alternatives 5a and 5b would result in the ***same impact conclusion*** as the proposed project for cumulative effects related to agricultural resources, less than significant with mitigation.

5.5.16.9 References

California Department of Conservation (CDC), Division of Land Resource Protection, 2015. *Monterey County Important Farmland 2012, Sheet 1 of 2*. Available online at: ftp://ftp.consrv.ca.gov/pub/dlrp/FMMP/.../2012/mnt12_no.pdf. Accessed May 6, 2016.

California Department of Conservation (CDC), Division of Land Resource Protection, 2016. *Monterey County Williamson Act FY 2015/2016, Sheet 1 of 2*. Available online at: ftp://ftp.consrv.ca.gov/pub/Dlrp/WA/Monterey_no_15_16_WA.pdf. Accessed May 6, 2016.

Monterey County, 2007. *Land Use Plan – North County*. Map prepared by Monterey County Planning and Building Inspection Department August 21, 2007.

Monterey Regional Water Pollution Control Agency (MRWPCA), 2016. *Consolidated Final Environmental Impact Report for the Pure Water Monterey Groundwater Replenishment Project.* January 2016.

Santa Cruz County, 2015. *Zoning and Development Code*. Available online at http://www.santacruzcountyaz.gov/DocumentCenter/Home/View/5116. Accessed December 8, 2016.

5.5.17 Mineral Resources

The evaluation criteria for Mineral Resources address the loss of availability of known mineral resources that are of value to the region or residents of the state and the loss of a locally recognized important mineral resource recovery site.

5.5.17.1 Setting/Affected Environment

The environmental setting and regulatory framework for the alternatives would be similar to the proposed project, which includes local and state regulations that apply to mineral resources in Monterey County. As such, descriptions of the environmental setting and regulatory framework for mineral resources are provided in Chapter 4.17. The environmental setting for the components that are common to the proposed project are also discussed in Chapter 4.17. This section focuses on the facilities that are unique to the alternatives.

The setting for facilities unique to the alternatives includes the area north of the Salinas River and south of Elkhorn Slough. This area has no MRZ-2 designation (areas with limited mining potential) but a small portion is classified as MRZ-1 (areas where adequate information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists for their presence) and MRZ-4 (areas where available information is inadequate for assignment to any other zone), as mapped by the California Department of Conservation, California Geological Survey (CDMG, 1987).

5.5.17.2 Direct and Indirect Effects of the Proposed Project (Slant Wells at CEMEX)

Impact 4.17-1: Loss of availability of known mineral resources that are of value to the region or residents of the state, or result in the loss of a locally recognized important mineral resource recovery site.

The proposed slant wells site at the CEMEX sand mining facility, portions of the Source Water Pipeline, the MPWSP Desalination Plant, the Brine Discharge Pipeline, the Pipeline to CSIP Pond, the new Desalinated Water Pipeline, the southern portion of the Castroville Pipeline, the new Transmission Main, the ASR conveyance pipelines, the ASR 5 and ASR-6 Wells, and the Ryan Ranch-Bishop Interconnection Improvements would be located in areas designated as MRZ-2 – that is, areas where information indicates that significant mineral deposits (in this case, sand for use as aggregate) are either present or are likely to be present. The subsurface slant wells for the Seawater Intake System are proposed within the southern portion of the CEMEX property, in an area that is no longer mined and has been restored by CEMEX consistent with the Reclamation Plan. The proposed Source Water Pipeline would be aligned beneath the existing CEMEX access road. Although mining operations could experience minor disruptions during project construction, mining activities would continue throughout project construction and operation. Therefore, project implementation would not result in the temporary loss of known mineral resources and temporary construction-related impacts would be less than significant. Operation of the slant wells could preclude mineral resource extraction but since this particular area is no longer being mined, is under

a reclamation plan, and it is unlikely that future sand mining would be permitted in the southern portion of the CEMEX property, this impact would be less than significant.

The seafloor and subsurface mineral materials (e.g., sand, sediments) within MBNMS would provide filtration for the water taken in by the subsurface slant wells. The proposed project's filtration process would not result in the loss of a known mineral resource and no mineral resource consumption or extraction would occur related to the operation of the subsurface slant wells, and therefore, no impact would occur.

Construction and operation of the MPWSP Desalination Plant, which is located in an area designated as MRZ-2, could limit future recovery of mineral resources beneath the plant footprint. However, California Department of Conservation designated important farmland surrounds the site, and mineral extraction would be an incompatible use. Implementation of the desalination plant would have a less than significant impact on mineral resources. All proposed pipelines within MRZ-2 would have a less than significant impact on mineral resources since they would be constructed in or adjacent to rights-of-way and would have limited footprints.

Portions of the Castroville Pipeline north of the Salinas River would be located within MRZ-1 and MRZ-4, which are areas where information indicates that no significant mineral deposits are likely to be present, and areas where information is inadequate to assign a mineral resource zone, respectively. The Terminal Reservoir, the Main System–Hidden Hills Interconnection Improvements, and the Carmel Valley Pump Station would not be located within an MRZ. These components would have no impact on mineral resources.

Impact 4.17-C: Cumulative impacts related to mineral resources.

The proposed project construction and operation would not have a considerable contribution to cumulative impacts on mineral resources because all cumulative projects in MRZ-2 are on developed lands or on land where mining is prohibited.

5.5.17.3 Direct and Indirect Effects of No Project Alternative

Under the No Project Alternative, no new facilities would be constructed. Consequently, there would be no ground disturbance or placement of new structures that could affect mineral resources, and thus no construction- or operation-related direct or indirect impacts relative to mineral resources associated with the No Project Alternative. Because the No Project Alternative would have no direct or indirect impacts with respect to mineral resources, it could not contribute to cumulative effects related to these topics.

5.5.17.4 Direct and Indirect Effects of Alternative 1 – Slant Wells at Potrero Road

Alternative 1 would supply seawater to the proposed 9.6 mgd desalination plant located at the Charles Benson Road site using the same type of subsurface intake system as the proposed project, but at a different location (described in Section 5.4.3). The desalination plant, brine discharge pipeline, Castroville Pipeline, Pipeline to CSIP Pond, new Desalinated Water Pipeline,

new Transmission Main, Terminal Reservoir, ASR components, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be identical to the proposed project described in Chapter 3, Description of the Proposed Project. The location of the slant wells at Potrero Road and the additional 5.5 miles of source water pipeline are the components unique to Alternative 1 (see **Figure 5.4-1**). Therefore, the mineral resources impact analysis of Alternative 1 focuses primarily on locations for the intake system and source water pipelines that are different from the proposed project; however, impact conclusions are made for the whole of Alternative 1.

Construction and Operational Impacts

No Alternative 1 components north of the Salinas River would be located in an active mining area or MRZ-2. Portions of the source water pipeline would be located in land designated as MRZ-1 and MRZ-4. Therefore, construction and operation of Alternative 1 components north of the Salinas River would have no impact on mineral resources. Because the slant wells would not be located on MRZ-2 lands, Alternative 1 would have a decreased potential to result in the loss of mineral resources or a mineral resource recovery site, compared to the proposed project. Since Alternative 1 components south of the Salinas River would be located in MRZ-2, but with limited mining potential, Alternative 1 would result in the ***same impact conclusion*** as the proposed project, less than significant.

Cumulative Analysis

The geographic scope of analysis for cumulative impacts related to mineral resources for Alternative 1 is defined by the location of Alternative 1 components, and is the same as that described for the proposed project in Section 4.17.6, with exception of the different location of the seawater intake system (Potrero Road, instead of CEMEX), and the alternative source water pipeline route. Alternative 1 would reduce impacts on mineral resources compared to the proposed project, reducing construction within land designated as MRZ-2. No new impacts on mineral resources would occur under Alternative 1. Therefore, as described for the proposed project, the combined effects of cumulative projects in MRZ-2 would not have a significant cumulative impact on the availability of mineral resources relative to the total amount of known mineral resources available. As a result, implementation of Alternative 1 would not have a cumulatively considerable contribute to a significant cumulative mineral resources effect. Therefore, Alternative 1 would result in the ***same impact conclusion*** as the proposed project for cumulative effects related to mineral resources, less than significant.

5.5.17.5 Direct and Indirect Effects of Alternative 2 – Open-Water Intake at Moss Landing

Alternative 2 would supply seawater to the proposed 9.6 mgd desalination plant located at the Charles Benson Road site using a screened open-water intake system consisting of an intake structure located offshore in MBNMS and southwest of the Moss Landing Harbor entrance, a subsurface intake pipeline, and an intake pump station (described in Section 5.4.4). The desalination plant, brine discharge pipeline, new Desalinated Water Pipeline, new Transmission Main, Terminal Reservoir, ASR components, Highway 68 interconnection improvements, and the Carmel Valley Pump Station would be identical to the proposed project described in Chapter 3, Description of the

Proposed Project. Because the open water intake would eliminate the need for returning source water drawn from the Salinas Valley Groundwater Basin, the Castroville Pipeline, the Pipeline to CSIP Pond, and operational components related to delivering water to Castroville Community Services District would not be implemented. The open water intake system and the additional 6.5 miles of source water pipeline are the components unique to Alternative 2 (see **Figure 5.4-2**). Therefore, the mineral resource impact analysis of Alternative 2 focuses primarily on the locations for the intake system and source water pipelines that are different from the proposed project; however, impact conclusions are made for the whole of Alternative 2.

Construction and Operational Impacts

No Alternative 2 components north of the Salinas River would be located in an active mining area or MRZ-2. Portions of the source water pipeline would be located in land designated as MRZ-1 and MRZ-4. Therefore, construction and operation of Alternative 2 components north of the Salinas River would have no impact on mineral resources. Because the seawater intake would not be located on MRZ-2 lands, Alternative 2 would have a decreased potential to result in the loss of mineral resources or a mineral resource recovery site, compared to the proposed project. Since Alternative 2 components south of the Salinas River would be located in MRZ-2, but with limited mining potential, Alternative 2 would result in the ***same impact conclusion*** as the proposed project, less than significant.

Cumulative Analysis

The geographic scope of analysis for cumulative impacts related to mineral resources for Alternative 2 is defined by the location of Alternative 2 components, and is the same as that described for the proposed project in Section 4.17.6, with exception of the different location of the seawater intake system (Moss Landing, instead of CEMEX), and the alternative source water pipeline route. Alternative 2 would reduce impacts on mineral resources compared to the proposed project, reducing construction within land designated as MRZ-2. No new impacts on mineral resources would occur under Alternative 2. Therefore, as described for the proposed project, the combined effects of cumulative projects in MRZ-2 would not have a significant cumulative impact on the availability of mineral resources relative to the total amount of known mineral resources available. As a result, implementation of Alternative 2 would not have a cumulatively considerable contribute to a significant cumulative mineral resources effect. Therefore, Alternative 2 would result in the ***same impact conclusion*** as the proposed project for cumulative effects related to mineral resources, less than significant.

5.5.17.6 Direct and Indirect Effects of Alternative 3 – Monterey Bay Regional Water Project (MBRWP or DeepWater Desal Project)

Alternative 3 includes the construction and operation of a screened open ocean intake system and a brine discharge system located on the seafloor in Monterey Bay within MBNMS, subsurface pipelines connecting to these intake and discharge systems, a seawater desalination facility and co-located data center, and associated components to provide up to 25,000 afy of potable water and data transmission and storage services. The pipelines for the intake and discharge systems would be installed using HDD. The alternative would also include 6.5 miles of desalinated water pipeline to

connect with the CalAm system and up to an additional 25 miles of pipelines to convey the desalinated water to other areas (total of 31.5 miles of additional pipeline). Several components would be identical to the proposed project: the new Transmission Main, new desalinated water pipeline south of the "Connection to CalAm" Point on **Figure 5.4-3**, ASR-5 and -6 wells and ASR pipeline, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be as described in Chapter 3, Description of the Proposed Project. Because this alternative would have an open water intake that would eliminate the need for returning source water drawn from the Salinas Valley Groundwater Basin, the proposed project Castroville Pipeline, Pipeline to CSIP Pond, and operational components related to delivering water to CCSD would not be implemented. The desalination plant and data center, open water intake system, brine discharge system, and the additional 31.5 miles of desalinated water pipeline are the components unique to Alternative 3 (see **Figure 5.4-3**). Therefore, the mineral resources impact analysis of Alternative 3 focuses primarily on these components; however, impact conclusions are made for the whole of Alternative 3.

Construction and Operational Impacts

No Alternative 3 components north of the Salinas River would be located in an active mining area or MRZ-2. Portions of the source water pipeline would be located in land designated as MRZ-1 and MRZ-4. Therefore, construction and operation of Alternative 3 components north of the Salinas River would have no impact on mineral resources. Because the seawater intake system would not be located on MRZ-2 lands, Alternative 3 would have a decreased potential to result in the loss of mineral resources or a mineral resource recovery site, compared to the proposed project. Since Alternative 3 components south of the Salinas River would be located in MRZ-2, but with limited mining potential, Alternative 3 would result in the ***same impact conclusion*** as the proposed project, less than significant.

Cumulative Analysis

The geographic scope of analysis for cumulative impacts related to mineral resources for Alternative 3 is defined by the location of Alternative 3 components. Alternative 3 would reduce impacts on mineral resources compared to the proposed project, reducing construction within land designated as MRZ-2. No new impacts on mineral resources would occur under Alternative 3. Therefore, as described for the proposed project, the combined effects of cumulative projects in MRZ-2 would not have a significant cumulative impact on the availability of mineral resources relative to the total amount of known mineral resources available. As a result, implementation of Alternative 3 would not have a cumulatively considerable contribute to a significant cumulative mineral resources effect. Therefore, Alternative 2 would result in the ***same impact conclusion*** as the proposed project for cumulative effects related to mineral resources, less than significant.

5.5.17.7 Direct and Indirect Effects of Project Alternative 4 – Peoples' Moss Landing Water Desalination Project (Peoples' Project)

Alternative 4 includes the construction and operation of an open ocean intake, a brine discharge system and pipelines, and supporting ballast rock located on the seafloor in Monterey Bay within MBNMS, as well as a 12 mgd desalination plant and associated facilities to provide 13,400 afy of water supply to meet the current and future needs of the Monterey Peninsula. Several components

would be identical to the proposed project: the new Transmission Main, new desalinated water pipeline south of the "Connection to CalAm" Point on **Figure 5.4-4**, ASR-5 and -6 wells and ASR pipeline, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be as described in Chapter 3, Description of the Proposed Project. Because this alternative would have an open water intake that would eliminate the need for returning source water drawn from the Salinas Valley Groundwater Basin, the proposed project Castroville Pipeline, Pipeline to CSIP Pond, and operational components related to delivering water to CCSD would not be implemented. The desalination plant, open water intake system, brine discharge system, and the additional 6.5 miles of desalinated water pipeline are the components unique to Alternative 4 (see **Figure 5.4-4**). Therefore, the mineral resources impact analysis of Alternative 4 focuses primarily on these components; however, impact conclusions are made for the whole of Alternative 4.

Construction and Operational Impacts

No Alternative 4 components north of the Salinas River would be located in an active mining area or MRZ-2. Portions of the source water pipeline would be located in land designated as MRZ-1 and MRZ-4. Therefore, construction and operation of Alternative 4 components north of the Salinas River would have no impact on mineral resources. Because the seawater intake system would not be located on MRZ-2 lands, Alternative 4 would have a decreased potential to result in the loss of mineral resources or a mineral resource recovery site, compared to the proposed project. Since Alternative 4 components south of the Salinas River would be located in MRZ-2, but with limited mining potential, Alternative 4 would result in the ***same impact conclusion*** as the proposed project, less than significant.

Cumulative Analysis

The geographic scope of analysis for cumulative impacts related to mineral resources for Alternative 4 is defined by the location of Alternative 4 components. Alternative 4 would reduce impacts on mineral resources compared to the proposed project, reducing construction within land designated as MRZ-2. No new impacts on mineral resources would occur under Alternative 4. Therefore, as described for the proposed project, the combined effects of cumulative projects in MRZ-2 would not have a significant cumulative impact on the availability of mineral resources relative to the total amount of known mineral resources available. As a result, implementation of Alternative 4 would not have a cumulatively considerable contribute to a significant cumulative mineral resources effect. Therefore, Alternative 4 would result in the ***same impact conclusion*** as the proposed project for cumulative effects related to mineral resources, less than significant.

5.5.17.8 Direct and Indirect Effects of Alternative 5 – Reduced Desal Project 5a (CEMEX) and 5b (Potrero Road)

Alternative 5a would include the seawater intake system at the CEMEX site (the same location as the proposed project), but would include only seven subsurface slant wells (the converted test well and six new wells) and the same source water pipeline as the proposed project. Alternative 5b would include seven new wells at the western end of Potrero Road (the same location as Alternative 1) and the same source water pipeline as Alternative 1. Both Alternatives 5a and 5b

would include a reduced-capacity desalination plant (6.4 mgd), and all other components would be the same as the proposed project.

Construction and Operational Impacts

All components of Alternative 5a would be in the same location as the proposed project, but with fewer slant wells at CEMEX. Therefore, construction and operation of Alternative 5a would have a decreased potential to result in the loss of mineral resources or a mineral resource recovery site, compared to the proposed project. Alternative 5a would result in the ***same impact conclusion*** as the proposed project, less than significant.

All components of Alternative 5b would be in the same location as Alternative 1. Therefore, construction and operation of Alternative 5b would have a decreased potential to result in the loss of mineral resources or a mineral resource recovery site, compared to the proposed project. Alternative 5b would result in the ***same impact conclusion*** as the proposed project, less than significant.

Cumulative Analysis

Combined Impacts with GWR Project

The GWR Project (No. 59 in **Table 4.1-2** in Section 4.1) would have no impact on the availability of mineral resources during construction, and would have a less-than-significant impact on availability of mineral resources during operations (MRWPCA, 2016). No mineral extraction currently is occurring within the GWR Project component sites, and the GWR Project would not preclude or obstruct future mineral extraction in areas potentially subject to mineral development. In combination with Alternatives 5a and 5b, the GWR Project would result in a less-than-significant impact on mineral resources.

Impacts of Full Cumulative Scenario

The geographic scope for the cumulative analysis of impacts from Alternatives 5a and 5b is the same as that described for the proposed project and Alternative 1, respectively. Impacts from construction and operation of Alternatives 5a and 5b would be the same as those described for the proposed project and Alternative 1, respectively. One additional project, the GWR Project, would be relevant to the cumulative scenario for Alternatives 5a and 5b. As indicated above, the addition of the GWR Project would not result in significant cumulative impact. Therefore, Alternatives 5a and 5b would result in the ***same impact conclusion*** as the proposed project for cumulative effects related to mineral resources, less than significant.

5.5.17.9 References

California Division of Mines and Geology (CDMG), 1987. *Mineral Land Classification: Aggregate Materials in the San Francisco-Monterey Bay Area*, Special Report 146, Part IV, Monterey Bay Production-Consumption Region, 1987.

Monterey Regional Water Pollution Control Agency (MRWPCA), 2016. *Consolidated Final Environmental Impact Report for the Pure Water Monterey Groundwater Replenishment Project.* January 2016.

5.5.18 Energy Conservation

The evaluation criteria for Energy Conservation address: use of large amounts of fuel and energy in an unnecessary, wasteful, or inefficient manner during construction and decommissioning; use of large amounts of fuel and energy in an unnecessary, wasteful, or inefficient manner during operations and maintenance; and, constrain local or regional energy supplies, require additional capacity, or affect peak and base periods of electrical demand during operations.

5.5.18.1 Setting/Affected Environment

The setting/affected environment for alternatives is the same as described for the proposed project in Section 4.18, Energy Conservation, and the reader is referred to that section for a detailed description.

5.5.18.2 Direct and Indirect Effects of Proposed Project (Slant Wells at CEMEX)

Impact 4.18-1: Use large amounts of fuel and energy in an unnecessary, wasteful, or inefficient manner during construction and decommissioning.

Construction of the proposed project (and decommissioning) would require the use of fuels for operation of heavy construction equipment (e.g., dozers, excavators, and trenchers), construction vehicles (e.g., dump and delivery trucks), and construction worker vehicles. Operation of some construction equipment (e.g., welding machines and electric power tools) would require the use of electricity. Construction (and decommissioning) would also result in indirect energy use associated with the extraction, manufacturing, and transportation of raw materials to make construction materials.

Construction (and decommissioning) activities could result in wasteful or inefficient use of energy if equipment is not well maintained, if equipment is left to idle when not in use, or if haul trips are not planned efficiently. The potential to use large amounts of fuel or energy in a wasteful manner is considered a significant impact. However, implementation of **Mitigation Measures 4.18-1 (Construction Equipment Efficiency Plan)** and **4.10-1c (Idling Restrictions)** would reduce the impact to a less-than-significant level.

Impact 4.18-2: Use large amounts of fuel and energy in an unnecessary, wasteful, or inefficient manner during operations and maintenance.

Operation and maintenance of the proposed project would result in the consumption of fuel for CalAm staff commute trips to and from the MPWSP Desalination Plant, and vehicle trips associated with routine maintenance and operations. Project operations would also result in the consumption of electricity to operate the MPWSP Desalination Plant (i.e., reverse osmosis [RO] modules, pumps, lighting, process controls, heating, ventilation, and air conditioning [HVAC] systems) and other proposed facilities (i.e., ASR Pump Station, Carmel Valley Pump Station, etc.). Although implementation of the proposed project would result in a substantial increase in electrical power demand (63,164 MWh/year minus a baseline energy use of 11,466 MWh/year equals a net increase of 51,698 MWh/year), the use of energy for operation of the MPWSP

Desalination Plant is necessary because it would provide a reliable supply of water to meet existing demand for the Monterey District. Therefore, electricity consumed as a result of project operations would not be wasteful or inefficient and the impact related to the use of fuel and energy during project operations would be less than significant.

Impact 4.18-3: Constrain local or regional energy supplies, require additional capacity, or affect peak and base periods of electrical demand during operations.

Implementation of the proposed project would increase CalAm's total electrical demand by an amount that would represent approximately two percent of the County's electricity usage in 2014. The preliminary review of the proposed project's annual and maximum electrical demand by the electricity provider, Pacific Gas and Electric (PG&E), has indicated that PG&E has adequate capacity and infrastructure to support the proposed project. Therefore, this impact would be less than significant.

Impact 4.18-C: Cumulative impacts related to energy conservation.

Implementation of mitigation would ensure that the proposed project construction activities would be conducted in a fuel-efficient manner. Idling times would be limited for construction equipment and vehicles to ensure that energy waste and inefficiency would be minimized. The cumulative use of energy resources during construction would be consistent with normal construction practices and would comply with efficiency- and conservation-related policies intended to address cumulative energy consumption statewide. Implementation of **Mitigation Measures 4.18-1 (Construction Equipment Efficiency Plan)** and **4.10-1c (Idling Restrictions)** would reduce the cumulative impact to a less-than-significant level.

During project operation, the anticipated increase in electricity consumption for the proposed project would represent approximately 2 percent of Monterey County's annual usage, and an even smaller fraction of PG&E's overall service area usage. In the event that other cumulative projects listed in **Table 4.1-2** that would be high demand electricity users, such as the Monterey Bay Regional Water Project (DeepWater Desal, No. 34), which would require 25 times the amount of energy, request electrical service from PG&E, additional wholesale electric energy may need to be purchased by PG&E. This would be considered a significant impact. In addition, some reinforcement of the existing distribution system may also be required, but this would not substantially constrain local or regional energy supplies. However, the proposed project would not have a cumulatively considerable contribution to this significant cumulative impact associated with the unnecessary, wasteful, or inefficient use of energy, or with energy supply, either at a local or regional level, during operation.

5.5.18.3 Direct and Indirect Effects of No Project Alternative

Under the No Project Alternative, no new facilities would be constructed or operated. Consequently, there would be no construction-related energy use associated with the No Project Alternative. Under the No Project Alternative, there would be less pumping from the Carmel River, resulting in a decrease in the use of energy. Because the No Project Alternative would have

no direct or indirect impacts with respect to energy conservation, it could not contribute to cumulative effects related to these topics.

5.5.18.4 Direct and Indirect Effects of Project Alternative 1 – Slant Wells at Potrero Road

Alternative 1 would supply seawater to the proposed 9.6 mgd desalination plant located at the Charles Benson Road site using the same type of subsurface intake system as the proposed project, but at a different location (described in Section 5.4.3). The desalination plant, brine discharge pipeline, Castroville Pipeline, Pipeline to CSIP Pond, new Desalinated Water Pipeline, new Transmission Main, Terminal Reservoir, ASR components and Carmel Valley Pump Station would be identical to the proposed project described in Chapter 3, Description of the Proposed Project. The location of the slant wells at Potrero Road and the additional 5.5 miles of source water pipeline are the components unique to Alternative 1 (see **Figure 5.4-1**). Therefore, the impact analysis for Alternative 1 focuses primarily on the locations for the intake system and source water pipelines that are different from the proposed project; however, impact conclusions are made for the whole of Alternative 1.

Construction Effects

Construction of one additional slant well and 5.5 additional miles of source water pipeline would result in an increase in gasoline and diesel fuel use during construction (and decommissioning) compared to the proposed project. While the transportation and equipment energy use requirements would not be significant relative to the overall sales of transportation fuels in the County, activities could result in wasteful or inefficient use of energy if equipment is not well maintained, if equipment is left to idle when not in use, or if haul trips are not planned efficiently. The potential use of large amounts of fuel or energy in a wasteful or inefficient manner is considered a significant impact. However, with implementation of **Mitigation Measures 4.18-1 and 4.10-1b**, the impact would be reduced to a less-than-significant level. Therefore, Alternative 1 would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Operational Effects

Long-term operation of Alternative 1 would result in approximately three times the electricity consumption to pump source water to the MPWSP Desalination Plant compared to the proposed project, resulting in an overall increase in electrical power demand and less efficient electricity consumption. However, the additional electricity required would not be a large amount compared to the existing energy supplies in the County and would be accommodated by existing local and regional energy supplies. The long-term consumption of fuel required for CalAm staff commute trips to and from the MPWSP Desalination Plant and vehicle trips associated with routine maintenance would be the same as the proposed project. Overall, Alternative 1 would result in the ***same impact conclusion*** as the proposed project, less than significant.

Cumulative Analysis

Cumulative impacts associated with energy and energy conservation during construction and decommissioning would be the same as those described for the proposed project. Impacts would be significant and would have a cumulatively considerable contribution to significant cumulative impacts on the supply and/or availability of fuel sources. However, **Mitigation Measures 4.18-1** (**Construction Equipment Efficiency Plan**) and **4.10-1b** (**Idling Restrictions**) would be implemented to ensure construction activities would be conducted in a fuel-efficient manner. Even if construction were to occur simultaneously with other cumulative projects, the cumulative use of energy resources during construction would be consistent with normal construction practices and would comply with efficiency- and conservation-related policies intended to address cumulative energy consumption statewide after implementation of mitigation. Therefore, construction and decommissioning activities would have a cumulatively considerable contribution to a significant cumulative impact on the supply and/or availability of fuel sources; however, the incremental contribution would be reduced to less than significant with implementation of mitigation.

Although operation and maintenance would result in long-term consumption of substantial amounts of electricity, the anticipated increase in electricity consumption relative to baseline conditions for Alternative 1 would represent small percentages of Monterey County's annual usage and PG&E's overall service area usage. In the event that other cumulative projects request electrical service from PG&E, additional wholesale electric energy may need to be purchased by PG&E. For example, the increase in energy required to operate the DeepWater Desal Project's co-located data center (No. 34 in **Table 4.1-2** in Section 4.1) would be substantial; the efficiency of the data center and the associated cooling system is currently unknown and the impact would likely be significant and unavoidable. In addition, some reinforcement of the existing distribution system may be required for the DeepWater Desal project. However, given the low electricity consumption that would be associated with Alternative 1, and because this energy use would be necessary for the production of desalinated water and therefore would not be unnecessary, wasteful, or inefficient, it would not have a cumulatively considerable contribution to the significant cumulative impact associated with potential unnecessary, wasteful, and/or inefficient use of energy, or with energy supply, either at a local or regional level, during operation and maintenance. Overall, Alternative 1 would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

5.5.18.5 Direct and Indirect Effects of Alternative 2 – Open-Water Intake at Moss Landing

Alternative 2 would supply seawater to the proposed 9.6 mgd desalination plant located at the Charles Benson Road site using a new, screened open-water intake system consisting of an intake structure located offshore in MBNMS and southwest of the Moss Landing Harbor entrance, a subsurface intake pipeline, and an intake pump station on Dolan Road (described in Section 5.4.4). The desalination plant, brine discharge pipeline, new Desalinated Water Pipeline, new Transmission Main, Terminal Reservoir, ASR components, Highway 68 interconnection improvements, and the Carmel Valley Pump Station would be identical to the proposed project described in Chapter 3, Description of the Proposed Project. Because the open water intake would

eliminate the need for returning source water drawn from the Salinas Valley Groundwater Basin, the Castroville Pipeline, the Pipeline to CSIP Pond, and operational components related to delivering water to CCSD would not be implemented. The open water intake system and the additional 6.5 miles of source water pipeline are the components unique to Alternative 2 (see **Figure 5.4-2**). Therefore, the impact analysis of Alternative 2 focuses primarily on the locations for the intake system and source water pipelines that are different from the proposed project; however, impact conclusions are made for the whole of Alternative 2.

Construction Effects

Construction would result in a net increase of pipeline length of 6.5 miles resulting in an increase in gasoline and diesel fuel use during construction and decommissioning compared to the proposed project. While transportation and equipment energy use requirements would not be significant relative to total sales of transportation fuels in the County, construction and decommissioning activities could result in wasteful or inefficient use of energy. However, with implementation of **Mitigation Measures 4.18-1** and **4.10-1b,** the significant impact would be reduced to a less-than-significant level. Therefore, Alternative 2 would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Operational Effects

Long-term operation of Alternative 2 would result in approximately three times the electricity consumption to pump source water to the MPWSP Desalination Plant compared to the proposed project, resulting in an overall increase in electrical power demand and less efficient electricity consumption. However, the additional electricity required would not be a large amount compared to the existing energy supplies in the County and would be accommodated by existing local and regional energy supplies. The long-term consumption of fuel required for CalAm staff commute trips to and from the MPWSP Desalination Plant and vehicle trips associated with routine maintenance would be the same as the proposed project. Overall, Alternative 2 would result in the ***same impact conclusion*** as the proposed project, less than significant.

Cumulative Analysis

Cumulative impacts associated with energy and energy conservation during construction, operation, maintenance, and decommissioning would be the same as those described for the proposed project. For the same reasons described for Alternative 1, Alternative 2 would have a cumulatively considerable contribution to a significant cumulative impact during construction and decommissioning; however, the incremental contribution would be reduced to a level that is less than cumulatively considerable with implementation of mitigation. Operation and maintenance would not result in a cumulatively considerable contribution to the significant cumulative impact. Overall, Alternative 2 would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

5.5.18.6 Direct and Indirect Effects of Alternative 3 – Monterey Bay Regional Water Project (MBRWP or DeepWater Desal Project)

Alternative 3 includes the construction and operation of a screened open ocean intake system and a brine discharge system located on the seafloor in Monterey Bay within MBNMS, subsurface pipelines connecting to these intake and discharge systems, a seawater desalination facility and co-located data center, and associated components to provide up to 25,000 afy of potable water and data transmission and storage services. The pipelines for the intake and discharge systems would be installed using HDD. The alternative would also include 6.5 miles of desalinated water pipeline to connect with the CalAm system and up to an additional 25 miles of pipelines to convey the desalinated water to other areas (total of 31.5 miles of additional pipeline). Several components would be identical to the proposed project: the new Transmission Main, new desalinated water pipeline south of the "Connection to CalAm" Point on **Figure 5.4-3**, ASR-5 and -6 wells and ASR pipeline, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be as described in Chapter 3, Description of the Proposed Project. Because this alternative would have an open water intake that would eliminate the need for returning source water drawn from the Salinas Valley Groundwater Basin, the Castroville Pipeline, Pipeline to CSIP Pond, and operational components related to delivering water to CCSD would not be implemented. The desalination plant and data center, open water intake system, brine discharge system, and the additional 31.5 miles of desalinated water pipeline are the components unique to Alternative 3 (see **Figure 5.4-3**). Therefore, the impact analysis of Alternative 3 focuses primarily on these components; however, impact conclusions are made for the whole of Alternative 3.

Construction Effects

Construction of a new open water intake and a new outfall in Monterey Bay would require the use of marine construction equipment (e.g., barges) and HDD equipment; large equipment would also be required for the data center and associated cooling system. There would be an overall increase in the use of gasoline and diesel fuel compared to the proposed project. While the overall transportation and equipment energy use requirements would not likely be significant relative to total sales of transportation fuels in the County, construction and decommissioning activities could result in wasteful or inefficient use of energy if equipment is not well maintained, left to idle when not in use, or if haul trips are not planned efficiently resulting in a potentially significant impact. However, Implementation of **Mitigation Measures 4.18-1** and **4.10-1b,** would reduce impacts to a less-than-significant level. Therefore, Alternative 3 would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Operational Effects

Operations and maintenance of the data center and cooling system would require 150 megawatts (MW) of electrical power) resulting in a substantial increase compared to the proposed project, which requires less than 6 MW. This energy demand would be 25 times the net energy demand of the proposed project, and represents approximately half of the County's electricity usage in 2014 (PG&E, 2015). This additional energy load could substantially constrain local and/or regional energy supplies if not adequately addressed by PG&E. Alternative 3 would require its own 230

kilovolt (kV) electrical substation and electrical transmission facilities, including transmission lines, transmission towers, and underground circuits. Given this amount of electricity demand and new electrical infrastructure that would be required, it is assumed that implementation of this alternative would trigger PG&E's "large load process," which is designed to determine how PG&E customers with large energy requirements will be provided electricity.

With regard to electricity consumption, although the desalination plant portion of the alternative would include energy recovery and efficiency systems similar to the proposed project, the project applicant has not provided details on what, if any, energy efficiency measures would be achieved relative to the data center and cooling system. In addition, the electricity used would be less efficient given the longer distance to pump product water to CalAm's Monterey District service area compared the proposed project. Due to this uncertainty and the large amount of electrical demand that would be required relative to the existing demand in the County, it is assumed that the electricity-related impact would be significant and unavoidable. Therefore, Alternative 3 would have an ***increased impact conclusion*** compared to the proposed project, and impacts would be significant and unavoidable.

The long-term consumption of fuel that would be required for employee commute trips to and from the project site and vehicle trips associated with routine maintenance under Alternative 3 would also be substantially greater compared to the proposed project due the additional employees and facilities to maintain (see description of operational staffing and facilities maintenance in Section 5.4.5.3). Although substantially greater, Alternative 3 would not result in the inefficient or wasteful use of fuel and it would result in the ***same impact conclusion*** as the proposed project, less than significant.

Cumulative Analysis

Cumulative impacts associated with energy and energy conservation during construction and decommissioning would be the same as those described for the proposed project. Alternative 3 would have a cumulatively considerable contribution to a significant cumulative impact on the supply and/or availability of fuel sources during construction and decommissioning; however, the incremental contribution would be reduced to less than significant with implementation of **Mitigation Measures 4.18-1** (**Construction Equipment Efficiency Plan**) and **4.10-1b** (**Idling Restrictions**) to ensure construction activities would be conducted in a fuel-efficient manner.

Operation and maintenance under Alternative 3 would result in long-term consumption of substantial amounts of electricity, which would represent a large amount of Monterey County's annual usage (e.g., electrical assumption under Alternative 3 would be equal to approximately half of all electricity consumed in Monterey County in 2014), and when combined with the energy demands of other cumulative projects, such as the Pure Water Monterey GWR Project (No. 59 in **Table 4.1-2** in Section 4.1), could substantially constrain local and/or regional energy supplies if not adequately addressed by PG&E. The project applicant has not provided details on what, if any, feasible mitigation could be implemented to reduce the contribution of Alternative 3 to below a cumulatively considerable level. Therefore, Alternative 3 would have a cumulatively considerable contribution to a significant and unavoidable cumulative impacts associated with the unnecessary, wasteful, or inefficient use of energy, or with energy supply, either at a local or

regional level, during operation. Overall, Alternative 3 would result in an ***increased impact conclusion*** compared to the proposed project, significant and unavoidable.

5.5.18.7 Direct and Indirect Effects of Alternative 4 – People's Moss Landing Water Desalination Project (People's Project)

Alternative 4 includes the construction and operation of an open ocean intake, a brine discharge system and pipelines, and supporting ballast rock located on the seafloor in Monterey Bay within MBNMS, as well as a 12 mgd desalination plant and associated facilities to provide 13,400 afy of water supply to meet the current and future needs of the Monterey Peninsula. Several components would be identical to the proposed project: the new Transmission Main, new desalinated water pipeline south of the "Connection to CalAm" Point on **Figure 5.4-4**, ASR-5 and -6 wells and ASR pipeline, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be as described in Chapter 3, Description of the Proposed Project. Because this alternative would have an open water intake that would eliminate the need for returning source water drawn from the Salinas Valley Groundwater Basin, the Castroville Pipeline, Pipeline to CSIP Pond, and operational components related to delivering water to CCSD would not be implemented. The desalination plant, open water intake system, brine discharge system, and the additional 6.5 miles of desalinated water pipeline are the components unique to Alternative 4 (see **Figure 5.4-4**). Therefore, the impact analysis of Alternative 4 focuses primarily on these components; however, impact conclusions are made for the whole of Alternative 4.

Construction Effects

Construction of Alternative 4 would require the use of marine construction equipment (e.g., barges) and HDD equipment for the new open-water intake and new outfall, and there would be an increase in gasoline and diesel fuel use compared to the proposed project resulting in a potentially significant impact. Implementation of **Mitigation Measures 4.18-1 and 4.10-1b** would reduce the significant impact to a less-than-significant level. Alternative 4 would have the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Operational Effects

Long-term operations of the People's Project would produce approximately 25 percent more product water that would require an approximately 25 percent increase in energy demand compared to the proposed project. In addition, the electricity used would be less efficient given the longer distance to pump product water to CalAm's Monterey District service area compared the proposed project. However, the additional electricity required would not be a large amount of energy compared to the energy supplies in the County and would be accommodated by the local and regional energy supplies. The long-term consumption of fuel required for worker commute trips and vehicle trips associated with routine maintenance would be the same as the proposed project. Overall, Alternative 4 would have the ***same impact conclusion*** as the proposed project, less than significant.

Cumulative Analysis

Cumulative impacts associated with energy and energy conservation during construction and decommissioning would be the same as those described for the proposed project. Alternative 4 would have a cumulatively considerable contribution to a significant cumulative impact on the supply and/or availability of fuel sources during construction and decommissioning; however, the incremental contribution would be reduced to less than significant with implementation of **Mitigation Measures 4.18-1** (**Construction Equipment Efficiency Plan**) and **4.10-1b** (**Idling Restrictions**) to ensure construction activities would be conducted in a fuel-efficient manner.

Although operation would result in long-term consumption of substantial amounts of electricity, the anticipated increase in electricity consumption for Alternative 4 would represent small percentages of Monterey County's annual usage and PG&E's overall service area usage. In the event that other cumulative projects, such as the DeepWater Desal Project (No. 34 in **Table 4.1-2** in Section 4.1) and GWR Project (No. 59), request electrical service from PG&E, additional wholesale electric energy may need to be purchased by PG&E. For example, the increase in energy required to operate the DeepWater Desal co-located data center would be significant; the efficiency of the data center and the associated cooling system is currently unknown and the impact would likely be significant and unavoidable. In addition, some reinforcement of the existing distribution system may also be required for the DeepWater Desal Project, but this would not substantially constrain local or regional energy supplies. For the same reasons described for Alternative 1, Alternative 4 would not have a considerable contribution to a significant cumulative impact associated with the unnecessary, wasteful, or inefficient use of energy, or with energy supply, either at a local or regional level, during operation and maintenance. Overall, Alternative 4 would result in an ***increased impact conclusion*** compared to the proposed project, significant and unavoidable.

5.5.18.8 Direct and Indirect Effects of Alternative 5 – Reduced Desal Project 5a (CEMEX) and 5b (Potrero Road)

Alternative 5a would include the seawater intake system at the CEMEX site (the same location as the proposed project), but would include only seven subsurface slant wells (the converted test well and six new wells) and the same source water pipeline as the proposed project. Alternative 5b would include seven new wells at the western end of Potrero Road (the same location as Alternative 1) and the same source water pipeline as Alternative 1. Both Alternatives 5a and 5b would include a reduced-capacity desalination plant (6.4 mgd), and all other components would be the same as the proposed project.

Construction Effects

The facilities that would be constructed under Alternative 5a would be the same as those constructed under the proposed project, but there would be three fewer slant wells than under the proposed project. There would be an overall decrease in gasoline and fuel use during construction under Alternative 5a compared to the proposed action. With implementation of **Mitigation Measures 4.18-1** and **4.10-1b,** the significant impact would be reduced to a less-than-significant level. Therefore, Alternative 5a would have the ***same impact conclusion*** as the proposed project,

less than significant with mitigation. Alternative 5b would locate the slant wells at the Potrero Road parking lot, which would include construction of a 5.5 mile longer Source Water Pipeline. There would be an overall increase in gasoline and fuel use during construction of Alternative 5b compared to the proposed project and Alternative 5a. With implementation of **Mitigation Measures 4.18-1** and **4.10-1b** impacts would be reduced to less-than-significant levels. Therefore, Alternative 5b would have the ***same impact conclusion*** as the proposed project and Alternative 5a, less than significant with mitigation

Operational Effects

As described above, Alternatives 5a and 5b would have a decreased desalinated plant capacity; therefore, the total operational electricity demand would be reduced compared to the proposed desalination plant; approximately 3.7 MW, which is equivalent to approximately 63 percent of that for the proposed project. Due to the increased length of the source water pipeline for Alternative 5b from Potrero Road to the Nashua Road/Highway 1 intersection, Alternative 5b would result in more than three times the energy demand to pump source water to the MPWSP Desalination Plant compared to proposed project. However, the overall energy demand associated with Alternatives 5a and 5b would be less than the proposed project given the lower source water volume required. Therefore, Alternatives 5a and 5b would result in the ***same impact conclusion*** as the proposed project, less than significant.

Cumulative Analysis

Combined Impacts with GWR Project

Because Alternative 5 alone would not meet the project objectives and must be paired with the approved GWR Project (No. 59 in **Table 4.1-2** in Section 4.1) in order to do so, for informational purposes, this analysis provides the "subtotal" of the Alternative 5 impacts in combination with the impacts of the GWR Project. Similar to the proposed project, operation of Alternative 5 and the GWR Project would result in long-term consumption of electricity. The anticipated increase in electricity consumption would represent small percentages of Monterey County's annual usage and PG&E's overall service area usage. For example, the increase in energy required to operate the GWR Project (No. 59 in **Table 4.1-2** in Section 4.1) would be approximately 1.6 MW. When Alternative 5 is combined with the GWR Project, the total net increase in energy consumption would be approximately 5.3 MW. The energy efficiency of the structures and wells that would be associated with the GWR Project would be relatively high (PPWS, 2016). Given the low electricity consumption that would be associated with Alternative 5 combined with the GWR Project, and because this energy use would be necessary for the production of desalinated and recycled water and therefore would not be unnecessary, wasteful, or inefficient, these projects would not have a cumulatively considerable contribution to a significant cumulative impact associated with the unnecessary, wasteful, or inefficient use of energy, or with energy supply, either at a local or regional level, during operation and maintenance. This combined impact would have the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Impacts of Full Cumulative Scenario

Cumulative impacts associated with energy and energy conservation during construction and decommissioning would be similar to those described for the proposed project. Alternatives 5a and 5b would have a cumulatively considerable contribution to a significant cumulative impact on the supply and/or availability of fuel sources during construction and decommissioning; however, the incremental contribution would be reduced to less than significant with implementation of **Mitigation Measures 4.18-1** (**Construction Equipment Efficiency Plan**) and **4.10-1b** (**Idling Restrictions**) to ensure construction and decommissioning activities would be conducted in a fuel-efficient manner.

The overall anticipated increase in electricity consumption for projects in the cumulative scenario would represent small percentages of Monterey County's annual usage and PG&E's overall service area usage. For example, the net increase in energy required to operate the DeepWater Desal Project (No. 34) co-located data center would be approximately 150 MW. When Alternative 5, the GWR Project, and the DeepWater Desal Project are combined, the total net increase in energy consumption would be approximately 155 MW. The energy efficiency of the DeepWater Desal Project's data center and the associated cooling system is currently unknown and the cumulative impact would likely be significant and unavoidable. However, given the low electricity consumption that would be associated with Alternative 5 and the GWR Project, and because this energy use would be necessary for the production of desalinated water and therefore would not be unnecessary, wasteful, or inefficient, these projects would not have a cumulatively considerable contribution to a significant cumulative impact associated with the unnecessary, wasteful, or inefficient use of energy, or with energy supply, either at a local or regional level, during operation and maintenance. Overall, Alternative 5 would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

5.5.19 Population and Housing

5.5.19.1 Setting/Affected Environment

The environmental setting/affected environment for the analysis of population and housing effects of the alternatives would be similar to that described for the MPWSP in Section 4.19, Population and Housing. The setting for the analysis of the direct growth inducing impacts of the alternatives is the same as the proposed project—the three county region consisting of Monterey, San Benito, and Santa Cruz counties. Indirect growth inducement is discussed below in Section 5.5.21. As described for the proposed MPWSP, there are no federal, state, or local regulations governing population and housing that would apply to the alternatives. Components of alternatives different from the proposed project and north of the Nashua Road/Highway 1 intersection would be located in unincorporated Monterey County, including the unincorporated community of Moss Landing.

5.5.19.2 Direct and Indirect Effects of Proposed Project (Slant Wells at CEMEX)

As described in detail in Chapter 3, Description of the Proposed Project, the proposed project (see **Figure 3-2**) would include construction of a desalination plant on 25 acres along Charles Benson Road northeast of the City of Marina that would include nine new subsurface slant wells at the CEMEX active mining area, and conversion of the existing test slant well to a permanent well. The proposed project would also include improvements to the existing Seaside Groundwater Basin aquifer storage and recovery (ASR) system, pump stations, storage tanks, and about 21 miles of new water conveyance pipelines. No construction or placement of facilities on the seafloor would occur.

The following paragraphs briefly summarize the impacts of the proposed project with respect to population and housing. The detailed impact analysis of the proposed project is provided in Section 4.19.

Impact 4.19-1: Induce substantial population growth directly during project construction.

The number of construction workers needed would vary, from 90 to 345, over the 24-month construction period. Concurrent construction of project components is expected to require from 300 to 345 workers during the peak four months of construction. Construction employment during the peak period (345 workers) represents 7 percent of the construction jobs in Monterey County in 2015 and 4 percent of the construction jobs in the three-county region comprising Monterey, Santa Cruz, and San Benito Counties in 2015. Given that MPWSP construction jobs would represent a minor percentage of the current local and regional construction employment levels, MPWSP construction is not expected to create employment opportunities substantially greater than would normally be available to construction workers in the area. Consequently, construction of the MPWSP would not induce population growth by attracting a substantial number of workers from outside the region to relocate to the area, and therefore would not create demand for additional housing or other facilities and services associated with growth.

The proposed project does not involve any housing construction and would not induce growth directly by constructing housing that would attract people to the area. Therefore, the proposed project would not directly induce a substantial increase in the local population and the direct growth-inducing impact of the proposed project would be less than significant.

Impact 4.19-2: Induce substantial population growth directly during project operations.

During MPWSP operations, approximately 25 to 30 facility operators and support personnel would operate the MPWSP Desalination Plant. All other proposed facilities would be operated remotely using Supervisory Control and Data Acquisition systems, with periodic visits by existing CalAm personnel. Conservatively assuming that the regional labor force could not meet the operational workforce requirements, up to 30 new employees relocating to the area would represent a 0.01 percent increase in workers residing in Monterey County (i.e., 0.01 percent of the labor force) in 2015. This incremental increase would not constitute substantial population growth in the region. Similarly, compared to the projected rate of growth of the county's labor force, an increase of 30 new employees would be minor. The county's labor force is projected to increase by 5,600 workers between 2010 and 2015; 30 new employees would represent 0.5 percent of this projected increase. Therefore, operation of the proposed project would not directly induce a substantial increase in the local population and the direct growth-inducing impact of the proposed project would be less than significant.

Impact 4.14-C: Cumulative impacts related to population and housing.

Because of the limited duration of construction jobs and the size of the regional construction workforce, there would be no significant cumulative impact on population and housing from construction of cumulative projects. Even if cumulative construction projects were to lead to population and housing effects by attracting some workers to move to the area, such moves would likely be temporary. In any event, the contribution of the MPWSP would not be cumulatively considerable because of the relatively small number of construction workers required and the short duration of the construction period.

Because the population and housing that could be induced by operation of cumulative projects is expected to be consistent with growth anticipated in the counties' general plan documents, the cumulative impact during project operations would be less than significant. The MPWSP's operational workforce demands would be nominal: 25 to 30 people. Even in the unlikely event that the population and housing induced by operation of cumulative projects was significant, in no event would the proposed project make a cumulatively considerable contribution to any such effect.

5.5.19.3 Direct and Indirect Effects of No Project Alternative

The No Project Alternative would have no direct or indirect effects related to population or housing. It would not displace housing or people, because no facilities would be constructed, and would not induce workers or others to relocate from outside the area, because it would not provide jobs or housing. Because the No Project Alternative would have no direct or indirect impacts to population or housing, it could not contribute to cumulative effects related to these topics.

5.5.19.4 Direct and Indirect Effects of Project Alternative 1 – Slant Wells at Potrero Road

Alternative 1 would supply seawater to the proposed 9.6 mgd desalination plant located at the Charles Benson Road site using the same type of subsurface intake system as the proposed project, but at a different location (described in Section 5.4.3). The desalination plant, brine discharge pipeline, Castroville Pipeline, Pipeline to CSIP Pond, new Desalinated Water Pipeline, new Transmission Main, Terminal Reservoir, ASR components, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be identical to the proposed project described in Chapter 3, Description of the Proposed Project. The location of the slant wells at Potrero Road and the additional 5.5 miles of source water pipeline are the components unique to Alternative 1 (see **Figure 5.4-1**).

Construction Impacts

The direct growth-inducing impact of construction of Alternative 1 would be the same as the proposed project. Construction of the source water pipeline would take somewhat longer to build than the proposed MPWSP source water pipeline, due to the greater distance between the intake location and the desalination plant. However, as under the MPWSP, it is expected that construction workers would be drawn from the local and regional labor pool and the direct growth inducing impact would be less than significant. Therefore Alternative 1 would result in the ***same impact conclusion*** compared to the proposed project, less than significant

Operational and Facility Siting Impacts

The direct growth-inducing impact would be same as the proposed project because Alternative 1 would have the same workforce requirements. As described for the proposed project, existing plant workers would be retrained to operate the desalination plant or operators would be drawn from the local and regional labor pool. Components unique to this alternative would mostly be located underground and would not displace people or housing. Therefore Alternative 1 would result in the ***same impact conclusion*** compared to the proposed project, less than significant.

Cumulative Analysis

Because Alternative 1 would have no impact related to the displacement of housing units or people, it would not cause or contribute to a cumulative impact associated with the displacement of housing or people that would necessitate the construction of replacement housing.

The geographic scope for the analysis of direct cumulative growth-inducing impacts during construction and operation of Alternative 1 is the three-county region consisting of Monterey, San Benito and Santa Cruz Counties. As described in the cumualtive impact analysis for the MPWSP, the cumulative analysis takes a projections-based approach based on the projected buildout of the general plans of the three counties.

Similar to the MPWSP, because of the temporary nature of construction jobs and the size of the regional construction workforce, it is expected that the construction workforce in Monterey, San Benito, and Santa Cruz Counties would meet labor demands associated with construction of

Alternative 1 and the cumulative projects. Therefore, there would be no significant cumulative impact on population and housing from construction of cumulative projects. Even if cumulative construction projects were to lead to population and housing effects by attracting some workers to move to the area from outside the region, such moves, and associated effects, would likely be temporary. Similar to the MPWSP, the contribution of Alternative 1 would not in any event be cumulatively considerable because of the small number of construction workers required and the short duration of the construction period. Therefore, the contribution of Alternative 1 construction would not be cumulatively considerable.

As described for the MPWSP, workers in the region are expected to meet labor demands associated with operation of Alternative 1 and the cumulative projects due to the size of the regional work force, current unemployment rates in Monterey, San Benito, and Santa Cruz counties, and the size of the currently unemployed workforce. Similar to the proposed MPWSP, even if the population and housing effects induced by operation of cumulative projects were significant, Alternative 1 would not have a cumulatively considerable contribution to any such effect due to the small operational workforce it would require.

5.5.19.5 Direct and Indirect Effects of Project Alternative 2 – Open-Water Intake at Moss Landing

Alternative 2 would supply seawater to the proposed 9.6 mgd desalination plant located at the Charles Benson Road site using a screened open-water intake system consisting of an intake structure located offshore in MBNMS and southwest of the Moss Landing Harbor entrance, a subsurface intake pipeline, and an intake pump station (described in Section 5.4.4). The desalination plant, brine discharge pipeline, new Desalinated Water Pipeline, new Transmission Main, Terminal Reservoir, ASR components, Highway 68 interconnection improvements, and the Carmel Valley Pump Station would be identical to the proposed project described in Chapter 3, Description of the Proposed Project. Because the open water intake would eliminate the need for returning source water that originated from the Salinas Valley Groundwater Basin, the Castroville Pipeline, the Pipeline to CSIP Pond, and operational components related to delivering water to Castroville Community Services District would not be implemented. The open water intake system and the additional 6.5 miles of source water pipeline are the components unique to Alternative 2 (see **Figure 5.4-2**).

Construction Impacts

For the same reasons stated above for Alternative 1, the direct growth-inducing impact of Alternative 2 construction would be of the same as the proposed project. Although this alternative may involve some workers with different construction skills, it is expected that, like the proposed project, workers having the requisite skills would be drawn from the local and regional labor pool, and impacts would be less than significant. Therefore Alternative 2 would result in the same ***impact conclusion*** compared to the proposed project, less than significant.

Operational and Facility Siting Impacts

For the same reasons stated above for Alternative 1, the direct growth-inducing impact of Alternative 2 operations and facility siting would be the same as the proposed project. Components unique to this alternative, including the source water pipeline, intake system, and intake pump station, would be located underground, underwater, or in a previously disturbed industrial area and would not displace people or housing. Therefore Alternative 2 would result in the same ***impact conclusion*** compared to the proposed project, less than significant.

Cumulative Analysis

Because Alternative 2 would have a less than significant impact related to the displacement of housing units or people it would not cause or contribute to a cumulative impact associated with the displacement of housing or people that would necessitate the construction of replacement housing.

For the same reasons stated above for Alternative 1, Alternative 2 would not have a cumulatively considerable contribution to a significant cumulative impact related to population and housing.

5.5.19.6 Direct and Indirect Effects of Alternative 3 – Monterey Bay Regional Water Project (MBRWP or DeepWater Desal Project)

Alternative 3 includes the construction and operation of a screened open ocean intake system and a brine discharge system located on the seafloor in Monterey Bay within MBNMS, subsurface pipelines connecting to these intake and discharge systems, a seawater desalination facility and co-located data center, and associated components to provide up to 25,000 afy of potable water and data transmission and storage services. The pipelines for the intake and discharge systems would be installed using HDD. The alternative would also include 6.5 miles of desalinated water pipeline to connect with the CalAm system and up to an additional 25 miles of pipelines to convey the desalinated water to other areas (total of 31.5 miles of additional pipeline). Several components would be identical to the proposed project: the new Transmission Main, new desalinated water pipeline south of the "Connection to CalAm" Point on **Figure 5.4-3**, ASR 5 and 6 wells and ASR pipeline, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be as described in Chapter 3, Description of the Proposed Project. Because this alternative would have an open water intake that would eliminate the need for returning source water that originated from the Salinas Valley Groundwater Basin, the proposed project Castroville Pipeline, Pipeline to CSIP Pond, and operational components related to delivering water to CCSD would not be implemented. The desalination plant and data center, open water intake system, brine discharge system, and the additional 31.5 miles of desalinated water pipeline are the components unique to Alternative 3 (see **Figure 5.4-3**).

Construction Impacts

The direct growth-inducing impact of Alternative 3 construction would greater than the proposed project because it would involve considerably more construction. Further, this alternative would be designed to provide desalinated product water to other areas besides the Monterey Peninsula,

potentially including the city of Salinas and other areas in northern Monterey County and Santa Cruz County, and would, therefore, also include construction of product water pipelines to those areas. This alternative would require specialized construction skills different from those of the proposed project.

Although construction of this alternative would take longer than the proposed project and would involve a larger construction workforce, the substantial pool of construction workers in Monterey County and the three-county region would meet the demand for construction labor and the direct growth inducing impact of Alternative 3 would result in the ***same impact conclusion*** compared to the proposed project, less than significant.

Operational and Facility Siting Impacts

The direct growth-inducing impact of Alternative 3 operations would be greater than the proposed project because operations would require a substantially larger workforce due to the proposed data center. Alternative 3 components would be located underground, underwater, or within existing industrial areas and would have no impact related to the displacement of people or housing. According to information provided by the project proponent, the data center would require 20 regular employees for each shift, with three shifts per day, seven days per week, and that contracted staff and client visitors could add up to 20 additional people during any 8-hour shift, 10 of which are assumed to be contracted staff, bringing the total number of regular and contract employees to 30 each shift, or 90 employees per day. Assuming a five-day, 40-hour work week, staffing requirements would equal 90 full time employees during the work week and 36 full-time-equivalent employees for weekend shifts.[8] Thus, operation of the data center would require about 126 full-time-equivalent employees per week, and staffing needs for data center and desalination plant operations combined would total about 144 permanent workers, substantially greater than the 25 to 30 needed for the proposed project. As discussed under Impact 4.19-C in Section 4.19, Population and Housing, the three counties in the region have a substantial labor force and recent unemployment rates that exceeded the state and national average, suggesting the availability of workers to fill new jobs. The existing labor force would, therefore, be expected to meet a substantial portion of the labor demand associated with Alternative 3 operations. In addition, the Association of Monterey Bay Area Governments (AMBAG) projects that up to 64,000 jobs will be added in the three county region between 2010 and 2035. Therefore, the jobs provided by Alternative 3 would not exceed job growth anticipated for the region and while Alternative 3 would have an increased potential for direct growth inducing impacts it would result in the ***same impact conclusion*** compared to the proposed project, less than significant.

Cumulative Analysis

Because Alternative 3 would have no impact related to the displacement of housing units or people it would not cause or contribute to a cumulative impact associated with the displacement of housing or people that would necessitate the construction of replacement housing.

[8] This estimate of full-time-equivalent staff is based on 90 employees working 16 hours per week compared to a full time 40-hour work week.

For the same reasons stated above for Alternative 1, Alternative 3 would not have a cumulatively considerable contribution to a significant cumulative impact related to the construction workforce in Monterey, San Benito, and Santa Cruz Counties.

Similar to the MPWSP, it is expected that workers in the region would largely meet labor demand associated with operation of Alternative 3 and the cumulative projects, due to the size of the regional work force, current unemployment rates in Monterey, San Benito, and Santa Cruz counties, and the size of the currently unemployed workforce. Although this alternative would have a substantially larger operational workforce than the MPWSP, the number of jobs it would provide is less than 1 percent of the jobs AMBAG projects will be added in Monterey County between 2010 and 2020. Therefore, even if the population and housing induced by operation of cumulative projects were significant, Alternative 3 would not have a cumulatively considerable contribution to such an effect because of the small number of jobs it would provide relative to the unemployed labor force and anticipated job growth in the county. Therefore, the impact would not be cumulatively considerable.

5.5.19.7 Direct and Indirect Effects of Alternative 4 – Peoples' Moss Landing Water Desalination Project (Peoples' Project)

Alternative 4 includes the construction and operation of an open ocean intake, a brine discharge system and pipelines, and supporting ballast rock located on the seafloor in Monterey Bay within MBNMS, as well as a 12 mgd desalination plant and associated facilities to provide 13,400 afy of water supply to meet the current and future needs of the Monterey Peninsula. Several components would be identical to the proposed project: the new Transmission Main, new desalinated water pipeline south of the "Connection to CalAm" Point on **Figure 5.4-4**, ASR-5 and -6 wells and ASR pipeline, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be as described in Chapter 3, Description of the Proposed Project. Because this alternative would have an open water intake that would eliminate the need for returning source water that originated from the Salinas Valley Groundwater Basin, the proposed project Castroville Pipeline, Pipeline to CSIP Pond, and operational components related to delivering water to CCSD would not be implemented. The desalination plant, open water intake system, brine discharge system, and the additional 6.5 miles of desalinated water pipeline are the components unique to Alternative 4 (see **Figure 5.4-4**).

Construction Impacts

For the same reasons as Alternative 3, the direct growth-inducing impact of Alternative 4 construction would be similar to that of the proposed project, with a much larger construction footprint. Construction of this alternative may take somewhat longer, involve a somewhat larger workforce, and include some workers with different construction skills. However, similar to the proposed project, it is expected that demand for construction labor would substantially be met by workers drawn from the local and regional labor pool, and the direct growth inducing impact would be less than significant. Therefore Alternative 4 would result in the ***same impact conclusion*** compared to the proposed project, less than significant.

Operational and Facility Siting Impacts

The direct growth-inducing impact of Alternative 4 operations and facility siting would be similar to that of the proposed project because Alternative 4 would have similar workforce requirements that would be drawn from the local and regional labor pool, and impacts would be less than significant. Alternative 4 components, including the intake system, intake pump station, desalination plant, and product water pipeline, would be located underground, under water, or within existing industrial areas, and would not displace people or housing and there would be no impact. Therefore, Alternative 4 would result in the ***same impact conclusion*** compared to the proposed project, less than significant.

Cumulative Analysis

Because Alternative 4 would have no impact related to the displacement of housing units or people it would not cause or contribute to a cumulative impact associated with the displacement of housing or people that would necessitate the construction of replacement housing.

For the same reasons stated above for Alternative 1, Alternative 4 would not have a cumulatively considerable contribution to a significant cumulative impact related to population and housing.

5.5.19.8 Direct and Indirect Effects of Alternative 5 – Reduced Desal Project 5a (CEMEX) and 5b (Potrero Road)

Alternative 5a would include the seawater intake system at the CEMEX site (the same location as the proposed project), but would include only seven subsurface slant wells (the converted test well and six new wells) and the same source water pipeline as the proposed project. Alternative 5b would include seven new wells at the western end of Potrero Road (the same location as Alternative 1) and the same source water pipeline as Alternative 1. Both Alternatives 5a and 5b would include a reduced-capacity desalination plant (6.4 mgd), and all other components would be the same as the proposed project.

Construction Impacts

The direct growth-inducing impact of Alternative 5a and 5b construction would be similar to that of the proposed project and Alternative 1, respectively. The construction period for the intake slant wells would be shorter than under the MPWSP because fewer wells would be constructed. The construction period for the smaller desalination plant may also be somewhat shorter, although this difference is expected to be minor because both the 9.6-mgd and 6.4-mgd plants would require the same basic components. As under the proposed project, it is expected that construction workers would be drawn from the local and regional labor pool, and therefore, Alternatives 5a and 5b would result in the ***same impact conclusion*** compared to the proposed project, less than significant.

Operational and Facility Siting Impacts

Workforce requirements for operation of Alternative 5a and 5b would be similar to those of the proposed project and Alternative 1, respectively; a small number of additional workers would be

needed for operating the desalination plant. Similar to the proposed project, it is likely that existing plant operators would be retrained to operate the 6.4-mgd desalination facility, or operators would be drawn from the local and regional labor pool and the direct growth inducing impact would be less than significant. Like the proposed project, this alternative would have no impacts related to the displacement of housing or people because the desalination plant and other facilities would be sited at the same locations as the proposed project facilities, and would not displace housing or people. Therefore Alternatives 5a and 5b would result in the ***same impact conclusion*** compared to the proposed project, less than significant.

Cumulative Analysis

Because Alternative 5a and 5b would have no impact related to the displacement of housing units or people it would not cause or contribute to a cumulative impact associated with the displacement of housing or people that would necessitate the construction of replacement housing.

For the same reasons stated above for Alternative 1, Alternative 5 would not have a cumulatively considerable contribution to a significant cumulative impact related to population and housing. Considered in combination with the impacts of the GWR Project (No. 59 in **Table 4.1-2** in Section 4.1), the construction and operational workforces would not be substantial in relation to the regional work force and current unemployment rates, and would not result in a cumulatively considerable contribution to a significant cumulative effect.

5.5.20 Socioeconomics and Environmental Justice

As described in Section 4.20, Socioeconomics and Environmental Justice, under NEPA, a federal lead agency must consider social and economic effects if they are related to a proposed project's natural or physical effects. Consequently, federal agencies must analyze a proposed project's economic and social impacts resulting from any natural or physical effects on the environment. Furthermore, Executive Order (EO) 12898 requires federal agencies to identify and address disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority populations and low-income populations.

As also described in Section 4.20, a CEQA Lead Agency may use information about the economic or social impacts of a project to determine the significance of physical changes caused by the project, but the economic or social effects of a project are not treated as significant effects on the environment. Additionally, CEQA does not use the term "environmental justice" or require the evaluation of impacts on minority or low-income communities in the way required by EO 12898. The ways in which disproportionate environmental burdens (e.g., on sensitive receptors) are addressed in this EIR/EIS are described in Section 4.20. Consistent with that discussion, significance determinations in this section do not apply to the CEQA analysis. Rather, the conclusions in this section are relevant only to the NEPA analysis of the proposed project and alternatives.

5.5.20.1 Setting/Affected Environment

Introduction

The socioeconomics and environmental justice setting/affected environment for alternatives would be similar to that described for the proposed project in Section 4.20, Socioeconomics and Environmental Justice. As is the case for the proposed project, each of the alternatives requires the evaluation of impacts on socioeconomic factors including regional employment and economics and specific effects on regionally important sectors like tourism, education, and research; and on environmental justice, which considers disproportionate environmental or human health impacts on minority and low-income communities. For all alternatives, potentially affected communities include the same as identified for the proposed project: Carmel-by-the-Sea, Del Rey Oaks, Monterey, Pacific Grove, Sand City, Seaside, Castroville, and Marina. This alternatives analysis describes one additional community: Moss Landing. Socioeconomic effects are by nature regionally influential. While the socioeconomic setting herein is presented on a community-level basis within Monterey County, it should be noted that residual impacts have the potential to occur in other nearby counties as well, such as San Benito and Santa Cruz. With the exception of Moss Landing, descriptions of the environmental setting and regulatory framework for all of the aforementioned communities are provided in Section 4.20 of this EIR/EIS.[9] The environmental setting relevant to Moss Landing is described below.

[9] Some information, including values pertaining to populations by category for regional places such as Monterey County and the State of California, is repeated from Section 4.20. This information is cited in Section 4.20.

Socioeconomics

Employment

Key employment data include the number of employable residents (i.e., the available labor force) and the number of job opportunities (i.e., employment) within a community. **Table 5.5-14** shows labor force and unemployment data for Moss Landing Census Designated Place (CDP), Monterey County, and the State of California (as cited in Section 4.20).

TABLE 5.5-14
LABOR FORCE AND UNEMPLOYMENT RATE FOR MOSS LANDING
(2015 ANNUAL AVERAGE)

Jurisdiction	Labor Force[a]	Unemployment Rate[b]
Moss Landing CDP[c]	200	23.4%
Monterey County	221,400	8.1%
State of California	19,100,900	5.4%

NOTES:
[a] EDD provides rounded labor force numbers, but calculates the unemployment rate before rounding.
[b] Not seasonally adjusted.
[c] Since Moss Landing is unincorporated, data shown are for Moss Landing CDP.

SOURCE: EDD, 2016

The Association of Monterey Bay Area Governments (AMBAG) does not provide data or estimates for unincorporated Moss Landing, and no other recent source of the estimated number of jobs in Moss Landing was identified. There are numerous marine research, industrial, recreational, retail, hospitality, and service industry employers in Moss Landing.

Regionally Important Economic Sectors

The Monterey County Board of Supervisors has adopted four economic "pillars" as potential opportunities for the County Economic Opportunity Committee to facilitate economic and employment growth: agriculture, tourism, education, and research (Monterey County, 2016). These sectors are relevant to the analysis on a regional basis (Monterey County), and are discussed in that capacity in Section 4.20.1.1. For more information about these sectors, please refer to that discussion.

Environmental Justice

Minority Populations

The methodology for identifying minority populations is explained in Section 4.20.1.2. The affected environment for this environmental justice analysis consists of the areas in Monterey County that would be affected by the alternatives. For this analysis, a city-level assessment was performed to identify potential minority and/or low-income populations qualifying as communities of concern. **Table 5.5-15** presents the minority population and percentage for the

Moss Landing CDP, which is bordered by Jetty Road, Potrero Road, and Highway 1. Elkhorn Slough is located within the northern area of the community.

TABLE 5.5-15
MINORITY POPULATION OF MOSS LANDING (2010-2014)

Jurisdiction	Total Population	Minority Population[a]	Minority Population Percentage
Moss Landing CDP	200	163	81.5%

NOTES:
[a] Includes all individuals other than non-Hispanic white.

SOURCE: U.S. Census Bureau, 2014a

For the reasons described in Section 4.20.1.2, because Moss Landing CDP has a minority population greater than 50 percent, it is considered to be a community of concern for environmental justice. Note that because this information is derived from the 2010-2014 American Community Survey, and due to the small population size in Moss Landing, the small sample sizes on which survey results are based result in a large margin of error. The 2010 Decennial Census indicates that the minority population in Moss Landing in 2010 was just 32.4 percent (U.S. Census Bureau, 2010a). However, for consistency with the most recent available information used in Section 4.20, and as a conservative approach to identifying potential minority populations, Moss Landing is assumed to have a minority population greater than 50 percent for purposes of this analysis.

Low-Income Populations

This analysis uses two methods for identifying communities of concern related to income levels, based on two sets of guidelines: CEQ guidance and California Regional Water Management Guidelines. Both of these methods are described in detail in Section 4.20.1.2. **Table 5.5-16** presents the median household incomes and the percentages of residents with household incomes below the poverty level for Moss Landing. Based on the threshold described in Section 4.20.1.2, a community with 17.3 percent or greater of individuals with family incomes below the federal poverty threshold would be identified as a low-income population for the purposes of this analysis. Moss Landing has an estimated 12.5 percent of individuals with family incomes below the federal poverty threshold, and is therefore not considered a low-income population based on this measurement.

TABLE 5.5-16
INCOME CHARACTERISTICS FOR MOSS LANDING (2010-2014)

Location	Median Household Income	Individuals with Family Income Below Poverty Level
Moss Landing CDP	$30,500	12.5%

SOURCE: U.S. Census Bureau, 2014b.

As shown in **Table 4.20-4** in Section 4.20, the State of California's median household income as reported by the 2010-2014 American Community Survey was $61,489. Therefore, based on the threshold described in Section 4.20.1.2, communities within potentially affected areas of Monterey County with a median income of less than $49,191 would be considered disadvantaged communities. **Table 5.5-16** shows that as reported by the 2010-2014 American Community Survey, Moss Landing had a median income of less than $49,191. Therefore, Moss Landing is considered a "disadvantaged community" for purposes of this analysis. As noted above in the minority population discussion, the small sample sizes on which the American Community Survey results for Moss Landing are based result in a large margin of error. The Decennial Census does not report household income; however, past American Community Surveys have reported median household income for Moss Landing as high as $87,000 (U.S. Census Bureau, 2010b). For consistency with the most recent available information used in Section 4.20, and as a conservative approach to identifying potential minority populations, Moss Landing is assumed to be a disadvantaged community for purposes of this analysis.

Regulatory Framework

For Federal, State, and Local Regulations relevant to the community of Moss Landing, see Sections 4.20.2.1 through 4.20.2.3.

5.5.20.2 Direct and Indirect Effects of the Proposed Project -- Slant Wells at CEMEX

Impact 4.20-1: Reductions in the rate of employment, total income, or business activity in Monterey County.

MPWSP construction activities and spending would result in temporary new local employment opportunities and increased spending on construction materials, equipment, and services. The proposed project would result in a direct, minor, beneficial economic impact on the Monterey County economy. Secondary economic effects could also result from subsequent "re-spending" by construction companies and materials suppliers that occurs when these companies spend their earnings from the projects at other businesses (i.e., a multiplier effect), and re-spending by employees of those companies.

Construction of the proposed project would not have adverse effects on the tourism, research, and education industries in Monterey County. Access for tourists to businesses or recreation may be temporarily impacted by pipeline construction, but implementation of **Mitigation Measure 4.9-1 (Traffic Control and Safety Assurance Plan)**, would reduce potentially significant impacts to a less-than-significant level.

The rate increase associated with the proposed project could represent an adverse economic impact on the spending power of some ratepayers in Monterey District, but would not be large enough to constitute a significant adverse effect on overall employment or business activity in Monterey County.

Operation of the proposed project would not affect access to tourism, education and research industries. Tourism relies on the recreation, retail and travel sectors, and would not be impacted by the proposed project. Overall, the impacts of operation would be less than significant.

Impact 4.20-2: Disproportionately high and adverse effects on low-income or minority populations.

Low-income and minority populations include all or portions of Sand City, Seaside, Castroville, Monterey (downtown), and Marina. Although several minority and low-income communities would experience higher emissions than would other communities (due to the amount of construction contributing to the estimate of maximum daily emissions near each community), emissions from construction would not result in substantial adverse health effects because they would be temporary and would not exceed applicable thresholds. Therefore, the project would not result in a disproportionately high and adverse impact on minority and/or low-income communities, and the impact would be less than significant. Additionally, implementation **of Mitigation Measures 4.10-1a** through **4.10-1d** would reduce project construction emissions further.

Combined operational emissions near minority and low-income populations would not exceed any of the thresholds derived from applicable air quality plans; therefore, operational emissions would not be expected to adversely affect the communities' health. In addition, the proposed project would result in higher water rates for most ratepayers, including low-income populations in Sand City, Seaside, and downtown Monterey. Such increases could have an adverse impact on low-income communities which could be disproportionately high, and thus significant. However, CalAm's low-income assistance and water conservation assistance programs would reduce the burden of increased prices on low-income households in the Monterey District to the extent practicable. In addition, California Public Utility Commission oversight includes provisions for implementing the lowest possible rate for service consistent with reliable and safe service levels for residential and small commercial customers, in particular. Therefore, this impact would be less than significant.

CCSD serves Castroville, a minority and low-income community outside of CalAm's Monterey District. The proposed project would provide a minor beneficial effect for this community since the CCSD would receive higher quality water via the Castroville Pipeline than the current supply from groundwater pumping in the Salinas Valley Groundwater Basin.

Impact 4.20-C: Cumulative impacts related to socioeconomics and environmental justice.

The proposed project would have a net positive contribution to cumulative impacts related to economic and employment effects on communities benefitting from proposed project construction and operation. The proposed project's contribution to cumulative impacts related to localized emissions during construction and operation would be less than significant. The proposed project would not contribute to a cumulative impact related to long-term increases in water rates for ratepayers.

5.5.20.3 Direct and Indirect Effects of the No Project Alternative

Under the No Project Alternative, it would not be possible to meet the proposed project objectives, and reliance on existing and planned water conservation and recycling programs would continue. Because no new facilities would be constructed, there would be no short-term construction impacts (including construction air quality effects) on the health of environmental justice communities identified in Section 4.20. This alternative would not provide the local and regional economic benefits of project construction. No temporary new local employment opportunities or increased spending on construction materials, equipment, and services would occur. The State Revolving Fund debt and public financing would not be implemented under the No Project Alternative and, therefore, any short-term economic benefit potentially offered by low-cost financing would not occur. Employment, important economic sectors, and minority and low-income communities would not experience adverse short-term construction-related impacts.

Regarding long-term impacts, the lack of water supply would adversely affect the region's economic vitality. The reduction of available water supply by almost 40 percent could lead to water shortages throughout the CalAm Monterey District service area, impacting all economic sectors, including the County's "four pillars" – agriculture, tourism, education, and research, by substantially reducing the reliability of water resources and water infrastructure.

As described in Section 5.4.2, it is assumed that the limited amount of available supplies under the No Project Alternative would trigger Stage 3 Conservation Rates, and possibly Stage 4 Rationing Measures, under MPWMD's 2016 Monterey Peninsula Water Conservation and Rationing Plan (Conservation and Rationing Plan) (MPWMD, 2016). The subsections below describe the economic impacts of each stage of conservation and rationing.

Stage 3, Conservation Rates

Within CalAm's Monterey District, two conservation water rate increases would occur, as described in the Conservation and Rationing Plan. Under Level 1 Conservation Rates, a 25 percent surcharge would be implemented on existing rates for a minimum of 3 months. If Stage 3 has not been lifted after 3 months, Level 2 Conservation Rates would increase the surcharge to 40 percent. These surcharges would not apply to Tier 1 Residential water use, the first tier in the water rate structure. However, for residences using more than their Tier 1 amount, and for all businesses, these surcharges would increase monthly water costs while Stage 3 Conservation Rates are in place, potentially resulting in adverse economic impacts as customers would have less available for spending on other types of purchases. Additionally, these surcharges could disproportionately affect low-income populations within the Monterey District (i.e., Sand City, Seaside, and downtown Monterey) because the increase in water costs as a result of the surcharges may be disproportionately high relative to their incomes compared to non-low-income populations.

Stage 4, Rationing Measures

Stage 4 would take effect if Stage 3 is deemed unsuccessful after 8 months, or if directed by a governmental or regulatory agency. Under Stage 4, mandatory reductions resulting in water rationing and additional prohibitions would be implemented. Residential rations would consist of

incremental allowances based on persons per household, and additional allowances could only be granted through completion and approval of an application. Non-residential water rations would also be implemented if residential water rationing does not achieve measurable results as expected after a period of 6 months. Additional rationing measures could include prohibition of non-essential water uses, a moratorium on accepting water permit applications, no new temporary or permanent potable water service, suspension of annexations to CalAm's service area, ending the use of portable water meters or hydrant water meters, restrictions on draining and refilling of swimming pools, and restrictions on watering and irrigating.

Under Stage 4, the regional economy would experience adverse economic impacts in important sectors such as agriculture, tourism and hospitality, education, and research. While businesses that require water in the course of their business practice, such as laundromats or nurseries, would be exempt from non-residential rationing, non-exempt businesses in several economic sectors would experience the adverse effects of rationing. Restaurants, hotels, and other establishments in the tourism and hospitality industry would be required to cut back on landscaping and change their amenities to accommodate restrictions. Manufacturing activities, commercial farms, and research facilities depend on water for operations and maintenance. The restrictions on new connections would slow or halt economic development as new residences, commercial projects, or industrial facilities could not procure water sources and therefore would not be permitted or built. This would result in a loss in employment opportunities and in commercial property values.

Also at Stage 4, all non-exempt residential customers would experience enforced water rationing. This could adversely affect residential property values in the Monterey District, resulting in economic loss to current residents. While no formal economic modeling has been conducted to quantify these economic effects, stakeholders have recognized the economic and public health implications of the water supply shortage under the No Project Alternative. As quoted in the CDO, the Monterey County Hospitality Association contends that "A marked substantial reduction in the quantity of water …would, in all likelihood, affect the number of visitors that can be served by the hospitality industry and the economy of the area" (SWRCB, 2009). The MPWMD echoes the same sentiment in a 2009 letter that states that imposing a moratorium (as included under Stage 4, Rationing Measures) "would force further economic stagnation upon the region, and can result in harm to the health and safety of the community" (MPWMD, 2009). Impacts of Stage 3 conservation and Stage 4 rationing measures on the rate of employment, total income, or business activity in Monterey County, as well as on low-income populations, would be significant, and no feasible mitigation is available to reduce these impacts to less than significant. Therefore, socioeconomic and environmental justice impacts of the No Project Alternative would be significant and unavoidable.

In summary, with respect to reductions in the rate of employment, total income, or business activity in Monterey County, the No Project Alternative would result in an ***increased impact conclusion*** compared to the project as a result of implementation of Stage 3 conservation and Stage 4 rationing measures; significant and unavoidable. With respect to disproportionately high and adverse effects on low-income or minority populations, the No Project Alternative would avoid construction impacts on these populations, but would nonetheless result in an ***increased impact conclusion*** compared to the project as a result of implementation of Stage 3 conservation

and Stage 4 rationing measures and their potential to cause disproportionately high and adverse economic effects on low-income populations; significant and unavoidable.

As described in Section 5.4. 2, the GWR Project (No. 59 in **Table 4.1-2**) would supply some water to CalAm to serve the Monterey District, but would not supply enough to avoid the need for above-described conservation and rationing measures. In addition to the significant and unavoidable impact the No Project Alternative would cause with respect to reductions in the rate of employment, total income, or business activity in Monterey County, the GWR Project would cause rates to increase in the Monterey District, resulting in a potentially significant cumulative economic impact.

5.5.20.4 Direct and Indirect Effects of Project Alternative 1 – Slant Wells at Potrero Road

Alternative 1 would supply seawater to the proposed 9.6 mgd desalination plant located at the Charles Benson Road site using the same type of subsurface intake system as the proposed project, but at a different location (described in Section 5.4.3). The desalination plant, brine discharge pipeline, Castroville Pipeline, Pipeline to CSIP Pond, new Desalinated Water Pipeline, new Transmission Main, Terminal Reservoir, ASR components, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be identical to the proposed project described in Chapter 3, Description of the Proposed Project. The location of the slant wells at Potrero Road and the longer source water pipeline are the components unique to Alternative 1 (see **Figure 5.4-1**). Therefore, the analysis of socioeconomic and environmental justice impacts of Alternative 1 focuses primarily on the locations for the intake system and source water pipelines that are different from the proposed project; however, impact conclusions are made for the whole of Alternative 1.

Socioeconomics

Compared to the proposed project, the type and intensity of Alternative 1 socioeconomic impacts would be the same. In the community of Moss Landing, where the intake facilities would be constructed at Potrero Road, some localized re-spending effects could occur if temporary construction workers spend some of their earnings near the Potrero Road site (e.g., on lunches, gasoline, etc.). Like the proposed project, construction of Alternative 1 would have a direct, minor, beneficial economic impact on the Monterey County economy and potentially in nearby counties such as San Benito and Santa Cruz counties.

For the same reasons described in Section 4.20.5.1, construction of Alternative 1 components that are the same as the proposed project would not have adverse effects on the tourism, research, and education industries in Monterey County. Potentially significant impacts related to disrupted access to local businesses would be similar to those described for the proposed project and would be reduced to a less-than-significant level with implementation of **Mitigation Measure 4.9-1** (**Traffic Control and Safety Assurance Plan**).

No offshore construction is proposed and construction of the Alternative 1 components would not interfere with any research or tourism activities being conducted along the coast. No monitoring

activities were identified as occurring close enough to proposed construction for these activities to be affected (SIMoN, 2016). No impacts on educational facilities would occur.

Operation and maintenance of Alternative 1 would result in the same minimal impacts on socioeconomics as the proposed project, as described in Section 4.20. The same long-term increase in future water prices for water consumers described in Section 4.20.5.1 would occur.

Overall, Alternative 1 would result in the ***same impact conclusion*** as the proposed project with respect to impacts on the rate of employment ant total income and business activity in Monterey County, less than significant with mitigation.

Environmental Justice

Impacts from the components that are common with the proposed project would be identical to those described in Section 4.20.5.2. Health effects resulting from decreased air quality from construction would be location-specific. As a result of the different location of the slant wells and source water pipeline, construction emissions associated with these components would occur in Moss Landing, which is identified as a minority population and disadvantaged community. However, construction emissions would be reduced in Marina, which is also an identified minority and low-income population, because only the new Desalinated Water Pipeline and a smaller portion of the alternative source water pipeline would be constructed near Marina. As described in Section 4.20.5.2, the emissions from these components would not result in substantial adverse health effects because they would be temporary and would not exceed applicable thresholds. Therefore, because construction of Alternative 1 components would not result in substantial adverse effects, this alternative would not result in a disproportionately high and adverse impact on minority and/or low-income communities, and the impact of Alternative 1 construction would be less than significant. Additionally, implementation of **Mitigation Measures 4.10-1a** through **4.10-1d** would reduce project construction emissions further; however, the impact would be less than significant regardless.

During operation the same long-term increase in future water prices for water consumers described in Section 4.20.5.1 would occur. Castroville, a disadvantaged community, would experience minor beneficial effects from Alternative 1 in the same way it would under the proposed project, as described in Section 4.20.5.1.

Overall, Alternative 1 would result in the ***same impact conclusion*** as the proposed project, less than significant.

Cumulative Analysis

The geographic scope for the cumulative impact analysis of socioeconomics is the same as that described for the proposed project, plus the additional community of Moss Landing. The contributions of Alternative 1 to cumulative socioeconomic impacts also would be similar to those of the proposed project described in Impact 4.20-C. No communities in the vicinity of Alternative 1 would experience negative socioeconomic impacts resulting from construction. Access for consumers to some businesses may be temporarily affected, which may result in a

significant impact on business activity, but implementation of **Mitigation Measure 4.9-1, Traffic Control and Safety Assurance Plan**, would minimize the influence of such effects on the tourism industry, reducing them to a less-than-significant level, and no other projects in the cumulative scenario are likely to overlap in time and location with these potential disruptions. Therefore, Alternative 1 would result in the ***same impact conclusion*** as the proposed project for cumulative effects related to socioeconomics, less than significant with mitigation.

The geographic scope for the cumulative impact analysis of environmental justice includes the minority and low-income populations identified in **Tables 4.20-4** and **4.20-5** (i.e., Seaside, Marina, Castroville, and Sand City, and one census tract in downtown Monterey), plus the additional community of Moss Landing, identified as a minority population and disadvantaged community. The contributions of Alternative 1 to cumulative environmental justice impacts would be similar to those identified in Impact 4.20-C for the proposed project, except that Alternative 1 would result in less construction in and near Marina, reducing project-specific localized air pollution near that community, but would instead move construction of the subsurface slant wells and source water pipeline near the Moss Landing community. When combined with other construction projects listed in **Table 4.1-2** in Section 4.1, including one additional project that may have the potential to result in overlapping air quality impacts – the DeepWater Desal Project (No. 34) – the cumulative localized emissions could be increased compared to Alternative 1 alone. Although cumulative impacts could be significant if other projects resulted in emissions that exceeded significance thresholds, the localized emissions of Alternative 1 components would not be significant. Therefore, for the same reasons described in the air quality analysis in Section 4.10.6, the contribution of Alternative 1 to cumulative impacts at these locations would not be cumulatively considerable. With regard to operational effects, such emissions would be negligible. Alternative 1 would have the same potential contribution to rate increases in CalAm's Monterey District, and the cumulative scenario affecting rates would be identical to that described for the proposed project. Therefore, Alternative 1 would result in the ***same impact conclusion*** as the proposed project for cumulative effects related to environmental justice, less than significant.

5.5.20.5 Direct and Indirect Effects of Project Alternative 2 – Open-Water Intake at Moss Landing

Alternative 2 would supply seawater to the proposed 9.6 mgd desalination plant located at the Charles Benson Road site using a screened open-water intake system consisting of an intake structure located offshore in MBNMS and southwest of the Moss Landing Harbor entrance, a subsurface intake pipeline, and an intake pump station (described in Section 5.4.4). The desalination plant, brine discharge pipeline, new Desalinated Water Pipeline, new Transmission Main, Terminal Reservoir, ASR components, Highway 68 interconnection improvements, and the Carmel Valley Pump Station would be identical to the proposed project described in Chapter 3, Description of the Proposed Project. Because the open water intake would eliminate the need for returning source water drawn from the Salinas Valley Groundwater Basin, the Castroville Pipeline, the Pipeline to CSIP Pond, and operational components related to delivering water to CCSD would not be implemented. The open water intake system in Moss Landing and the longer source water pipeline are the components unique to Alternative 2 (see **Figure 5.4-2**). Therefore,

the analysis of socioeconomic and environmental justice impacts of Alternative 2 focuses primarily on the locations for the intake system and source water pipelines that are different from the proposed project; however, impact conclusions are made for the whole of Alternative 2.

Socioeconomics

The type and intensity of Alternative 2 socioeconomic impacts would be similar to the proposed project, except for in the community of Moss Landing where the intake facilities would be constructed, where some localized re-spending effects could occur if temporary construction workers spend some of their earnings near the Potrero Road site (e.g., on lunches, gasoline, etc.). Like the proposed project, construction of Alternative 2 would have a direct, minor, beneficial economic impact on the Monterey County economy and potentially in nearby counties such as San Benito and Santa Cruz counties.

For the same reasons described in Section 4.20.5.1, construction of Alternative 2 would not have adverse effects on the tourism, research, and education industries in Monterey County. Potentially significant impacts related to disrupted access to local businesses would be similar to those described for the proposed project and would be reduced to a less-than-significant level with implementation of **Mitigation Measure 4.9-1** (**Traffic Control and Safety Assurance Plan**).

Offshore construction of the open-water intake facility would not interfere with any research activities being conducted along the coast. No impacts on educational facilities would occur.

Operation and maintenance of Alternative 2 would result in the same minimal impacts on socioeconomics as the proposed project, as described in Section 4.20. The same long-term increase in future water prices for water consumers described in Section 4.20.5.1 would occur.

Overall, Alternative 2 would result in the ***same impact conclusion*** as the proposed project with respect to impacts on the rate of employment ant total income and business activity in Monterey County, less than significant with mitigation.

Environmental Justice

Health effects resulting from decreased air quality from construction would be location-specific. Impacts from the components that are common with the proposed project would be identical to those described in Section 4.20.5.2. As a result of the different location of the intake and source water pipeline, construction emissions associated with these components would occur in Moss Landing, which is identified as a minority population and disadvantaged community. However, construction emissions would be reduced in Marina, which is also an identified minority and low-income population, because only the new Desalinated Water Pipeline and a smaller portion of the alternative source water pipeline would be constructed near Marina. Additionally, emissions would be reduced near Castroville, a disadvantaged community. Emissions from Alternative 2 components would not result in substantial adverse health effects because they would be temporary and would not exceed applicable thresholds. Therefore, because construction of Alternative 2 components would not result in substantial adverse effects, this alternative would not result in a disproportionately high and adverse impact on minority and/or low-income

communities, and the impact of Alternative 2 construction would be less than significant. Additionally, implementation of **Mitigation Measures 4.10-1a** through **4.10-1d** would reduce project construction emissions further; however, the impact would be less than significant regardless.

During operation, a long-term increase in future water prices for water consumers would occur; however, the extent of the increase is not yet known. Castroville, a disadvantaged community, would not experience the minor benefit related to improved water quality from Alternative 2 in the same way it would under the proposed project, as described in Section 4.20.5.1, because Alternative 2 would not return water to the CCSD.

Overall, Alternative 2 would result in the ***same impact conclusion*** as the proposed project, less than significant.

Cumulative Analysis

The geographic scope for the cumulative impact analysis of socioeconomics is the same as that described for the proposed project, plus the additional community of Moss Landing. The contributions of Alternative 2 to cumulative socioeconomic impacts also would be similar to those of the proposed project described in Impact 4.20-C. No communities in the vicinity of Alternative 2 would experience negative socioeconomic impacts resulting from construction. Access for consumers to some businesses may be temporarily affected, which may result in a significant impact on business activity, but implementation of **Mitigation Measure 4.9-1**, Traffic Control and Safety Assurance Plan, would minimize the influence of such effects on the tourism industry, reducing them to a less-than-significant level, and no other projects in the cumulative scenario are likely to overlap in time and location with these potential disruptions. Therefore, Alternative 2 would result in the ***same impact conclusion*** as the proposed project for cumulative effects related to socioeconomics, less than significant with mitigation.

The geographic scope for the cumulative impact analysis of environmental justice includes the minority and low-income populations identified in **Tables 4.20-4** and **4.20-5** (i.e., Seaside, Marina, Castroville, and Sand City, and one census tract in downtown Monterey), plus the additional community of Moss Landing, identified as a minority population and disadvantaged community. The contributions of Alternative 2 to cumulative environmental justice impacts would be similar to those identified in Impact 4.20-C for the proposed project, except that Alternative 2 would result in less construction in and near Marina and Castroville, reducing project-specific localized air pollution near those communities, but would result in more construction near the Moss Landing community as a result of the open water intake and alternative source water pipeline construction. When combined with other construction projects listed in **Table 4.1-2** in Section 4.1, including two additional projects that may have the potential to result in overlapping air quality impacts – the DeepWater Desal Project (No. 34) and the specific construction projects in the Moss Landing Community Plan (No. 37) – the cumulative localized emissions could be increased compared to Alternative 2 alone. Although cumulative impacts could be significant if other projects resulted in emissions that exceeded significance thresholds, the localized emissions of Alternative 2 components would not be significant. Therefore, for the same reasons described in the air quality analysis in Section 4.10.6, the

contribution of Alternative 2 to cumulative impacts at these locations would not be cumulatively considerable. With regard to operational effects, such emissions would be negligible. Alternative 2 would have the same potential contribution to rate increases in CalAm's Monterey District, and the cumulative scenario affecting rates would be identical to that described for the proposed project. Therefore, Alternative 2 would result in the ***same impact conclusion*** as the proposed project for cumulative effects related to environmental justice, less than significant.

5.5.20.6 Direct and Indirect Effects of Project Alternative 3 – Monterey Bay Regional Water Project (MBRWP or DeepWater Desal Project)

Alternative 3 includes the construction and operation of a screened open ocean intake system and a brine discharge system located on the seafloor in Monterey Bay within MBNMS, subsurface pipelines connecting to these intake and discharge systems, a seawater desalination facility and co-located data center, and associated components to provide up to 25,000 afy of potable water and data transmission and storage services. The alternative would also include 6.5 miles of desalinated water pipeline to connect with the CalAm system and up to an additional 25 miles of pipelines to convey the desalinated water to other areas (total of 31.5 miles of additional pipeline). Several components would be identical to the proposed project: the new Transmission Main, new desalinated water pipeline south of the "Connection to CalAm" Point on **Figure 5.4-3**, ASR 5 and 6 wells and ASR pipeline, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be as described in Chapter 3, Description of the Proposed Project. Because this alternative would have an open water intake that would eliminate the need for returning source water drawn from the Salinas Valley Groundwater Basin, the proposed project Castroville Pipeline, Pipeline to CSIP Pond, and operational components related to delivering water to CCSD would not be implemented. The desalination plant and data center, open water intake system, brine discharge system, and the additional 31.5 miles of desalinated water pipeline are the components unique to Alternative 3 (see **Figure 5.4-3**). Therefore, the analysis of socioeconomic and environmental justice impacts of Alternative 3 focuses primarily on these components; however, impact conclusions are made for the whole of Alternative 3.

Socioeconomics

The type of socioeconomic impacts under Alternative 3 would be similar to the proposed project, except that most construction would occur in the community of Moss Landing. Construction would result in the same types of re-spending effects in Moss Landing as described for the proposed project, though increased because a larger workforce would be present in Moss Landing during construction of Alternative 3. Like the proposed project, construction of Alternative 3 would have a direct, minor, beneficial economic impact on the Monterey County economy and potentially in nearby counties such as San Benito and Santa Cruz counties.

For the same reasons described in Section 4.20.5.1, construction of Alternative 3 would not have adverse effects on the tourism, research, and education industries in Monterey County. Potentially significant impacts related to disrupted access to local businesses would be similar to those described for the proposed project and would be reduced to a less-than-significant level with implementation of **Mitigation Measure 4.9-1** (**Traffic Control and Safety Assurance Plan**).

Offshore construction of the open ocean intake facility would not interfere with any research activities being conducted along the coast. No impacts on educational facilities would occur.

Operation and maintenance of Alternative 3 would result in the same types of minimal impacts on socioeconomics as the proposed project, as described in Section 4.20, though impacts related to operation and maintenance of the desalination plant would occur closer to Moss Landing. Approximately the same long-term increase in future water prices for water consumers described in Section 4.20.5.1 would occur, with the potential for some variance based on the cost to CalAm to procure water from the Alternative 3 desalination plant. Future water prices for water consumers have not yet been determined for this alternative and will be evaluated in the EIR/EIS being compiled for the DeepWater Desal Project.

Overall, Alternative 3 would result in the ***same impact conclusion*** as the proposed project with respect to impacts on the rate of employment ant total income and business activity in Monterey County, less than significant with mitigation.

Environmental Justice

Health effects resulting from decreased air quality from construction would be location-specific. Impacts from the components that are common with the proposed project would be identical to those described in Section 4.20.5.2. Emissions would be reduced near Marina and Castroville. However, construction emissions associated with the desalination plant, data center, intake and discharge systems, and related facilities would be greater than the emissions related to the proposed project desalination plant due to the increased number of concurrent construction efforts in the same general location, and these facilities would be located near Moss Landing, an identified minority population and disadvantaged community. As described in Section 5.5.10.6, it is not currently known how construction of these facilities would proceed; however, if the data center and/or cooling system were constructed concurrently with the desalination facility, the combined daily emissions of these facilities near Moss Landing would exceed the MBUAPCD threshold for PM_{10} emissions. Unlike the proposed project, this impact would be significant and unavoidable even with implementation of **Mitigation Measures 4.10-1a** through **4.10-1d**. Therefore, the Alternative 3 construction-related impact would be significant and unavoidable, even with mitigation.

Operation and maintenance of Alternative 3 could result in a significant health risk associated with testing and exercising the emergency generators. This impact would occur near Moss Landing, and thus could have a disproportionately high and adverse impact on this community if the health risk were significant. However, as described in Section 5.5.10.6, the associated impact would not be significant if the generators were sited on the north side of the property away from the nearest residences. To ensure that the operational health risk impact would be reduced to a less-than-significant level, implementation of **Mitigation Measure ALT 3-AQ** in Section 5.5.10.6 would be required. Therefore, operation of Alternative 3 would result in an increased level of impact on sensitive receptors compared to the proposed project and would be less than significant with mitigation.

Castroville, a disadvantaged community, would not experience the minor benefit related to improved water quality from Alternative 3 in the same way it would under the proposed project, as described in Section 4.20.5.1, because Alternative 3 would not return water to the Castroville Community Services District.

Overall, Alternative 3 would result in an ***increased impact conclusion*** compared to the proposed project, significant and unavoidable.

Cumulative Analysis

The geographic scope for the cumulative impact analysis of socioeconomics is the same as that described for the proposed project, plus the additional community of Moss Landing. The contributions of Alternative 3 to cumulative socioeconomic impacts also would be similar to those of the proposed project described in Impact 4.20-C. No communities in the vicinity of Alternative 3 would experience negative socioeconomic impacts resulting from construction. Access for consumers to some businesses may be temporarily affected, which may result in a significant impact on business activity, but implementation of **Mitigation Measure 4.9-1, Traffic Control and Safety Assurance Plan**, would minimize the influence of such effects on the tourism industry, reducing them to a less-than-significant level, and no other projects in the cumulative scenario are likely to overlap in time and location with these potential disruptions. Therefore, Alternative 3 would result in the ***same impact conclusion*** as the proposed project for cumulative effects related to socioeconomics, less than significant with mitigation.

The geographic scope for the cumulative impact analysis of environmental justice includes the minority and low-income populations identified in **Tables 4.20-4** and **4.20-5** (i.e., Seaside, Marina, Castroville, and Sand City, and one census tract in downtown Monterey), plus the additional community of Moss Landing, identified as a minority population and disadvantaged community. The contributions of the components common to the proposed project and Alternative 3 (i.e., the pipelines south of the "Connection to CalAm" point, the ASR system, and the Carmel Valley Pump Station) to cumulative environmental justice impacts would be similarly minimal compared to those identified in Impact 4.20-C for the proposed project. Alternative 3 would result in less construction in and near Marina and Castroville, reducing but not eliminating localized air pollution near those communities. However, Alternative 3 would result substantial construction activity near the Moss Landing community as a result of construction of the desalination plant, data center, substation, intake and discharge systems, and related facilities in that location. As described above, this impact would be significant and unavoidable even with implementation of **Mitigation Measures 4.10-1a** through **4.10-1d**. When combined with other construction projects listed in **Table 4.1-2** in Section 4.1, including one additional project that may have the potential to result in overlapping air quality impacts – the Moss Landing Community Plan (No. 37) – the cumulative localized emissions could be increased compared to Alternative 3 alone. If overlapping construction were to occur, Alternative 3 would result in a cumulatively considerable contribution to a significant cumulative impact. This would be an ***increased level of impact*** compared to the proposed project, significant and unavoidable, even with mitigation.

5.5.20.7 Direct and Indirect Effects of Project Alternative 4 – People's Moss Landing Water Desalination Project (People's Project)

Alternative 4 includes the construction and operation of an open ocean intake, a brine discharge system and pipelines, and supporting ballast rock located on the seafloor in Monterey Bay within MBNMS, as well as a 12 mgd desalination plant and associated facilities to provide 13,400 afy of water supply to meet the current and future needs of the Monterey Peninsula. Several components would be identical to the proposed project: the new Transmission Main, new desalinated water pipeline south of the "Connection to CalAm" Point on **Figure 5.4-4**, ASR-5 and -6 wells and ASR pipeline, Highway 68 interconnection improvements, and Carmel Valley Pump Station would be as described in Chapter 3, Description of the Proposed Project. Because this alternative would have an open water intake that would eliminate the need for returning source water drawn from the Salinas Valley Groundwater Basin, the proposed project Castroville Pipeline, Pipeline to CSIP Pond, and operational components related to delivering water to CCSD would not be implemented. The desalination plant, open water intake system, brine discharge system, and the additional 6.5 miles of desalinated water pipeline are the components unique to Alternative 4 (see **Figure 5.4-4**). Therefore, the analysis of socioeconomic and environmental justice impacts of Alternative 4 focuses primarily on these components; however, impact conclusions are made for the whole of Alternative 4.

Socioeconomics

The type of socioeconomic impacts under Alternative 4 would be similar to the proposed project, except that most construction would occur in the community of Moss Landing. Construction would result in the same types of re-spending effects in Moss Landing as described for the proposed project, though increased because a larger workforce would be present in Moss Landing during construction of Alternative 4. Like the proposed project, construction of Alternative 4 would have a direct, minor, beneficial economic impact on the Monterey County economy and potentially in nearby counties such as San Benito and Santa Cruz counties.

For the same reasons described in Section 4.20.5.1, construction of Alternative 4 components that are the same as the proposed project would not have adverse effects on the tourism, research, and education industries in Monterey County. Potentially significant impacts related to disrupted access to local businesses would be similar to those described for the proposed project and would be reduced to a less-than-significant level with implementation of **Mitigation Measure 4.9-1** (**Traffic Control and Safety Assurance Plan**).

Offshore construction of the open-water intake facility would not interfere with any research activities being conducted along the coast. No impacts on educational facilities would occur.

Operation and maintenance of Alternative 4 would result in the same types of minimal impacts on socioeconomics as the proposed project, as described in Section 4.20, though impacts related to operation and maintenance of the desalination plant would occur closer to Moss Landing. Approximately the same long-term increase in future water prices for water consumers described in Section 4.20.5.1 would occur, with the potential for some variance based on the cost to CalAm

to procure water from the Alternative 4 desalination plant. Future water prices for water consumers have not yet been determined for this alternative.

Overall, Alternative 4 would result in the ***same impact conclusion*** as the proposed project with respect to impacts on the rate of employment ant total income and business activity in Monterey County, less than significant with mitigation.

Environmental Justice

Health effects resulting from decreased air quality from construction would be location-specific. Impacts from the components that are common with the proposed project would be identical to those described in Section 4.20.5.2. Emissions would be reduced near Marina and Castroville. However, construction emissions associated with the desalination plant and intake and discharge facilities would be located near Moss Landing, an identified minority population and disadvantaged community. Due to the concentration of these facilities near Moss Landing, maximum daily emissions from construction near Moss Landing may exceed the state and/or federal standard for ozone, NO_2, and/or PM_{10}. This impact with respect to the ozone and NO_2 standards would be significant and unavoidable even with implementation of **Mitigation Measures 4.10-1a** and **4.10-1b**. With respect to the PM_{10} standards, this impact would be reduced to a less-than-significant level with implementation of **Mitigation Measures 4.10-1a** through **4.10-1d**. Therefore, construction of Alternative 4 could result in an increased level of impact compared to the proposed project, because the construction-related impact near a minority population and disadvantaged community may be significant and unavoidable, even with mitigation.

During operation, a long-term increase in future water prices for water consumers would occur; however, the extent of the increase is not yet known. Castroville, a disadvantaged community, would not experience the minor benefit related to improved water quality from Alternative 4 in the same way it would under the proposed project, as described in Section 4.20.5.1, because Alternative 4 would not return water to the CCSD.

Overall, Alternative 4 would result in an ***increased impact conclusion*** compared to the proposed project, significant and unavoidable.

Cumulative Analysis

The geographic scope for the cumulative impact analysis of socioeconomics is the same as that described for the proposed project, plus the additional community of Moss Landing. The contributions of Alternative 4 to cumulative socioeconomic impacts also would be similar to those of the proposed project described in Impact 4.20-C. No communities in the vicinity of Alternative 4 would experience negative socioeconomic impacts resulting from construction. Access for consumers to some businesses may be temporarily affected, which may result in a significant impact on business activity and/or recreational access for tourists, but implementation of **Mitigation Measures 4.9-1**, would minimize the influence of such effects on the tourism industry, reducing them to a less-than-significant level, and no other projects in the cumulative scenario are likely to overlap in time and location with these potential disruptions. Therefore,

Alternative 4 would result in the ***same impact conclusion*** as the proposed project for cumulative effects related to socioeconomics, less than significant with mitigation.

The geographic scope for the cumulative impact analysis of environmental justice includes the minority and low-income populations identified in **Tables 4.20-4** and **4.20-5** (i.e., Seaside, Marina, Castroville, and Sand City, and one census tract in downtown Monterey), plus the additional community of Moss Landing, identified as a minority population and disadvantaged community. The contributions of the components common to the proposed project and Alternative 4 (i.e., the pipelines south of the "Connection to CalAm" point, the ASR system, and the Carmel Valley Pump Station) to cumulative environmental justice impacts would be similarly minimal as compared to those identified in Impact 4.20-C for the proposed project. Alternative 4 would result in less construction in and near Marina and Castroville, reducing but not eliminating localized air pollution near those communities. However, Alternative 4 would result substantial construction activity near the Moss Landing community as a result of construction of the desalination plant, intake and discharge systems, and related facilities in that location. As described above, the impact associated with emissions of NOx would be significant and unavoidable even with implementation of **Mitigation Measures 4.10-1a** and **4.10-1b**. When combined with other construction projects listed in **Table 4.1-2** in Section 4.1, including two additional projects that may have the potential to result in overlapping air quality impacts – the DeepWater Desal Project (No. 34) and the Moss Landing Community Plan (No. 37) – the cumulative localized emissions could be increased compared to Alternative 4 alone. If overlapping construction were to occur, Alternative 4 would result in a cumulatively considerable contribution to a significant cumulative impact. This would be an ***increased level of impact*** compared to the proposed project, significant and unavoidable, even with mitigation.

5.5.20.8 Direct and Indirect Effects of Project Alternative 5 – Reduced Desal Project 5a (CEMEX) and 5b (Potrero Road)

Alternative 5a would include the seawater intake system at the CEMEX site (the same location as the proposed project), but would include only seven subsurface slant wells (the converted test well and six new wells) and the same source water pipeline as the proposed project. Alternative 5b would include seven new wells at the western end of Potrero Road (the same location as Alternative 1) and the same source water pipeline as Alternative 1. Both Alternatives 5a and 5b would include a reduced-capacity desalination plant (6.4 mgd), and all other components would be the same as the proposed project.

Socioeconomics

The impacts of Alternatives 5a and 5b would be similar to those described for the proposed project and Alternative 1, respectively, though the economic and employment benefits would be reduced in proportion to the reduced size of the desalination plant and reduced number of subsurface slant wells. This would result in a decreased potential for beneficial socioeconomic effects because construction-related benefits would last an incrementally shorter period of time. With implementation of applicable mitigation for components common with the proposed project or Alternative 1 that may temporarily disrupt local businesses, Alternatives 5a and 5b would result in the ***same impact conclusion*** as the proposed project, less than significant with mitigation.

Environmental Justice

The impacts of Alternatives 5a and 5b would be similar to those described for the proposed project and Alternative 1, respectively, though the air pollution-related adverse impacts on minority and low-income populations would be reduced in proportion to the reduced size of the desalination plant and reduced number of subsurface slant wells. This would result in a decreased potential for disproportionately high and adverse effects because some construction activities would be reduced in duration; however, because they would not increase emissions compared to the less-than-significant local emissions under the proposed project or Alternative 1, Alternatives 5a and 5b would result in the ***same impact conclusion*** as the proposed project, less than significant.

Cumulative Analysis

Combined Impacts with GWR Project

For the same reasons described for the proposed project and Alternative 1, Alternatives 5a and 5b would result in minimal beneficial contributions to cumulative economic and employment effects. However, as described above, the magnitude of impacts of Alternatives 5a and 5b would be reduced compared to the proposed project and Alternative 1, respectively. The addition of the GWR Project (No. 59) described in **Table 4.1-2** in Section 4.1 to the cumulative scenario for Alternative 5 would have a minimal effect on overall cumulative impacts. Combined, the GWR Project and Alternative 5 would have an increased beneficial contribution to cumulative economic and employment effects as a result of the construction of two separate projects. Similarly, the combination of these projects would increase adverse contributions to air pollution-related cumulative impacts on minority and low-income populations during construction compared to Alternative 5 alone. These contributions to overall cumulative impacts would be temporary. The combination of Alternative 5 and the GWR Project may result in greater long-term future rate increases for CalAm ratepayers due to the increased overall cost of these projects in combination.

Impacts of Full Cumulative Scenario

As stated above, the addition of the GWR project – the only other project reasonably foreseeable in the Alternative 5 cumulative scenario compared to that of the proposed project or Alternative 1 – would have a minimal effect on socioeconomic and environmental justice impacts. Therefore, the cumulative impacts under Alternatives 5a and 5b, and the contributions of Alternatives 5a and 5b, would be similar to those described for the proposed project and Alternative 1, respectively. Alternatives 5a and 5b would result in the ***same impact conclusion*** as the proposed project for cumulative effects related to socioeconomics (less than significant with mitigation) and environmental justice (less than significant).

5.5.20.9 References

California Employment Development Department (EDD), 2016. Monthly Labor Force Data for Cities and Census Designated Places (CDP), Annual Average 2015.

Monterey County, 2016. *Monterey County Economic Opportunity Pillars*. Available at http://www.co.monterey.ca.us/government/departmentsah/economicdevelopment/economicopportunitypillars#ColumnUserControl2. Accessed August 9, 2016.

Monterey Peninsula Water Management District (MPWMD), 2009. Letter to State Water Resources Control Board Re: July 27, 2009 Draft SWRCB Cease and Desist Order WR 2009-00XX in the Matter of the Unauthorized Diversion and Use of Water by the California American Water Company. August 26.

Monterey Peninsula Water Management District (MPWMD), 2016. Monterey Peninsula Water Conservation and Rationing Plan.

SIMoN, 2016. Interactive Maps MPA Monitoring. Available at: http://sanctuarymonitoring.org/regional_sections/maps/mpaviewer/. Accessed on September 3, 2016.

State Water Resources Control Board (SWRCB), 2009. Order WR 2009-0060, In the Matter of the Unauthorized Diversion and Use of Water by the California American Water Company, Cease and Desist Order. Adopted October 20, 2009.

U.S. Census Bureau, 2010a. DP-1 Profile of General Population and Housing Characteristics: 2010 Census; Moss Landing.

U.S. Census Bureau, 2010b. DP03 Selected Economic Characteristics; 2006-2010 American Community Survey 5-Year Estimates; Moss Landing.

U.S. Census Bureau, 2014a. DP05 ACS Demographic and Housing Estimates; 2010-2014 American Community Survey 5-Year Estimates; selected geographies.

U.S. Census Bureau, 2014b. DP03 Selected Economic Characteristics; 2010-2014 American Community Survey 5-Year Estimates; selected geographies.

5.5.21 Growth Inducement

This section describes the potential for the provision of water supply to indirectly induce growth: would implementation of the proposed project or alternatives directly or indirectly cause economic or population growth or residential construction? The potential for direct and/or indirect impacts on population and housing, including the potential to result in the need for additional workforce to support construction and operations is addressed in Section 4.20 for the proposed project and Section 5.5.20 for alternatives. The topic of indirect growth inducement related to the proposed project is fully addressed in Section 6.3 and summarized below.

5.5.21.1 Setting/Affected Environment

This section evaluates the indirect growth inducing impacts of the water supply that would be provided by the alternatives. As discussed in Section 6.3, a water supply project – such as the MPWSP and the "project" alternatives considered here – would be considered growth inducing if it removed water supply limitations as an obstacle to growth. Refer to Section 5.5.18, Population and Housing, for analysis of the alternatives' direct growth inducing impacts. Since an alternative would only supply water to customers once the alternative was operational, there would be no indirect growth inducing impacts during the construction phase. Therefore, construction phase impacts are not considered further in this section.

The environmental setting/affected environment for Alternatives 1, 2, 4, and 5 consists of the areas that would be served by the alternatives– CalAm's Monterey District service area (Monterey District); Alternative 3 would also serve other areas of Monterey County as well as Santa Cruz County.

5.5.21.2 Indirect Growth Inducing Effects of The Proposed Project

To determine the MPWSP's potential to indirectly induce growth, the proposed project was evaluated for its potential to stimulate additional housing development and the need for services as a result of increasing available water supply and providing associated infrastructure improvements. As described in Chapter 2, Water Demand, Supplies, and Water Rights, CalAm proposes that the MPWSP provide, along with other supply sources, sufficient water supply to:

- meet existing service area demand;
- serve development that uses existing water entitlements held in the Pebble Beach-Del Monte Forest area;
- develop vacant legal lots of record; and
- support increased water consumption at local restaurants and lodging when tourism increases under improved economic conditions.

Table 5.5-17 summarizes the water demand CalAm proposes to meet with the MPWSP, along with existing and other planned water supply sources. The estimate of existing system demand, 12,270 afy, is based on demand in 2010.[10]

TABLE 5.5-17
MPWSP DEMAND ASSUMPTIONS

Demand Component	Annual Demand (acre-feet)
Existing System Demand	12,270
Pebble Beach Water Entitlements	325
Hospitality Industry Rebound Economic Recovery	500
Legal Lots of Record	1,180
Total	**14,275**

SOURCE: RBF Consulting, 2013; Svindland, 2016.

Along with existing and other planned water supply sources, the MPWSP would provide up to 16,294 afy during the 25-year Seaside Groundwater Basin replenishment period; an additional 700 afy of Seaside Groundwater Basin supply would be available to the CalAm service area at the end of the replenishment period.[11] Of this16,294 afy, 12,270 afy would serve existing service area demand, and another 2,005 afy is proposed to meet anticipated future demand. This includes an estimated 250 afy associated with the local hospitality industry, absent new development, assuming increased economic activity. Thus, 12,520 afy would be used to meet existing demand and demand of existing business customers, and 1,755 afy would support new development.

Table 5.5-18 provides a breakdown of demand associated with existing and anticipated land uses assumed for the MPWSP. **Table 5.5-19** shows water supplies that would be available with the MPWSP, compared with the service area demands shown in **Table 5.5-18**, as well as two estimates of the SVGB return water obligation associated with operating the proposed 9.6-mgd desalination plant. **Table 5.5-19** illustrates available and surplus supply (or deficit) during the Seaside Groundwater Basin replenishment period, assuming a 6 percent or 12 percent return water obligation. As shown, under either of these return water scenarios, the available supply would meet existing service area demand and demand associated with the existing hospitality industry (12,520 afy), with a surplus of 535 or 2,154 afy depending on the return water obligation.

[10] Although demand in 2010 is slightly less than the current 10-year average demand (12,351 afy) CalAm assumes this is the appropriate level of demand for planning purposes to ensure the proposed action is sized appropriately to meet peak demands as required by state regulations; see Section 2.3 in Chapter 2 for more information.

[11] For the first 25 years of MPWSP operation, CalAm would provide in-lieu replenishment of the Seaside Groundwater Basin in repayment of groundwater CalAm has pumped from the basin in excess of CalAm's adjudicated right, as discussed in Chapter 2, Section 2.2.4. Replenishment would occur at a rate of 700 afy. During the replenishment period, available supply from the Seaside Groundwater Basin would be limited to 774 afy; at the end of the replenishment period, available supply would equal CalAm's adjudicated right of 1,474 afy.

TABLE 5.5-18
EXISTING AND ANTICIPATED DEMAND
(acre-feet per year)

Demand Component	MPWSP Demand Assumptions	Demand Associated with Existing Land Uses	Demand Associated with Anticipated Development
Existing System Demand	12,270	12,270	-
Pebble Beach Water Entitlements	325		325
Hospitality Industry Bounce-Back	500	250[a]	250
Legal Lots of Record	1,180		1,180
Total	**14,275**	**12,520**	**1,755**

NOTES:
[a] A comparison of commercial sector demand prepared for this analysis suggests that demand by the hospitality industry under improved economic conditions may be lower than identified by CalAm; refer to text discussion for more information.

SOURCE: Table 6.3-1.

TABLE 5.5-19
WATER SUPPLIES AND DEMANDS DURING SEASIDE GROUNDWATER BASIN REPLENISHMENT PERIOD, 9.6-MGD DESALINATION PLANT WITH SVGB RETURN
(acre-feet per year)

Supplies and Demands	Existing Demand		Anticipated Demand	
	6% SVGB Return	12% SVGB Return	6% SVGB Return	12% SVGB Return
Total Supplies[a]	**16,294**	**16,294**	**16,294**	**16,294**
Service Area Demand (Existing and Anticipated)	12,520	12,520	14,275	14,275
Supply Available for Other Use (Total Supplies Minus Service Area Demand)	3,774	3,774	2,019	2,019
SVGB Return (6% and 12%)	1,620	3,240	1,620	3,240
Surplus or (Deficit)	**2,154**	**535**	**399**	**(1,220)**

NOTES: mgd = million gallons per day; Seaside GW Basin = Seaside Groundwater Basin; SVGB = Salinas Valley Groundwater Basin

[a] Water supply sources include: Carmel River (3,376 afy), Seaside Groundwater Basin (774 afy), Aquifer Storage and Recovery Project (1,300 afy), Sand City Coastal Desalination Plant (94 afy), and the proposed MPWSP Desalination Plant (10,750 afy), as shown in Table 2-4 of Chapter 2.

SOURCE: Table 2-4, Table 6.3-3.

The 1,755 afy of MPWSP supply that is proposed for anticipated development, shown in **Table 5.5-18**, is about half of 3,526 afy, the 2006 estimate of future demand as revised based on updated information and about 60 percent of 2,820 afy, the 2006 estimate of future demand as updated and reduced by an additional 20 percent.

The MPWSP therefore, would not directly contribute to the creation of additional housing or jobs within the area it serves as it is limited to construction and operation of water supply facilities and

infrastructure. But the proposed project would indirectly support growth by removing some 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 cities and county in the area served by the proposed project have the authority to approve or deny development projects and to impose mitigation to address significant environmental impacts associated with development projects within their respective jurisdictions. In addition, numerous federal, state, regional, and local agencies are specifically charged with protecting environmental resources, and ensuring that planned development occurs in a sustainable manner. Together, these agencies exercise the authority to reduce the effects of development on the environment. Some unavoidable impacts would still, however, be expected to occur.

5.5.21.3 Indirect Growth Inducing Effects of No Project Alternative

The No Project Alternative would deliver less water than the proposed project, would not be able to reliably serve existing customers and therefore, would have no indirect growth inducing effects associated with the provision of water supply and it would not achieve the benefits of the proposed project in terms of providing minor amounts of additional water to accommodate some growth. The No Project Alternative water supplies of 11,314 afy through September 2018, would be reduced by 1,000 af annually to 6,380 afy by January 2022. This supply could not serve the baseline demand of 12,270 afy and the implementation of Stage 3 Conservation Measures and Stage 4 Rationing would be required.

5.5.21.4 Indirect Growth Inducing Effects of Alternative 1 – Slant Wells at Potrero Road)

Operational Impacts

The indirect growth-inducing impact of Alternative 1 would be similar to that of the proposed project, although slightly decreased because source water pumped under this alternative is expected to include more groundwater that originated from inland aquifers than the proposed project, requiring a higher percentage of water to be returned to the SVGB. Therefore, less desalinated product water likely would be available to support growth. With CalAm's other supply sources, water supplies would total 16,294 afy, shown in **Table 5.5-20**, the same as for the proposed project (shown in **Table 6.3-4** in Section 6.3, Growth Inducement, of Chapter 6, Other Considerations). After meeting existing service area demand of 12,520 afy and an assumed 6 percent SVGB return water obligation,[12] 2,154 afy would be available for other uses during the 25-year Seaside Groundwater Basin (SGB) replenishment period.

[12] The 6 percent return water obligation assumed here is an example of what the return obligation could be. The SVGB return water obligation will be based on observed values of the source water. Groundwater modeling performed for this EIR/EIS simulated scenarios with 0, 3, 6, and 12 percent of the source water extracted via subsurface slant wells being returned to the SVGB (see Section 4.4, Groundwater Resources).

TABLE 5.5-20
ALTERNATIVE 1 – SLANT WELLS AT POTRERO ROAD WATER SUPPLIES AND DEMANDS DURING SGB REPLENISHMENT PERIOD: TWO FUTURE DEMAND SCENARIOS (ACRE-FEET PER YEAR)

	Supply Compared to MPWSP-Anticipated Demands	Supply Compared to Updated MPWMD Estimate of Future Supply Needs
Existing/Other CalAm Supplies[a]	5,544	5,544
Supply provided by Alternative 1	10,750	10,750
Total Supplies	**16,294**	**16,294**
Minus Existing Service Area Demand (Table 6.3-3)	12,520	12,520
Minus SVGB Return Obligation (Assuming 6% Return Obligation)[b]	1,620	1,620
Supply Available for Other Use (Supplies Minus Existing Demand and Return Obligation)	**2,154**	**2,154**
Minus Future Demands: Two Scenarios	1,755[c]	3,526[d]
Surplus or (Deficit)	**399**	**(1,372)**

NOTES: SGB = Seaside Groundwater Basin; SVGB = Salinas Valley Groundwater Basin; afy = acre feet per year

[a] Existing/Other CalAm supplies consist of 3,376 afy from the Carmel River, 774 afy from the Seaside Groundwater Basin, 1,300 afy from the Aquifer Storage and Recovery Project, 94 afy from the Sand City Coastal Desalination Plant. At the end of the 25-year Seaside Groundwater Basin replenishment period CalAm's supply from that the groundwater basin will increase by 700 afy to 1,474 afy.

[b] The SVGB return water obligation will be based on the observed amount of fresh water component in the source water. The percentage of return water required for pumping at the Potrero Road site (this alternative) is expected to be higher than the percentage of return water that would be required for pumping at the CEMEX site (the MPWSP).

[c] Demand associated from anticipated development CalAm proposes to meet with the MPWSP (see Section 6.3.5.1 and Table 6.3-3).

[d] MPWMD's 2006 estimate of future water supply needs updated by more recent information (see Section 6.3.5.3 and Table 6.3-8).

SOURCE: Table 2-4, Table 6.3-3, Table 6.3-8.

Although the precise amount of the return water obligation is not currently known, this analysis assumes that Alternative 1, like the MPWSP, would provide enough supply to meet the level of service area demand that CalAm proposes to meet, 14,275 afy. The surplus shown in **Table 5.5-20** indicates that Alternative 1 would have some operational flexibility needed to meet the *peak demands* that would be associated with the anticipated average annual demand, including about 1,755 afy of water for anticipated future development – that is, water for growth. As discussed in Section 6.3.5.3, this level of growth is consistent with the growth planned for in the adopted land use plans of service area jurisdictions. The environmental consequences of planned growth have been addressed in adopted local land use plans and their associated CEQA documents, as well as in other, project-specific documentation, as discussed in Section 6.3.6. Some of the identified indirect effects of this growth would be significant and unavoidable while other effects would be significant but can be mitigated.

Assuming a 6 percent SVGB return water obligation, this alternative would not provide enough supply to meet the estimated 3,526 afy of additional service area demand associated with general plan buildout (discussed in Section 2.5.3 of Chapter 2 and shown in **Table 2-5**). Following the conclusion of the Seaside Groundwater Basin replenishment period, an additional 700 afy of

supply would be available to meet additional demands; however, it would still not meet projected future demands in the CalAm service area. This additional supply could provide CalAm added operational flexibility or could be used to serve a degree of additional growth still within the levels of approved general plans.

While the above analysis discloses the indirect growth inducing impact of Alternative 1 associated with a 6 percent SVGB return water obligation, the analysis in Section 5.5.4.3, which describes the impacts of Alternative 1 on groundwater resources, suggests that a higher return water percentage would be necessary under Alternative 1. In the event that the return water obligation is determined to be 12 percent (the highest return value simulated), only 534 afy would be available for other uses, which would not meet either future demand scenario and, therefore, Alternative 1 would not fully meet the project objective/need for water, some of which was to support limited growth (e.g., legal lots of record). The indirect growth inducing impact of this alternative assuming a 12 percent SVGB return would result in a ***reduced impact conclusion*** compared to the proposed project, less than significant.

Cumulative Analysis

The geographic scope for the cumulative analysis of indirect growth inducement impacts of Alternative 1 is Monterey and Santa Cruz Counties. The cumulative impact would be similar to that described for the MPWSP in Section 6.3.7. Of the planned sources of new potable water supply for Monterey County and other areas identified in **Table 4.1-2**, the DeepWater Desal Project (No. 34) could combine with Alternative 1 to have cumulative growth inducing impacts in the areas that would be served by these projects. If both projects were approved, Alternative 1 would supply water to the CalAm service area, as described under operational impacts above, and the entire 25,000 afy produced by the DeepWater Desal Project would be provided to the city of Salinas in Monterey County and to areas of Santa Cruz County.

In addition, the RUWAP Desalination Element (No. 31 in **Table 4.1-2** in Section 4.1) would serve the Marina Coast Water District's Ord Community with approximately 1,000 afy of potable supply. Through an agreement with FORA and the MRWPCA, an additional 1,400 afy of potable supply from the Pure Water Delivery and Supply Project (No. 35) would meet the build-out needs of the Ord Community, which is contiguous with CalAm's service area. The Granite Ridge Water Supply Project (No. 33) would increase water supply availability for the area of northern Monterey County that it would serve. The Interlake Tunnel Project (No. 24) would reduce the amount of water spilled at Nacimiento Dam by allowing water from Nacimiento Reservoir to be stored at San Antonio Reservoir for later use. This project would enhance flood control, provide environmental benefits, and offset groundwater pumping. However, because this project would provide groundwater recharge, this analysis assumes it could indirectly augment supply available for groundwater users, including municipal supply that could serve additional growth. Although the primary purpose of the Salinas Valley Water Project Phase II (No. 1) is to combat seawater intrusion by providing a new source of surface water to offset groundwater consumption, the availability of a reliable surface water supply provided by this project could induce growth by removing supply reliability limitations as an obstacle to urban development.

Growth induced by these cumulative water supply projects in combination with Alternative 1 would result in secondary effects of growth that are similar to, but would likely be more widespread in Monterey and Santa Cruz Counties than those summarized in **Table 6.3-9** in Section 6.3 for the CalAm service area only. These impacts include increased traffic, noise, and air pollution and loss of open space and biological resources.

Other water projects listed in **Table 4.1-2**, including the RUWAP Recycled Water Project (No. 35), West Broadway Stormwater Retention Project (No. 41), Del Monte Boulevard Dry Weather Diversion Project (No. 44), Pacific Grove Local Water Project (No. 22), Pacific Grove Recycled Water Project (No. 23), and Monterey Pacific Grove Area of Special Biological Significance (ASBS) Stormwater Management Project (No. 45), would either provide non-potable recycled water supply or enhance groundwater recharge. As described for the MPWSP, projects providing recycled water could offset demand for potable supply that is currently used for non-potable uses, thereby making that potable supply available for other uses, including growth. Projects capturing and diverting stormwater runoff to enhance groundwater recharge would primarily improve surface water quality and help stop seawater intrusion, but may overtime increase the availability of groundwater supply. These projects would eliminate an impediment to growth; some of the impacts of that growth were determined by the general plan EIRs to be significant and unavoidable and could contribute to the growth inducing impacts of Alternative 1 and the DeepWater Desal project by increasing the availability of existing potable supplies and groundwater. Because Alternative 1 would have a significant and unavoidable impact, it would have a cumulatively considerable contribution to significant and unavoidable cumulative impacts of indirect growth inducement.

5.5.21.5 Indirect Growth Inducing Effects of Alternative 2 – Open Water Intake at Moss Landing

Operational Impacts

The indirect growth-inducing impact of Alternative 2 would be similar to, but greater than, that of the proposed project because this alternative would produce the same amount of desalinated product water and no desalinated water would need to be returned to the SVGB. As under the MPWSP, with CalAm's other supply sources, water supplies would total 16,294 afy, shown in **Table 5.5-21**.

After meeting existing service area demand of 12,520 afy, 3,774 afy would be available to support growth in the CalAm service area during the 25-year Seaside Groundwater Basin replenishment period. This is substantially more than the 1,755 afy of anticipated future demand CalAm proposes to meet with the MPWSP and slightly more than the estimated 3,526 afy of additional service area demand associated with general plan buildout (discussed in Section 2.5.3 of Chapter 2 and shown in **Table 2-5**). Based on the comparison of "supply available for other use" in **Table 5.5-21** (3,774 afy) and estimated future demands (3,526 afy), this alternative may appear to fully meet projected future demands. However, water use does not occur at an average rate throughout the year (as discussed in Section 2.3.2), and just because the two annual averages are similar, it is unlikely this alternative could provide the operational flexibility to meet the peak demands associated with that level of growth.

TABLE 5.5-21
ALTERNATIVE 2 – OPEN OCEAN INTAKE AT MOSS LANDING WATER SUPPLIES AND DEMANDS DURING SGB REPLENISHMENT PERIOD: TWO FUTURE DEMAND SCENARIOS (acre-feet per year)

	Supply Compared to MPWSP-Anticipated Demands	Supply Compared to Updated MPWMD Estimate of Future Supply Needs
Existing/Other CalAm Supplies[a]	5,544	5,544
Supply provided by Alternative 2	10,750	10,750
Total Supplies	**16,294**	**16,294**
Minus Existing Service Area Demand (Table 6.3-3)	12,520	12,520
Supply Available for Other Use (Supplies Minus Existing Demand)	**3,774**	**3,774**
Minus Future Demands: Two Scenarios	1,755[b]	3,526[c]
Surplus or (Deficit)	**2,019**	**248**

NOTES: SGB = Seaside Groundwater Basin ; afy = acre feet per year

[a] Existing/Other CalAm supplies consist of 3,376 afy from the Carmel River, 774 afy from the Seaside Groundwater Basin, 1,300 afy from the Aquifer Storage and Recovery Project, 94 afy from the Sand City Coastal Desalination Plant. At the end of the 25-year Seaside Groundwater Basin replenishment period CalAm's supply from that the groundwater basin will increase by 700 afy to 1,474 afy.
[b] Demand associated from anticipated development CalAm proposes to meet with the MPWSP (see Section 6.3.5.1 and Table 6.3-3).
[c] MPWMD's 2006 estimate of future water supply needs updated by more recent information (see Section 6.3.5.3 and Table 6.3-8).

SOURCE: Table 2-4, Table 6.3-3, Table 6.3-8.

In any event, the growth inducing impact of Alternative 2 would be greater than the proposed project because Alternative 2 would remove water supply limitations as an obstacle to growth to a greater extent than would the MPWSP. The environmental consequences of planned growth that would be supported by this alternative have been addressed in the adopted land use plans and associated CEQA documents of service area jurisdictions, as discussed in Section 6.3.6. Some of the identified indirect effects of this growth would be significant and unavoidable while other effects would be significant but can be mitigated.

Following the conclusion of the Seaside Groundwater Basin replenishment period, an additional 700 afy of supply will be available to meet demands in the CalAm service area. This additional supply could provide CalAm added operational flexibility to meet peak demands or it could be used to serve a degree of additional growth.

The greater indirect growth inducing impact of this alternative would result in an ***increased impact conclusion*** compared to the proposed project, significant and unavoidable.

Cumulative Analysis

The cumulative scenario for Alternative 2 would be the same as described above for Alternative 1. The contribution of Alternative 2 to significant and unavoidable cumulative impacts of indirect growth inducement would be cumulatively considerable and would be increased compared to the proposed project and Alternative 1 as a result of the greater amount of water available for growth under Alternative 2, as shown in **Table 5.5-21**.

5.5.21.6 Indirect Growth Inducing Effects of Alternative 3 – Monterey Bay Regional Water Project (Deep Water Desal)

Operational Impacts

The indirect growth-inducing impact of Alternative 3 would be greater than that of the proposed project because this alternative would produce about 14,000 afy more desalinated water. Assuming CalAm purchased 10,750 afy (9.6 mgd) from DeepWater Desal for use in the CalAm service area, CalAm supplies would total 16,294 afy, as shown in **Table 5.5-22**. Because no desalinated water that originated from the Salinas Valley Groundwater Basin would need to be returned, more water would be available to the service area; after meeting existing demand of 12,520 afy, 3,774 afy would be available under Alternative 2 to support growth in the CalAm service area during the 25-year Seaside Groundwater Basin Replenishment period. This is slightly more than the estimated 3,526 afy of service area demand associated with general plan buildout (discussed in Section 2.5.3 of Chapter 2 and shown in **Table 2-5**).

TABLE 5.5-22
ALTERNATIVE 3 – DEEPWATER DESAL WATER SUPPLIES AND DEMANDS DURING SGB REPLENISHMENT PERIOD: TWO FUTURE DEMAND SCENARIOS
(acre-feet per year)

Supplies/Demands	Supply Compared to MPWSP-Anticipated Demands	Supply Compared to Updated MPWMD Estimate of Future Supply Needs
Existing/Other CalAm Supplies[a]	5,544	5,544
Alternative 3 Water Provided to CalAm Service Area/Purchased From DeepWater Desal Project[b]	10,750	10,750
Total Supplies to CalAm Service Area	**16,294**	**16,294**
Minus Existing Service Area Demand (Table 6.3-3)	12,520	12,520
CalAm Service Area Supply Available for Other Use (Supplies Minus Existing Demand)	**3,774**	**3,774**
Minus Future Service Area Demands: Two Scenarios	1,755 [c]	3,526 [d]
Surplus or (Deficit) within CalAm Service Area	**2,019**	**248**
Supply Available for Other Areas[e]	**14,250**	**14,250**

NOTES: SGB = Seaside Groundwater Basin; mgd = million gallons per day; afy = acre feet per year

[a] Existing/Other CalAm supplies consist of 3,376 afy from the Carmel River, 774 afy from the Seaside Groundwater Basin, 1,300 afy from the Aquifer Storage and Recovery Project, 94 afy from the Sand City Coastal Desalination Plant. At the end of the 25-year Seaside Groundwater Basin replenishment period CalAm's supply from that the groundwater basin will increase by 700 afy to 1,474 afy.

[b] Supply to the CalAm Service area assumes DeepWater Desal LLC would provide, and CalAm would purchase, 9.6 mgd, or 10,750 afy of desalinated water from the DeepWater Desal project.

[c] Demand associated from anticipated development CalAm proposes to meet with the MPWSP (see Section 6.3.5.1 and Table 6.3-3).

[d] MPWMD's 2006 estimate of future water supply needs updated by more recent information (see Section 6.3.5.3 and Table 6.3-8).

[e] The DeepWater Desal Project would produce 25,000 afy of desalinated product water. After delivering 9.6 mgd (10,750 afy) 14,250 afy would be available to other areas of Monterey and Santa Cruz Counties.

SOURCE: Table 2-4, Table 6.3-3, Table 6.3-8.

The remaining 14,250 afy produced by Alternative 3 would, therefore, be available for other areas of Monterey and Santa Cruz Counties. Other areas that may be served by this alternative include the city of Salinas, the unincorporated community of Castroville, areas of northern Monterey County, and areas of Santa Cruz County.

Therefore, the indirect growth-inducing impact of Alternative 3 would be greater than the MPWSP because this alternative would remove water supply limitations as an obstacle to growth in a much larger area of the region as well as within CalAm's service area. The environmental consequences of planned growth in the CalAm service area that would be supported by this alternative have been addressed in the adopted land use plans and associated CEQA documents of service area jurisdictions, as discussed in Section 6.3.6 (discussed in Section 6.3.6). Some of the identified indirect effects of this growth would be significant and unavoidable while other effects would be significant but can be mitigated.

Because information is not currently available about how much and where the remaining 14,250 afy of water produced by this alternative may be used, whether for replacement supplies or for growth, the consistency of this supply with planned growth in areas that would receive it cannot be definitively assessed. But because of the amount of water that would be available, impacts would likely be significant and unavoidable. The separate EIR/EIS that is being prepared for the DeepWater Desal project will provide more detailed analysis on this topic.

Following the conclusion of the Seaside Groundwater Basin replenishment period, another 700 afy of supply would be available to the CalAm service area. This additional supply could provide CalAm greater operational flexibility, could be used to serve a degree of additional growth, or could prompt CalAm to reduce the amount of water it purchases from DeepWater Desal, in which case more desalinated product water from DeepWater Desal would be available to other areas.

Therefore, the indirect growth inducing impact of this alternative would result in an ***increased impact conclusion*** compared to the proposed project, significant and unavoidable.

Cumulative Analysis

The geographic scope for the cumulative analysis of indirect growth inducement impacts of Alternative 3 is Monterey and Santa Cruz Counties. Of the planned sources of new potable water supply for Monterey County identified in **Table 4.1-2**, the GWR Project (No. 59) could combine with Alternative 3 to have cumulative growth inducing impacts in the areas that would be served by these projects. If both projects were approved, it is assumed that Alternative 3 would supply water to the CalAm service area equivalent to the production of a 6.4 mgd plant, or about 7,170 afy, supplementing the water that would be supplied by the GWR project, and the remaining 17,830 afy produced by Alternative 3 would be provided to the city of Salinas in Monterey County and to areas of Santa Cruz County.

In addition, the other projects in the cumulative scenario, described above for Alternative 1, could induce growth by removing supply reliability limitations as an obstacle to urban development. Growth induced by these cumulative water supply projects in combination with Alternative 3

would result in secondary effects of growth in Monterey and Santa Cruz Counties that are similar to, but would likely be more severe and widespread than, those summarized in **Table 6.3-9**. These impacts include increased traffic, noise, and air pollution and loss of open space and biological resources.

The overall cumulative impact would be significant and unavoidable. While the total amount of water available for growth would be reduced under the Alternative 3 cumulative scenario compared to the proposed project scenario (because only the Alternative 3 desalination plant would be built, compared to building it and the proposed project), the contribution of Alternative 3 to significant and unavoidable cumulative impacts of indirect growth inducement would be cumulatively considerable and increased compared to the proposed project and Alternatives 1 and 2 as a result of the greater amount of water available for growth under Alternative 3, as shown in **Table 5.5-22**.

5.5.21.7 Indirect Growth Inducing Effects of Alternative 4 - Peoples' Moss Landing Desalination Project

Operational Impacts

The indirect growth-inducing impact of Alternative 4 would be greater than that of the proposed project because this alternative would provide substantially more water to the CalAm service area. Based on the 13,400 afy the People's Moss Landing Project proposes to deliver to the CalAm service area from its proposed 12 mgd desalination plant, CalAm service area supplies under this alternative would total 18,944 afy, as shown in **Table 5.5-23**. This is substantially more than the proposed project's 16,294 afy, and because no desalinated water would need to be returned to the SVGB, the entire supply would be available to the service area. After meeting existing demand (12,520 afy), 6,424 afy would be available to support growth in the CalAm service area during the Seaside Groundwater Basin Replenishment period. This is almost three times the amount that would be available under the proposed project, assuming a 6 percent return water obligation, and is almost twice the 3,526 afy estimate of future service area demand under general plan buildout (discussed in Section 2.5.3 of Chapter 2 and shown in **Table 2-5**). This alternative would provide substantially more water than needed to meet demand associated with General Plan buildout in the service area, based on currently available information.[13] The growth that would be supported by this alternative beyond the level evaluated in adopted land use plans would likely have impacts related to increased density (such as increased traffic and noise) or the development of new land areas (such as loss of open space, wildlife habitat, and agricultural land), potentially resulting in impacts that are more severe than those identified in the EIRs of adopted land use plans and plan elements. The separate EIR/EIS that is being prepared for the Peoples' Project will provide more detailed information on this topic.

[13] As discussed in more detail in Section 2.5.3.4, General Plan Buildout, of Chapter 2, the future demand estimate assumed in this analysis, 3,526 afy, is based on MPWMD's 2006 estimate of future water supply needs as updated by more recent information.

TABLE 5.5-23
ALTERNATIVE 4 – PEOPLES' PROJECT WATER SUPPLIES AND DEMANDS DURING SGB REPLENISHMENT PERIOD: TWO FUTURE DEMAND SCENARIOS
(acre-feet per year)

Supplies/Demands	Supply Compared to MPWSP-Anticipated Demands	Supply Compared to Updated MPWMD Estimate of Future Supply Needs
Existing/Other CalAm Supplies[a]	5,544	5,544
Alternative 4 Water Provided to CalAm Service Area/Purchased From People's Project [b]	13,400	13,400
Total Supplies	**18,944**	**18,944**
Minus Existing Service Area Demand (Table 6.3-3)	12,520	12,520
Supply Available for Other Use (Supplies Minus Existing Demand)	**6,424**	**6,424**
Minus Future Demands: Two Scenarios	1,755[c]	3,526[d]
Surplus or (Deficit)	**4,669**	**2,898**

NOTES: SGB = Seaside Groundwater Basin; mgd = million gallons per day; afy = acre feet per year

[a] Existing/Other CalAm supplies consist of 3,376 afy from the Carmel River, 774 afy from the Seaside Groundwater Basin, 1,300 afy from the Aquifer Storage and Recovery Project, 94 afy from the Sand City Coastal Desalination Plant. At the end of the 25-year Seaside Groundwater Basin replenishment period CalAm's supply from that the groundwater basin will increase by 700 afy to 1,474 afy.
[b] Supply assumes the People's Project would provide, and CalAm would purchase, 12 mgd, or 13,400 afy of desalinated water from the People's Project.
[c] Demand associated from anticipated development proposed to be met by the MPWSP (see Section 6.3.5.1 and Table 6.3-3).
[d] MPWMD's 2006 estimate of future water supply needs updated by more recent information (see Section 6.3.5.3 and Table 6.3-8).

SOURCE: Table 2-4, Table 6.3-3, Table 6.3-8.

Following the conclusion of the Seaside Groundwater Basin replenishment period, an additional 700 afy of supply would be available, which would support an even greater degree of growth beyond that anticipated in jurisdictions' general plans.

Therefore, the indirect growth inducing impact of this alternative would result in an ***increased impact conclusion*** compared to the proposed project, significant and unavoidable.

Cumulative Analysis

The cumulative scenario for Alternative 4 would be the same as described above for Alternative 1. Of the planned sources of new potable water supply identified in **Table 4.1-2**, the DeepWater Desal Project (No. 34) could combine with Alternative 4 to have cumulative growth inducing impacts in the areas that would be served by these projects. If both projects were approved, Alternative 4 would supply water to the CalAm service area, as described under operational impacts above, and the entire 25,000 afy produced by the DeepWater Desal Project would be provided to the city of Salinas and areas in Monterey of Santa Cruz County. The contribution of Alternative 4 to significant and unavoidable cumulative impacts of indirect growth inducement in the CalAm Service District would be cumulatively considerable and would be increased compared to the proposed project or Alternatives 1 through 3 as a result of the greater amount of water available for growth as shown in **Table 5.5-23** and would be cumulatively considerable and the same as the proposed project for the other areas of Monterey and Santa Cruz counties.

5.5.21.8 Indirect Growth Inducing Effects of Alternatives 5a and 5b

Operational Impacts

The indirect growth-inducing impact of both Alternative 5a and 5b would be less than that of the proposed project because neither alternative would provide enough water to support growth. Neither Alternative 5a nor 5b would provide enough supply to meet both existing demand and the SVGB return water obligation associated with operation of the subsurface slant wells. Supplies provided by Alternatives 5a and 5b with CalAm's other supplies would total 12,711 afy during the 25-year Seaside Groundwater Basin replenishment period, as shown in **Table 5.5-24**. This amount – similar to existing average service area demands – is unlikely to provide the operational flexibility needed to meet existing peak demands. Apart from the need to meet peak demands, the comparison of average annual supplies and demands shows that after meeting the existing average service area demand, only 191 afy would be available for other uses. This is substantially less than the 6 percent return water obligation assumed in this analysis, as an example, in considering the project alternatives.[14] Furthermore, as described for Alternative 1, modeling analysis of pumping at the Potrero Road site suggests that a higher return water percentage would be necessary under Alternative 5b; perhaps closer to 12 percent. Under Alternative 5b, using a 12 percent assumption for the return water obligation, the total supply would not even meet the existing service area demand. Considering that these alternatives are not expected to provide enough supply to meet existing peak demands or the SVGB return water obligation associated with operation of the subsurface slant wells, this alternative would not provide water to support future growth. It would therefore not remove water supply limitations as an obstacle growth and would not be growth inducing. Following the conclusion of the Seaside Groundwater Basin replenishment period, another 700 afy of supply would be available to the CalAm service area. This additional supply could provide CalAm greater operational flexibility to meet peak demands and to meet the return water obligation.

Neither Alternative 5a nor 5b would meet current demands, or either future demand scenario; Alternatives 5a and 5b would not provide enough water to support any limited growth (e.g., legal lots of record). The indirect growth inducing impact of this alternative would result in a ***reduced impact conclusion*** compared to the proposed project, less than significant.

Cumulative Analysis

The geographic scope for the cumulative analysis of indirect growth inducement impacts of Alternatives 5a and 5b is Monterey and Santa Cruz Counties. The cumulative impact would be similar to that described for the MPWSP. Of the planned sources of new potable water supply for Monterey County and other areas identified in **Table 4.1-2**, the GWR Project (No. 59) and DeepWater Desal (No. 34) could combine with Alternative 5 to have cumulative growth inducing impacts in the areas that would be served by these projects. If the three projects were approved, CalAm would purchase 3,500 afy of GWR Project water to supplement the water produced by

[14] As stated in Chapter 2, the SVGB return water obligation will be based on the amount of fresh water in the source water. In order to consider the effect of the return water for this EIR/EIS, groundwater modeling simulated scenarios with return water obligations representing 0, 3, 6, and 12 percent of the source water (see Section 4.4, Groundwater Resources).

TABLE 5.5-24
ALTERNATIVE 5 – REDUCED DESALINATION PLANT WATER SUPPLIES AND DEMAND DURING SGB REPLENISHMENT PERIOD: TWO FUTURE DEMAND SCENARIOS
(acre-feet per year)

Supplies/Demands	Supply Compared to MPWSP-Anticipated Demands	Supply Compared to Updated MPWMD Estimate of Future Supply Needs
Existing/Other CalAm Supplies[a]	5,544	5,544
6.4-MGD Desalination Plant Production[b]	7,167	7,167
Total Supplies	**12,711**	**12,711**
Minus Existing Service Area Demand (Table 6.3-3)	12,520	12,520
Minus SVGB Return Obligation (Assuming 6% Return Obligation)[c]	1,042	1,042
Supply Available for Other Use or (Deficit) (Supplies Minus Existing Demand and Return Obligation)	**(851)**	**(851)**
Minus Future Demands: Two Scenarios (Tables 6.3-3 and 6.3-8)	1,755[d]	3,526[e]
Surplus or (Deficit)	(2,606)	(4,377)

NOTES: SGB = Seaside Groundwater Basin; SVGB = Salinas Valley Groundwater Basin mgd = million gallons per day

[a] Existing/Other CalAm supplies consist of 3,376 afy from the Carmel River, 774 afy from the Seaside Groundwater Basin, 1,300 afy from the Aquifer Storage and Recovery Project, 94 afy from the Sand City Coastal Desalination Plant. At the end of the 25-year Seaside Groundwater Basin replenishment period CalAm's supply from that the groundwater basin would increase by 700 afy to 1,474 afy.

[b] Assumed annual supply is based on a 6.4-mgd desalination plant operating at full capacity.

[c] Alternative 5 includes two alternatives – Alternative 5a and Alternative 5b. Both consist of a 6.4-mgd desalination plant. Source water for Alternative 5a would be from slant wells at the CEMEX site. Source water for Alternative 5b would be from slant wells at the Potrero Road site. The SVGB return water obligation will be based on the amount of the fresh water component of the source water. The return water estimate shown here is based on a 6 percent return water obligation as an example. The 6 percent return water obligation is assumed for Alternative 5a. The percentage of return water required for pumping at the Potrero Road site (Alternative 5b) is expected to be higher than for pumping at the CEMEX site (Alternative 5a).

[d] Demand associated from anticipated development CalAm proposes to meet with the MPWSP (see Section 6.3.5.1 and Table 6.3-3).

[e] MPWMD's 2006 estimate of future water supply needs updated by more recent information (see Section 6.3.5.3 and Table 6.3-8).

SOURCE: Table 2-4, Table 6.3-3; Table 6.3-8.

Alternative 5. Together, water supplies from Alternative 5 and the GWR Project, with CalAm's other sources, would total 16,211 afy. This is slightly less than the MPWSP alone would provide, but the total volume of SVGB return water obligation under Alternatives 5a and 5b would be smaller compared to the proposed project and Alternative 1, respectively, due to the reduced pumping volume of the smaller desalination plant. Under the cumulative scenario, the GWR Project would provide water to the CalAm service area, and the entire 25,000 afy produced by the DeepWater Desal project would be provided to the city of Salinas in Monterey County and to areas of Santa Cruz County.

In addition, the other projects in the cumulative scenario, described above for Alternative 1, could induce growth by removing supply reliability limitations as an obstacle to urban development. Growth induced by these cumulative water supply projects in combination with Alternative 5 would result in secondary effects of growth that are similar to, but would likely be more widespread in Monterey and Santa Cruz Counties than those summarized in **Table 6.3-9**. These impacts include increased traffic, noise, and air pollution and loss of open space and biological resources.

Alternative 5a, in combination with the water purchase agreement with the GWR Project, would result in 2,649 afy available for other use, which would meet peak demands, but would not provide enough supply to meet the estimated 3,526 afy of additional service area demand associated with general plan buildout. Alternative 5b in combination with the GWR Project, assuming a 12 percent SVGB return water obligation, would result in 1,607 afy available for other use, which would neither meet peak demands nor provide enough supply to meet the estimated service area demand associated with general plan buildout but could support limited growth that would result in potentially significant impacts. The overall cumulative impact would be significant and unavoidable. The contribution of Alternative 5a and 5b to significant and unavoidable cumulative impacts of indirect growth inducement would be cumulatively considerable and would be similar to the proposed project as a result of the total amount of water available for growth under Alternative 5a and 5b in combination with the GWR Project.

5.5.21.9 References

Association of Monterey Bay Area Governments (AMBAG), 2014. 2014 Regional Growth Forecast, Technical Documentation. Adopted June 11, 2014.

California Department of Conservation (CDC), Division of Land Resource Protection, 2015. Monterey County Important Farmland 2012, Sheet 1 of 2. Available online at: ftp://ftp.consrv.ca.gov/pub/dlrp/FMMP/.../2012/mnt12_no.pdf. Accessed May 6, 2016.

California Department of Conservation (CDC), Division of Land Resource Protection, 2016. Monterey County Williamson Act FY 2015/2016, Sheet 1 of 2. Available online at: ftp://ftp.consrv.ca.gov/pub/Dlrp/WA/Monterey_no_15_16_WA.pdf. Accessed May 6, 2016.

California Division of Mines and Geology (CDMG), 1987. *Mineral Land Classification: Aggregate Materials in the San Francisco-Monterey Bay Area*, Special Report 146, Part IV, Monterey Bay Production-Consumption Region, 1987.

California Employment Development Department (EDD), 2016. Monthly Labor Force Data for Cities and Census Designated Places (CDP), Annual Average 2015.

Council on Environmental Quality (CEQ), 1997. *Environmental Justice Guidance Under the National Environmental Policy Act*¸ 1997.

Monterey County Resource Management Agency, Moss Landing Community Plan, May 2015. Available online at: http://www.co.monterey.ca.us/planning/Long-range-planning/Moss_Landing_Community_Plan/Revised_Draft_Moss_Landing_Community_Plan_May_2015.pdf. Accessed July 8, 2016.

Monterey County, 2016a. Monterey County Budget and Staff Trends. Available at: http://www.co.monterey.ca.us/home/showdocument?id=11228.

Monterey Peninsula Water Management District (MPWMD), 2009. July 27, 2009 Cease and Desist Order WR 2009-00XX in the Matter of the Unauthorized Diversion and Use of Water by the California American Water Company.

Monterey County, 2007. North County Land Use Plan. Available online at http://www.co.monterey.ca.us/planning/docs/plans/North%20County%20LUP%20Amendments%20and%20Figures/North%20County.pdf. Accessed on August 29, 2016.

MPWMD, 2016. 2016 Monterey Peninsula Water Conservation and Rationing Plan.

Office of Attorney General (OAG), 2012. Environmental Justice at the Local and Regional Level Legal Background. Available at: http://oag.ca.gov/sites/all/files/agweb/pdfs/environment/ej_fact_sheet.pdf. Accessed July 14, 2016.

Pacific Gas and Electric Company (PG&E), 2015. PG&E 2015 Corporate Responsibility and Sustainability Report. Available online at: http://www.pgecorp.com/corp_responsibility/reports/2015/. Accessed June 28, 2016.

Partners for Pure Water Solutions (PPWS), 2016. Monterey Regional Water Pollution Control Agency in partnership with Monterey Peninsula Water Management District. Consolidated Final Environmental Impact Report for the Pure Water Monterey Groundwater Replenishment Project, January, 2016. Pages 4.7-14 and 4.7-15.

RBF Consulting, 2013. Memorandum from Paul Findley to Richard Svindland, California American Water, Subject Recommended Capacity for the Monterey Peninsula Water Supply Project (MPWSP) Desalination Plant, January 7, 2013.

Sanctuary Integrated Monitoring Network (SIMoN), 2016. Interactive Maps MPA Monitoring. Available at: http://sanctuarymonitoring.org/regional_sections/maps/mpaviewer/. Accessed on August 3, 2016.

State of California State Water Resources Control Board (SWRCB), 2009 Order 2009.

Svindland, Richard C., 2016. Supplemental Testimony of Richard C. Svindland; ERRATA, Before the Public Utilities Commission of the State of California, Application No. 12-04-019 (Filed April 23, 2012), April 14, 2016, plus Attachment 1, Demand Scenarios.

U.S. Census Bureau, 2010b. Race 2006-2010 American Community Survey 5-Year Estimates for Moss Landing CDP, California. Accessed July 19, 2016.

U.S. Census Bureau, 2010c. Race 2006-2010 American Community Survey 5-Year Estimates for Monterey County, California. Accessed July 19, 2016.

U.S. Census Bureau, 2010d. Selected Economic Characteristics 2006-2010 American Community Survey 5-Year Estimates for Moss Landing CDP, California. Accessed July 19, 2016.

United States Census Bureau (U.S. Census Bureau), 2010a. Employment Status 2006-2010 American Community Survey 5-Year Estimates. Accessed July 19, 2016.

5.6 Environmentally Superior Alternative/Preferred Alternative

This section presents a summary comparison of the overall potential environmental impacts of the proposed project and alternatives in order to identify an environmentally superior alternative and preferred alternative. Environmental advantages and disadvantages of each alternative are discussed. Section 5.5 addresses the individual impacts associated with each alternative by topic and by individual impact. The alternatives, as described in Chapter 3 (Description of Proposed Project) and Section 5.4, are the proposed project, no project/no action, Alternative 1 (Slant Wells at Potrero Road), Alternative 2 (Open-Water Intake at Moss Landing), Alternative 3 (Monterey Bay Regional Water Project (MBRWP or DeepWater Desal Project)), Alternative 4 (People's Moss Landing Water Desalination Project (People's Project)), Alternative 5a (Reduced Project 6.4-mgd Desalination Plant - Intake Slant Wells at CEMEX), and Alternative 5b (Reduced Project 6.4-mgd Desalination Plant - Intake Slant Wells at Potrero Road).

The analysis of alternatives presented in this section and Section 5.5, taken together with the analysis of the proposed project in Chapter 4, provide a basis to identify the environmentally superior alternative under CEQA (CEQA Guidelines Section 15126.6) and the preferred alternative under NEPA (40 CFR 1502.14(e)). Although NEPA CEQ regulations (40 CFR §1505.2) require the identification of the "environmentally preferable" alternative, this is required only for the Record of Decision (ROD). This Draft EIR/EIS identifies the NEPA environmentally preferred alternative for informational purposes. The environmentally superior alternative/preferred alternative is the alternative identified as meeting most of the basic project objectives, similar to satisfying the primary purpose and need, and resulting in the fewest or least severe combination of significant environmental impacts. CEQA Guidelines Section 15126.6 provides that if the No Project Alternative is the environmentally superior alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives. Here, the No Project Alternative may technically qualify as the environmentally superior/preferred alternative because it would involve the least amount of impact on the existing physical environment. However, it would not meet most of the basic project objectives; it would have considerable economic and socioeconomic consequences (e.g., severe water conservation measures), and could result in different impacts than the proposed project or other alternatives given the failure of the No Project Alternative to supply sufficient water for customers within the CalAm service area. For this reason, the discussion below focuses on selecting another environmentally superior/preferred alternative from among the alternatives (including the proposed MPWSP) presented in this EIR/EIS.

It is important to recognize that the selection of the environmentally superior/preferred alternative is not always a straight-forward and formulaic exercise. In some cases, including here, no alternative stands out from the others as eliminating all significant and unavoidable, long-term environmental effects. There are environmental tradeoffs among the alternatives and even within resource issue areas or topics, making it difficult to summarize the net effect of the alternatives. As such, considerable weighing among the severity of impacts of the alternatives and professional judgment as to the relative importance of topical impact areas is necessary. Such judgment, while based on

reasoning grounded in the scientific study that comprises the EIR/EIS, can be subjective. This means that, although this EIR/EIS identifies an environmentally superior/preferred alternative, the CPUC and MBNMS decision-makers could ultimately come to a different conclusion as to which alternative is the environmentally superior/preferred alternative based on applying different weights to various impact areas. For example, one primary area of concern for MBNMS is marine biological resources and potential impacts on these resources from brine discharge and impingement/entrainment.

5.6.1 Summary and Comparison of Impacts of Alternatives

While most of the alternatives have impacts that are similar to the proposed MPWSP for most of the topical areas identified in Sections 5.5, there are several impacts that are unique to certain alternatives, or the impacts are more or less severe than the proposed MPWSP, that factor heavily into the selection of the environmentally superior/preferred alternative. **Table 5.6-1** presents the impact conclusion for each impact statement, for every topical area evaluated, for the proposed project and for all alternatives, and provides a relative impact severity for each alternative (increased, decreased or same) compared to the proposed project. Beneficial impacts are highlighted in green.

5.6.1.1 Overview and Assumptions

The alternatives evaluated in this EIR/EIS would produce different quantities of water and are placed into three categories: (a) those that would produce more water than CalAm needs to meet the project objectives/purpose and need (Alternatives 3 and 4); (b) those that would produce less water (Alternatives 5a and 5b), and; (c) those that would produce the same water as the proposed project (Alternatives 1 and 2). The alternatives that provide more water than the proposed project have been sized by their proponents to serve regional needs and that is acknowledged in the comparisons. The alternatives that are smaller than the proposed project would not completely meet the project purpose and need for water, but would reduce the severity of impacts commensurate with their smaller capacities. Since the GWR project EIR was certified and approved by the MRWPCA in October 2015, and the CPUC in September 2016 authorized CalAm to purchase 3,500 afy of the GWR supply for extraction from the Seaside Groundwater Basin, GWR is assumed in the No Action alternative and analyzed as a cumulative project with several of the alternatives, including the 6.4 mgd desalination plant in Alternatives 5a and 5b. While CalAm is seeking approval of the 9.6 mgd project (proposed project), CalAm proposes to move forward with a 6.4 mgd desalination plant (Alternative 5a and 5b) if the GWR project is successfully implemented to help meet the SWRCB's CDO. In case the GWR project faces hurdles that would impair its ability to supply the additional 3.2 mgd of water for CalAm's customers in a timely manner, CalAm also seeks contingency approval for the 9.6 mgd desalination plant. Therefore, in order to make a meaningful comparison, the methodology of choosing the environmentally superior, or preferred alternative, includes the following:

1. The combination of Alternative 5a or 5b with the already-approved GWR project would size these alternatives to meet the purpose and need, and the cumulative environmental effects of the 6.4 mgd desalination plant in combination with the impacts of the GWR project are considered in the comparison, and;

2. Identifying two environmentally superior/preferred alternatives; one without, and one with the GWR Project.

5.6.1.2 Proposed Project (9.6 mgd MPWSP) Significant Impacts

To provide a basis for comparison, the proposed project would result in the following significant and unavoidable impacts in the issue areas of terrestrial biology, transportation, air quality, greenhouse gases, noise, and growth-inducement:

- Disturbance to central dune scrub within the CEMEX mining facility that is designated as "primary habitat" under the City of Marina Local Coastal Program (LCP); construction and operation of portions of the Source Water Pipeline, new Desalinated Water Pipeline, and new Transmission Main, in vegetation communities within the coastal zone designated as primary or secondary habitat, in conflict with the City of Marina's LCP; and cumulatively considerable contribution to inconsistencies with the City of Marina LCP.
- Cumulatively considerable contribution to significant cumulative impacts on traffic and transportation, given the size of the MPWSP, along with the number of cumulative projects and uncertainty regarding overlap in project construction timing.
- Short-term construction emissions in excess of MBUAPCD significance thresholds for ozone and NO_2 standards on sensitive receptors; associated conflict with the intent of the 2012 Air Quality Management Plan due to these short-term exceedances; and cumulatively considerable contribution to construction emissions.
- Greenhouse Gas emissions in excess of the 2,000 metric tons per year significance threshold and associated inconsistency with the GHG emission reduction goals for year 2030 identified in Executive Order B-30-15.
- Potential conflicts with AB 32 Climate Change Scoping Plan Measure W-3 regarding electricity use.
- Cumulatively considerable contributions to GHG emissions and conflicts with the AB 32 Climate Change Scoping Plan.
- Project-specific and cumulative nighttime noise impacts from the installation of the Castroville Optional Alignment and drilling and development of the ASR-5 and ASR-6 Wells.
- Indirect growth inducement by removing, to some extent, water supply limitations as an obstacle to growth in CalAm's Monterey District service area. The environmental consequences of this planned growth have been addressed in adopted local plans and the associated CEQA review as well as in other, project-specific, documentation. Some of the identified indirect effects of this growth are significant and unavoidable; others are significant but can be mitigated.
- Cumulatively considerable contribution to secondary growth effects in Monterey County including increased traffic, noise, and air pollution and loss of open space and biological resources.

Alternative 5a, which is a reduced-size project with components at the same locations as the proposed project, would result in the same impacts listed above for the proposed project. However, the severity of impacts would be slightly reduced due to the smaller project size.

None of the alternatives would avoid all of the above-listed significant unavoidable impacts of the proposed project and several alternatives would result in additional significant impacts, as noted below. There would be tradeoffs in impacts on terrestrial biological resources due to the differences in locations of alternative components. All of the action alternatives would result in significant and unavoidable construction noise, air quality and GHG emissions impacts, including from temporary cumulatively considerable contributions to health effects on sensitive receptors, similar to the proposed project and in some cases, more severe than the proposed project.

5.6.1.3 Key Impact Differences Between Alternatives

The following discussion summarizes key differences in the significant environmental impacts among the alternatives and the proposed project, including consideration of resource impacts that are of particular importance to MBNMS.

Three of the alternatives would use screened, open water intakes, which would reduce or avoid several proposed project impacts but result in new significant impacts. These alternatives would have similar or increased impacts compared to the proposed project with regard to air quality, GHG, traffic and noise. The key differences in impacts pertaining to open water intakes included in Alternative 2 (Open-Water Intake at Moss Landing), Alternative 3 (DeepWater Desal Project), and Alternative 4 (People's Project), compared to the proposed project include:

- The construction of a new open water intakes would require the use of barges and other activities in the waters of MBNMS, including the placement of ballast rock on the seafloor, and could result in temporary and permanent direct and indirect effects on marine habitat and associated marine biological resources, as well as historical resources (i.e., shipwrecks) in Monterey Bay, resulting in significant and unavoidable impacts.
- The construction and operation of new intake facilities, located within a ravine of the Monterey Submarine Canyon, could result in temporary and permanent direct and indirect effects due to unstable slopes and the potential for landslides on the seafloor as well as alteration of the seafloor and oceanic processes such as sediment transport, resulting in potentially significant impacts.
- Operation of screened open-water intakes would result in long-term direct and indirect effects on marine biological resources within MBNMS in Monterey Bay as a result of impingement and entrainment, resulting in a significant and unavoidable impact.
- Operation of these open water intake alternatives would avoid less than significant direct or indirect effects on groundwater resources because of the absence of slant well pumping for source water.

The following impacts are unique to Alternative 3 (DeepWater Desal Project) and Alternative 4 (People's Project):

- Due to the proximity of live-aboard boats in Moss Landing Harbor, construction activities would result in exposure of more sensitive receptors to substantial pollutant concentrations from construction equipment emissions, resulting in a significant and unavoidable impact.
- Operation of a new, brine-only outfall (no co-mingling with wastewater or other diluent flows) could result in long-term direct and indirect effects on water quality related to

increased levels of salinity and concentrations of certain constituents, resulting in a significant and unavoidable impact.

- Each of these alternatives would produce more desalinated water than the proposed MPWSP, resulting in more water being available that would remove an impediment to growth in the three county-region resulting in a significant and unavoidable impact:
  - Alternative 3 (DeepWater Desal) would produce 22 mgd
  - Alternative 4 (People's Project) would produce 12 mgd

The following impacts are unique to Alternative 3 (DeepWater Desal Project):

- Operation of the co-located data center would require the use of substantial quantities of energy that would constrain local or regional supplies and require additional capacity, resulting in a significant and unavoidable impact.
- Operation of emergency generators would use large amounts of fuel in a manner that would be unnecessary and wasteful, resulting in a significant and unavoidable impact.

The following impacts are unique to Alternative 4 (People's Project):

- Construction of the desalination plant could impact (currently unsurveyed) historical resources, resulting in a significant and unavoidable impact.
- Operation and siting of the intake pumping facilities on top of the existing caisson at the existing shoreline could result in long-term direct effects on coastal erosion and scour processes that could expose adjacent properties to coastal flooding and a change in sediment transport, resulting in potentially significant impacts.
- Operation and siting of the desalination plant facilities within a 100-year flood zone could cause long-term direct effects related to redirection of flood flows, resulting in a significant and unavoidable impact.
- Operation and siting of the intake pumping facilities on top of the existing caisson would result in impacts on the visual quality of the shoreline in Moss Landing and interrupt views of MBNMS resources, resulting in potentially significant impacts.

The following impact would be unique to slant well pumping at Potrero Road (Alternative 1 and 5b):

- Operation of the slant wells at Potrero Road for a 6.4 mgd desalination plant (Alternative 5b) would lower groundwater levels in the Dune Sands/Perched-A aquifer in the Moss Landing area; operation of the wells for a 9.6 mgd desalination plant (Alternative 1) would additionally lower groundwater levels in the 180- and 400-Foot aquifers, thereby capturing groundwater that would have otherwise flowed into Elkhorn Slough. The direct and indirect permanent effects on marine and terrestrial biological resources at Elkhorn Slough from the lowering of groundwater levels would result in significant and unavoidable impacts.

5.6.2 Determination of Environmentally Superior and Preferred Alternative

Based on current information, Alternatives 3 and 4 would each produce more water than the proposed MPWSP and while they would each meet most of the project objectives and purpose and need, these alternatives would not generally reduce or avoid the potential significant environmental impacts of the proposed MPWSP. Both alternatives would have a greater impact on the seafloor within MBNMS than the proposed project as a result of new intake and outfall structures, and Alternative 3 would use substantially more energy (because of the co-located data center) that would result in increased air quality and GHG impacts. In addition, the water that these alternatives would produce would exceed CalAm's needs, and would be available for use in the CalAm service area (People's Project, Alternative 4) or other areas in Monterey and/or Santa Cruz counties (DeepWater Desal, Alternative 3). That use is unknown and could eliminate an impediment to growth which would result in additional impacts. For these reasons, neither Alternative 3 nor Alternative 4 is the environmentally superior/preferred alternative.

The proposed project, Alternative 1 (Slant Wells at Potrero Road), and Alternative 2 (Open Water Intake at Moss Landing) would each provide 9.6 mgd of desalinated water and each would meet the project objectives and purpose and need. Alternative 2 would have greater impacts on the seafloor than the proposed project or Alternative 1, as a result of the construction of a new intake, and operation of an open water intake would result in long-term marine biological impacts from impingement and entrainment. The operational impacts would be mitigable, but the proposed project and Alternative 1 would avoid the impacts by using subsurface intakes. The impacts of the subsurface intakes at Potrero Road (Alternative 1), however, would have a greater impact on groundwater levels in the Dune Sands, 180- and 400-Foot aquifers, resulting in greater impacts on marine and terrestrial biological resources at Elkhorn Slough than pumping at CEMEX (proposed project). Therefore, neither Alternative 1 nor Alternative 5b would offer overall environmental advantages over the proposed project or reduced-size alternative (Alternative 5a).

Alternative 5b (Reduced Desal with Slant Wells at Potrero Road) would have similar but reduced groundwater level impacts at Elkhorn Slough in the Dune Sands aquifer. Although it would avoid impacts on marine and terrestrial biological resources at the proposed CEMEX site, the impacts on Elkhorn Slough biological resources were determined to be of greater magnitude. Therefore, Alternative 5b would not offer overall environmental advantages over the proposed project or Alternative 5a.

The proposed project would offer the following environmental advantages over other alternatives of the same or larger size (Alternatives 1, 2, 3, and 4):

- Use of an existing outfall and co-mingling brine with wastewater
- No construction on the seafloor
- Meets Ocean Plan Water Quality objectives for salinity within a very short distance
- Avoids impingement and entrainment of an open water intake

- Less than significant impacts on groundwater resources, surface water resources and marine biological resources; and
- Consistency with the Ocean Plan and MBNMS Desalination Guidelines.

While the proposed project would cause significant and unavoidable impacts on air quality and GHG during construction, and GHG during operations, the construction impacts would be temporary, and the GHG impacts would be the same for all of the alternatives that would produce 9.6 mgd. While the proposed slant wells at CEMEX would be inconsistent with the City of Marina's Local Coastal Plan, Coastal Act Section 30260 encourages coastal-dependent industrial uses and provides for resolution of conflicting Coastal Act policies where such development is concerned. Therefore, without the GWR Project, the proposed project would be the environmentally superior/preferred alternative that meets the project objectives and purpose and need.

Alternative 5a would result in similar environmental advantages (see above) and reduce the severity of some of the potential impacts of the proposed project (smaller footprint, less energy, reduced impacts on groundwater levels), but, as a standalone project, it would not meet the project objectives or purpose and need in terms of providing adequate water supply in the CalAm Service District. Assuming that the GWR project is implemented and producing water, the combination of Alternative 5a and GWR would meet project objectives. The cumulative effects of Alternative 5a and GWR may be greater for some of the construction-related impacts (air quality, traffic, noise), and some of the footprint-related impacts (all of the GWR facility footprints plus the footprint of Alternative 5a). However, some of the operational impacts would be reduced compared to the proposed project because the 3,500 afy provided by the GWR Project would require less energy than producing it by desalination, resulting in reduced impacts on GHG and air quality. The reduced capacity desalination plant would require less source water from the slant wells, resulting in a reduction in the severity of impacts on groundwater levels, and the GWR project would provide additional irrigation supplies to CSIP that would benefit the groundwater basin. For these reasons, assuming that the GWR project is fully funded and successfully implemented so as to meet its purposes, Alternative 5a would be the environmentally superior/preferred alternative.

Given a choice between the proposed MPWSP and Alternative 5a paired with the GWR project, this EIR/EIS identifies Alternative 5a as the environmentally superior/environmentally preferred alternative. While it is true that implementing Alternative 5a and the GWR Project would result in a larger footprint than the proposed action alone, the pairing of Alternative 5a and the GWR project would result in reduced operational energy use and reduced GHG emissions compared to the proposed project. Not only would the combination of Alternative 5a and the GWR Project result in reduced effects on groundwater levels influenced by fewer slant wells and less volume of pumping, the GWR project would provide water to the CSIP growers that would benefit the groundwater basin. In addition, Alternative 5a paired with the GWR project would be consistent with the 2016 California Action Plan seeking integrated water supply solutions, the Governor's drought proclamations, the CPUC Water Action Plan goal of promoting water infrastructure investment, and the Ocean Plan and MBNMS Desalination Guidelines.

TABLE 5.6-1
ALTERNATIVES IMPACT SUMMARY

Impact	Proposed Action 10 Slant Wells at CEMEX	No Action	Alt. 1: Slant Wells at Potrero Road	Alt. 2: Open Water Intake at Moss Landing	Alt. 3: Deep Water Desal	Alt. 4: People's Project	Alt. 5: Reduced Size Desal
Section 4.2: Geology, Soils, and Seismicity							
Impact 4.2-1: Substantial soil erosion or loss of topsoil during construction.	**LSM**	**NI ↓**	**LSM ↑**	**LSM ↑**	**LSM ↑**	**LSM ↑**	**LSM ↓**
Impact 4.2-2: Exposure of people or structures to substantial adverse effects related to fault rupture.	**LS**	**NI ↓**	**LS =**	**LS =**	**LS =**	**LS =**	**LS =**
Impact 4.2-3: Exposure of people or structures to substantial adverse effects related to seismically-induced groundshaking.	**LS**	**NI ↓**	**LS =**	**LS =**	**LS =**	**LS =**	**LS =**
Impact 4.2-4: Exposure of people or structures to substantial adverse effects related to seismically-induced ground failure, including liquefaction, lateral spreading, or settlement.	**LS**	**NI ↓**	**LS =**	**LS =**	**LS =**	**LS =**	**LS =**
Impact 4.2-5: Exposure of people or structures to substantial adverse effects related to landslides or other slope failures.	**LS**	**NI ↓**	**LS =**	**LS =**	**LS =**	**LS =**	**LS =**
Impact 4.2-6: Exposure of people or structures to substantial adverse effects related to expansive soils.	**LS**	**NI ↓**	**LS =**	**LS =**	**LS =**	**LS =**	**LS =**
Impact 4.2-7: Exposure of structures to substantial adverse effects related to corrosive soils.	**LS**	**NI ↓**	**LS =**	**LS =**	**LS =**	**LS =**	**LS =**
Impact 4.2-8: Exposure of people or structures to substantial adverse effects related to land subsidence.	**NI**	**NI ↓**	**NI =**	**NI =**	**NI =**	**NI =**	**NI =**
Impact 4.2-9: Exposure of people or structures to substantial adverse effects related to alternative wastewater disposal systems.	**LS**	**NI ↓**	**LS =**	**LS ↓**	**LS ↓**	**LS ↓**	**LS =**
Impact 4.2-10: Accelerate and/or exacerbate natural rates of coastal erosion, scour, or dune retreat, resulting in damage to adjoining properties or a substantial change in the natural coastal environment.	**LSM**	**NI ↓**	**NI ↓**	**NI ↓**	**NI ↓**	**SU ↑**	**5a: LSM = 5b: NI ↓**
Impact 4.2.11: Degrades the physical structure of any geologic resource or alters any oceanographic process, such as sediment transport, that is measurably different from pre-existing conditions.	**NI**	**NI ↓**	**NI =**	**SU ↑**	**SU ↑**	**SU ↑**	**NI =**
Impact 4.2-C: Cumulative impacts related to Geology, Soils, and Seismicity.	**LSM**	**NI ↓**	**LSM =**	**SU ↑**	**LSM =**	**SU ↑**	**LSM =**

TABLE 5.6-1 (Continued)
ALTERNATIVES IMPACT SUMMARY

Impact	Proposed Action 10 Slant Wells at CEMEX	No Action	Alt. 1: Slant Wells at Potrero Road	Alt. 2: Open Water Intake at Moss Landing	Alt. 3: Deep Water Desal	Alt. 4: People's Project	Alt. 5: Reduced Size Desal
Section 4.3: Surface Water Hydrology and Water Quality							
Impact 4.3-1: Degradation of water quality associated with increased soil erosion and inadvertent releases of hazardous chemicals during general construction activities.	LS	NI ↓	LS ↑	LS ↑	SU ↑	SU ↑	LS ↓
Impact 4.3-2: Degradation of water quality from construction-related discharges of dewatering effluent from open excavations and water produced during well drilling and development.	LSM	NI ↓	LSM ↑	LSM =	LSM ↑	LSM ↓	LSM ↓
Impact 4.3-3: Degradation of water quality from discharges of treated water and disinfectant from existing and newly installed pipelines during construction.	LS	NI ↓	LS ↑	LS =	LS ↑	LS ↓	5a: LS = 5b: LS ↑
Impact 4.3-4: Violate water quality standards or waste discharge requirements or degrade water quality from increased salinity as a result of brine discharge from the operation of the MPWSP Desalination Plant.	LSM	NI ↓	LSM =	LSM =	LSM ↑	SU ↑	LSM =
Impact 4.3-5: Violate water quality standards or waste discharge requirements or degrade water quality as a result of brine discharge from the operation of the MPWSP Desalination Plant.	LSM	NI ↓	LSM =	LSM =	LSM ↑	SU ↑	LSM =
Impact 4.3-6: Degradation of water quality due to discharges associated with maintenance of the subsurface slant wells and the ASR -5 and ASR-6 Wells.	LS	NI ↓	LS =	LS ↑	LS ↑	LS ↑	LS ↓
Impact 4.3-7: Alteration of drainage patterns such that there is a resultant increase in erosion, siltation, or the rate or amount of surface runoff.	LS	NI ↓	LS ↓	LS ↓	LS ↑	LS ↓	LS =
Impact 4.3-8: Alteration of drainage patterns such that there is an increase in flooding on- or offsite or the capacity of the stormwater drainage system is exceeded.	LS	NI ↓	LS ↑	LS ↓	LS ↑	LS ↓	LS ↓
Impact 4.3-9: Impedance or redirection of flood flows due to the siting of project facilities in a 100-year flood hazard area.	LS	NI ↓	LS ↓	LS =	LS ↓	SU ↑	5a: LS = 5b: LS ↓
Impact 4.3-10: Exposure of people or structures to a significant risk of loss, injury, or death from flooding due to a tsunami.	LS	NI ↓	LS ↓	LS =	LS ↓	SU ↑	LS =
Impact 4.3-11: Exposure of people or structures to a significant risk of loss, injury, or death from flooding due to sea level rise.	LS	NI ↓	LS ↓	LS =	LS ↓	SU ↑	LS =
Impact 4.3-C: Cumulative impacts related to Surface Water Hydrology and Water Quality.	LSM	NI ↓	LSM =	LSM =	SU ↑	SU ↑	LSM =

TABLE 5.6-1 (Continued)
ALTERNATIVES IMPACT SUMMARY

Impact	Proposed Action 10 Slant Wells at CEMEX	No Action	Alt. 1: Slant Wells at Potrero Road	Alt. 2: Open Water Intake at Moss Landing	Alt. 3: Deep Water Desal	Alt. 4: People's Project	Alt. 5: Reduced Size Desal
Section 4.4: Groundwater Resources							
Impact 4.4-1: Deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level during construction.	**LS**	**NI ↓**	**NI ↓**	**NI ↓**	**NI ↓**	**NI ↓**	**NI ↓**
Impact 4.4-2: Violate any water quality standards or otherwise degrade groundwater quality during construction.	**LS**	**NI ↓**	**LS =**	**LS ↑**	**LS ↑**	**LS ↑**	**LS ↓**
Impact 4.4-3: Deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level during operations so as to expose well screens and pumps.	**LS**	**NI ↓**	**LS ↓**	**LS ↓**	**LS ↓**	**LS ↓**	**5a: LS ↓ 5b: LS =**
Impact 4.4-4: Violate any water quality standards or otherwise degrade groundwater quality during operations.	**LSM**	**NI ↓**	**LS ↓**	**LS ↓**	**LS ↓**	**LS ↓**	**5a: LSM = 5b: LS ↓**
Impact 4.4-C: Cumulative impacts related to Groundwater Resources.	**LS**	**NI ↓**	**NI ↓**	**NI ↓**	**NI ↓**	**NI ↓**	**5a: LS = 5b ↓**
Section 4.5: Marine Resources							
Impact 4.5-1: Result in a substantial adverse effect, either directly or through habitat modifications, including direct disturbance, removal, filling, hydrological interruption, or discharge, on any marine species, natural community, or habitat, including candidate, sensitive, or special-status species identified in local or regional plans, policies, regulations or conservation plans (including protected wetlands or waters, critical habitat, essential fish habitat (EFH); or as identified by the CDFW, USFWS, and/or NMFS during construction	**LS**	**NI ↓**	**LS ↑**	**SU ↑**	**SU ↑**	**SU ↑**	**LS ↓**
Impact 4.5-2: Threaten to eliminate a marine plant or animal wildlife community or cause a fish or marine wildlife population to drop below self-sustaining levels during construction.	**LS**	**NI ↓**	**LS ↑**	**LS ↑**	**LS ↑**	**LS ↑**	**LS ↓**
Impact 4.5-3: Interfere substantially with the movement of any native marine resident or migratory fish or marine wildlife species or with established native resident or migratory marine wildlife corridors, or impede the use of native marine wildlife nursery sites during construction.	**LS**	**NI ↓**	**LS ↑**	**LS ↑**	**LS ↑**	**LS ↑**	**LS ↓**
Impact 4.5-4: Result in a substantial adverse effect, either directly or through habitat modifications, including direct disturbance, removal, filling, hydrological interruption, or discharge, on any marine species, natural community, or habitat, including candidate, sensitive, or special-status species identified in local or regional plans, policies, regulations or conservation plans (including protected wetlands or waters, critical habitat, essential fish habitat (EFH); or as identified by the CDFW, USFWS, and/or NMFS during operations.	**LS**	**NI ↓**	**SU ↑**	**SU ↑**	**SU ↑**	**SU ↑**	**SU ↑**

TABLE 5.6-1 (Continued)
ALTERNATIVES IMPACT SUMMARY

Impact	Proposed Action 10 Slant Wells at CEMEX	No Action	Alt. 1: Slant Wells at Potrero Road	Alt. 2: Open Water Intake at Moss Landing	Alt. 3: Deep Water Desal	Alt. 4: People's Project	Alt. 5: Reduced Size Desal
Section 4.5: Marine Resources (cont.)							
Impact 4.5-5: Threaten to eliminate a marine plant or animal wildlife community or cause a fish or marine wildlife population to drop below self-sustaining levels during operations.	LS	NI ↓	LS =	LS ↑	LS =	LS =	LS ↓
Impact 4.5 6: Interfere substantially with the movement of any native marine resident or migratory fish or marine wildlife species or with established native resident or migratory marine wildlife corridors, or impede the use of native marine wildlife nursery sites during operations.	LS	NI ↓	LS =	LS ↑	LS =	LS =	LS ↓
Impact 4.5-C: Cumulative impacts on Marine Resources.	LS	NI ↓	LS =	SU ↑	NI ↓	SU ↑	LS ↓
Section 4.6: Terrestrial Biological Resources							
Impact 4.6-1: Result in substantial adverse effects on species identified as candidate, sensitive, or special-status, either directly or through habitat modification, during construction.	LSM	NI ↓	LSM =	LSM ↓	LSM ↑	LSM =	LSM =
Impact 4.6-2: Result in substantial adverse effects on riparian habitat, critical habitat, or other sensitive natural communities during construction.	LSM	NI ↓	LSM =	LSM ↓	SU ↑	LSM =	LSM =
Impact 4.6-3: Result in substantial adverse effects on federal wetlands, federal other waters, and/or waters of the State during construction.	LSM	NI ↓	LSM =	LSM =	LSM ↑	LSM ↑	LSM =
Impact 4.6-4: Be inconsistent with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance with local tree ordinances.	SU	NI ↓	SU ↓	LSM ↓	SU =	SU =	SU =
Impact 4.6-5: Introduce or spread an invasive non-native species during construction.	LSM	NI ↓	LSM =	LSM =	LSM =	LSM =	LSM =
Impact 4.6-6: Result in substantial adverse effects on candidate, sensitive, or special-status species during project operations.	LSM	↓	LSM =	LSM ↓	LSM =	LSM =	LSM =
Impact 4.6-7: Result in substantial adverse effects on riparian habitat, critical habitat, or other sensitive natural communities during project operations	LSM	↓	SU ↑	LSM ↓	LSM =	LSM =	5a: LSM = 5b: SU ↑
Impact 4.6-8: Result in substantial adverse effects on federal wetlands, federal other waters, and waters of the State during project operations.	LSM	NI ↓	LSM =	NI ↓	LSM =	LSM =	LSM =
Impact 4.6-9: Introduce or spread an invasive non-native species during project operations.	LSM	NI ↓	NI ↓	NI ↓	NI ↓	NI ↓	5a: LSM = 5b: NI ↓

TABLE 5.6-1 (Continued)
ALTERNATIVES IMPACT SUMMARY

Impact	Proposed Action 10 Slant Wells at CEMEX	No Action	Alt. 1: Slant Wells at Potrero Road	Alt. 2: Open Water Intake at Moss Landing	Alt. 3: Deep Water Desal	Alt. 4: People's Project	Alt. 5: Reduced Size Desal
Section 4.6: Terrestrial Biological Resources (cont.)							
Impact 4.6-10: Conflict with the provisions of an adopted Habitat Conservation Plans, natural community conservation plans or other approved local, regional, or state habitat conservation plan.	**LSM**	**NI ↓**	**LSM =**	**LSM =**	**LSM =**	**LSM =**	**LSM =**
Impact 4.6-C: Cumulative impacts related to Terrestrial Biological Resources.	**SU**	**NI ↓**	**SU =**	**LSM ↓**	**LSM ↓**	**SU =**	**SU =**
Section 4.7: Hazards and Hazardous Materials							
Impact 4.7-1: Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials during construction.	**LS**	**NI ↓**	**LS ↑**	**LS ↑**	**LS ↑**	**LS ↑**	**LS ↓**
Impact 4.7-2: Encountering hazardous materials from other hazardous materials release sites during construction.	**LSM**	**NI ↓**	**LSM =**	**LSM ↑**	**LSM ↑**	**LSM ↑**	**LSM =**
Impact 4.7-3: Project facilities would be located on a known hazardous materials site.	**LS**	**NI ↓**	**LS =**	**LS ↑**	**LS ↑**	**LS ↑**	**LS =**
Impact 4.7-4: Handle hazardous materials or emit hazardous emissions within 0.25 mile of schools during construction.	**LS**	**NI ↓**	**LS =**	**LS =**	**LS =**	**LS =**	**LS =**
Impact 4.7-5: Increase risk of wildland fires during construction.	**LS**	**NI ↓**	**LS =**	**LS =**	**LS =**	**LS =**	**LS =**
Impact 4.7-6: Create a significant hazard to the public or the environment through the routine transport, use, disposal, or accidental release of hazardous materials during project operations.	**LS**	**NI ↓**	**LS =**	**LS =**	**LS ↑**	**LS ↑**	**LS ↓**
Impact 4.2-C: Cumulative impacts related to Hazards and Hazardous Materials.	**LSM**	**NI ↓**	**LSM =**	**LSM ↑**	**LSM ↑**	**LSM ↑**	**LSM =**
Section 4.8: Land Use, Land Use Planning, and Recreation							
Impact 4.8-1: Consistency with applicable plans, policies, and regulations related to land use and recreation that were adopted for the purpose of mitigating an environmental effect.	**LS**	**NI ↓**	**LS =**	**LS =**	**LS =**	**LS =**	**LS =**
Impact 4.8-2: Disrupt or preclude public access to or along the coast during construction.	**LSM**	**NI ↓**	**LSM ↑**	**LSM ↑**	**LSM ↑**	**LSM ↑**	**5a: LSM = 5b: LSM ↑**
Impact 4.8-C: Cumulative impacts related to Land Use, Land Use Planning, and Recreation.	**LSM**	**NI ↓**	**LSM =**	**LSM =**	**LSM =**	**LSM =**	**LSM =**

TABLE 5.6-1 (Continued)
ALTERNATIVES IMPACT SUMMARY

Impact	Proposed Action 10 Slant Wells at CEMEX	No Action	Alt. 1: Slant Wells at Potrero Road	Alt. 2: Open Water Intake at Moss Landing	Alt. 3: Deep Water Desal	Alt. 4: People's Project	Alt. 5: Reduced Size Desal
Section 4.9: Traffic and Transportation							
Impact 4.9-1: Temporary traffic increases on regional and local roadways due to construction-related vehicle trips.	LSM	NI ↓	LSM ↑	LSM ↑	LSM ↑	LSM ↑	5a: LSM = 5b: LSM ↑
Impact 4.9-2: Temporary reduction in roadway capacities and increased traffic delays during construction.	LSM	NI ↓	LSM ↑	LSM ↑	LSM ↑	LSM ↑	5a: LSM = 5b: LSM ↑
Impact 4.9-3: Increased traffic safety hazards for vehicles, bicyclists, and pedestrians on public roadways during construction.	LSM	NI ↓	LSM ↑	LSM ↑	LSM ↑	LSM ↑	5a: LSM = 5b: LSM ↑
Impact 4.9-4: Impaired emergency access during construction.	LSM	NI ↓	LSM ↑	LSM ↑	LSM ↑	LSM ↑	5a: LSM = 5b: LSM ↑
Impact 4.9-5: Temporary disruptions to public transportation, bicycle, and pedestrian facilities during construction.	LSM	NI ↓	LSM ↑	LSM ↑	LSM ↑	LSM ↑	5a: LSM = 5b: LSM ↑
Impact 4.9-6: Increased wear-and-tear on the designated haul routes used by construction vehicles.	LSM	NI ↓	LSM ↑	LSM ↑	LSM ↑	LSM ↑	5a: LSM = 5b: LSM ↑
Impact 4.9-7: Parking interference during construction.	LSM	NI ↓	LSM ↑	LSM =	LSM =	LSM =	5a: LSM = 5b: LSM ↑
Impact 4.9-8: Long-term traffic increases on regional and local roadways during project operations and maintenance.	LS	NI ↓	LS =	LS =	LS =	LS =	LS =
Impact 4.9-C: Cumulative impacts related to Traffic and Transportation.	SU	NI ↓	SU =	SU =	SU =	SU =	SU =

TABLE 5.6-1 (Continued)
ALTERNATIVES IMPACT SUMMARY

Impact	Proposed Action 10 Slant Wells at CEMEX	No Action	Alt. 1: Slant Wells at Potrero Road	Alt. 2: Open Water Intake at Moss Landing	Alt. 3: Deep Water Desal	Alt. 4: People's Project	Alt. 5: Reduced Size Desal
Section 4.10: Air Quality							
Impact 4.10-1: Generate emissions of criteria air pollutants and contribute to a violation of an ambient air quality standard during construction.	SU	NI ↓	SU ↑	SU ↑	SU ↑	SU =	SU =
Impact 4.10-2: Construction activities could conflict with implementation of the applicable air quality plan.	SU	NI ↓	SU ↑	SU ↑	SU ↑	SU =	SU =
Impact 4.10-3: Expose sensitive receptors to substantial pollutant concentrations and/or *Coccidioides immitis* (Valley Fever) spores or create objectionable odors affecting a substantial number of people during construction.	LS	NI ↓	LS ↑	LS ↑	SU ↑	SU ↑	LS =
Impact 4.10-4: Long-term increase of criteria pollutant emissions that could contribute to a violation of an ambient air quality standard during operations.	LS	NI ↓	LS =	LS ↑	LSM ↑	LS ↑	LS ↓
Impact 4.10-5: Expose sensitive receptors to substantial pollutant concentrations or create objectionable odors affecting a substantial number of people during operations.	LS	NI ↓	LS =	LS ↑	LSM ↑	LS ↑	LS ↓
Impact 4.10-C: Cumulative impacts related to Air Quality.	SU	NI ↓	SU ↑	SU ↑	SU ↑	SU ↑	SU =
Section 4.11: Greenhouse Gas Emissions							
Impact 4.11-1: Incremental contribution to climate change from GHG emissions associated with the proposed action.	SU	NI ↓	SU ↑	SU ↑	SU ↑	SU ↑	SU ↓
Impact 4.11-2: Conflict with the Executive Order B-30-15 Emissions Reduction Goal.	SU	NI ↓	SU ↑	SU ↑	SU ↑	SU ↑	SU ↓
Impact 4.11-3: Conflict with AB 32 Climate Change Scoping Plan.	SU	NI ↓	SU ↑	SU ↑	SU ↑	SU ↑	SU ↓
Impact 4.11-C: Cumulative impacts related to Greenhouse Gas Emissions.	SU	NI ↓	SU ↑	SU ↑	SU ↑	SU ↑	SU ↓
Section 4.12: Noise and Vibration							
Impact 4.12-1: Cause a substantial temporary or periodic increase in ambient noise levels in the project vicinity during construction.	SU	NI ↓	SU ↑	SU ↑	SU ↑	SU ↑	5a: SU = 5b: SU ↑

TABLE 5.6-1 (Continued)
ALTERNATIVES IMPACT SUMMARY

Impact	Proposed Action 10 Slant Wells at CEMEX	No Action	Alt. 1: Slant Wells at Potrero Road	Alt. 2: Open Water Intake at Moss Landing	Alt. 3: Deep Water Desal	Alt. 4: People's Project	Alt. 5: Reduced Size Desal
Section 4.12: Noise and Vibration (cont.)							
Impact 4.12-2: Expose people to or generate noise levels in excess of standards established in the local general plan, noise ordinance, or applicable standards of other agencies during construction.	LSM	NI ↓	LSM ↑	LSM ↑	LSM ↑	LSM ↑	5a: LSM = 5b: LSM ↑
Impact 4.12-3: Exposure of people to or generation of excessive groundborne vibration during construction.	LSM	NI ↓	LSM ↓	LSM ↓	LSM ↓	LSM ↓	5a: LSM = 5b: LSM ↓
Impact 4.12-4: Consistency with the construction time limits established by the local jurisdictions.	LSM	NI ↓	LSM =	LSM =	LSM ↑	LSM =	5a: LSM = 5b: LSM ↓
Impact 4.12-5: Substantial permanent increases in ambient noise levels in the project vicinity above levels existing without the project during operations.	LSM	NI ↓	LSM =	LSM =	LSM ↑	LSM ↑	LSM =
Impact 4.12-6: Expose people to or generate operational noise levels in excess of standards established in the local general plan, noise ordinance, or applicable standards of other agencies during operation.	LS	NI ↓	LS =	LS =	LS =	LSM ↑	LS =
Impact 4.12-C: Cumulative impacts related to Noise and Vibration.	SU	NI ↓	SU ↑	SU ↑	SU ↑	SU ↑	5a: SU = 5b: SU ↑
Section 4.13: Public Services and Utilities							
Impact 4.13-1: Disrupt or relocate regional or local utilities during construction.	LSM	NI ↓	LSM ↑	LSM ↑	LSM ↑	LSM ↑	5a: LSM = 5b: LSM ↑
Impact 4.13-2: Exceed landfill capacity or be out of compliance with federal, state, and local statutes and regulations related to solid waste during construction.	LSM	NI ↓	LSM ↑	LSM ↑	LSM ↑	LSM ↑	5a: LSM = 5b: LSM ↑
Impact 4.13-3 Exceed landfill capacity or be out of compliance with federal, state, and local statutes and regulations related to solid waste during operations.	LS	NI ↓	LS =	LS =	LS ↑	LS ↓	LS =

TABLE 5.6-1 (Continued)
ALTERNATIVES IMPACT SUMMARY

Impact	Proposed Action 10 Slant Wells at CEMEX	No Action	Alt. 1: Slant Wells at Potrero Road	Alt. 2: Open Water Intake at Moss Landing	Alt. 3: Deep Water Desal	Alt. 4: People's Project	Alt. 5: Reduced Size Desal
Section 4.13: Public Services and Utilities (cont.)							
Impact 4.13-4: Exceed wastewater treatment requirements of the Central Coast RWQCB, or result in a determination by the wastewater treatment provider that it has inadequate treatment or outfall capacity to serve the project.	**LSM**	**NI ↓**	**LSM =**	**LSM =**	**LS ↓**	**LS ↓**	**LSM =**
Impact 4.13-5: Increased corrosion of the MRWPCA outfall and diffuser as a result of brine discharge associated with project operations.	**LSM**	**NI ↓**	**LSM =**	**LSM =**	**NI ↓**	**NI ↓**	**LSM =**
Impact 4.13-C: Cumulative impacts related to Public Services and Utilities.	**LSM**	**NI ↓**	**LSM =**	**LSM =**	**LSM ↓**	**LSM ↓**	**LSM =**
Section 4.14: Aesthetic Resources							
Impact 4.14-1: Construction-related impacts on scenic resources (vistas, roadways, and designated scenic areas) or the visual character of the project area and its surroundings.	**LS**	**NI ↓**	**LS =**	**LS =**	**LS =**	**LSM ↑**	**LS =**
Impact 4.14-2: Temporary sources of substantial light or glare during construction.	**LSM**	**NI ↓**	**LSM ↑**	**LSM ↑**	**LSM ↑**	**LSM ↑**	**LSM =**
Impact 4.14-3: Permanent impacts on scenic resources (vistas, roadways, and designated scenic areas) or the visual character of the project area and its surroundings.	**LSM**	**NI ↓**	**LSM =**	**LSM ↓**	**LSM ↓**	**LSM =**	**LSM =**
Impact 4.14-4: Permanent new sources of light or glare.	**LSM**	**NI ↓**	**LSM =**	**LSM =**	**LSM ↑**	**LSM ↑**	**LSM =**
Impact 4.14-C: Cumulative impacts related to Aesthetic Resources	**LSM**	**NI ↓**	**LSM =**	**LSM =**	**LSM =**	**LSM =**	**LSM =**
Section 4.15: Cultural and Paleontological Resources							
Impact 4.15-1: Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5 of the CEQA Guidelines or historic properties pursuant to 36 CFR 800.5 during construction.	**NI**	**NI =**	**NI =**	**NI =**	**NI =**	**SU ↑**	**NI =**
Impact 4.15-2: Cause a substantial adverse change during construction in the significance of an archaeological resource pursuant to Section 15064.5 of the CEQA Guidelines or historic properties pursuant to 36 CFR 800.5.	**LSM**	**NI ↓**	**LSM ↑**	**LSM ↑**	**LSM ↑**	**LSM ↑**	**5a: LSM = 5b: LSM ↑**
Impact 4.15-3: Directly or indirectly destroy a unique paleontological resource or site, or unique geological feature during construction.	**LS**	**NI ↓**	**LS ↑**	**LS ↑**	**LS ↑**	**LS ↑**	**5a: LS = 5b: LS ↑**

TABLE 5.6-1 (Continued)
ALTERNATIVES IMPACT SUMMARY

Impact	Proposed Action 10 Slant Wells at CEMEX	No Action	Alt. 1: Slant Wells at Potrero Road	Alt. 2: Open Water Intake at Moss Landing	Alt. 3: Deep Water Desal	Alt. 4: People's Project	Alt. 5: Reduced Size Desal
Section 4.15: Cultural and Paleontological Resources (cont.)							
Impact 4.15-4: Disturbance any human remains, including those interred outside of formal cemeteries, during construction.	**LSM**	**NI ↓**	**LSM ↑**	**LSM ↑**	**LSM ↑**	**LSM ↑**	**5a: LSM = 5b: LSM ↑**
Impact 4.15-C: Cumulative impacts related to Cultural and Paleontological Resources.	**LS**	**NI ↓**	**LS =**	**LSM ↑**	**LSM ↑**	**LSM ↑**	**LSM =**
Section 4.16: Agricultural Resources							
Impact 4.16-1: Result in changes in the existing environment that, due to their location or nature, could temporarily disrupt agricultural activities or result in the permanent conversion of farmland to non-agricultural use.	**LSM**	**NI ↓**	**LSM =**	**LSM =**	**LSM ↑**	**NI ↓**	**LSM =**
Impact 4.16-2: Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use.	**LS**	**NI ↓**	**LS =**	**LS =**	**LS ↑**	**NI ↓**	**LS =**
Impact 4.16-3: Conflict with zoning for agricultural uses or with Williamson Act contracts.	**LS**	**NI ↓**	**LS =**	**LS =**	**LS ↑**	**NI ↓**	**LS =**
Impact 4.16-C: Cumulative impacts related to Agricultural Resources.	**LSM**	**NI ↓**	**LSM =**	**LSM =**	**LSM ↑**	**NI ↓**	**LSM =**
Section 4.17: Mineral Resources							
Impact 4.17-1: Loss of availability of known mineral resources that are of value to the region or residents of the state or result in the loss of a locally-recognized important mineral resource recovery site.	**LS**	**NI ↓**	**LS ↓**	**LS ↓**	**LS ↓**	**LS ↓**	**5a: LS = 5b: LS ↓**
Impact 4.17-C: Cumulative impacts related to Mineral Resources.	**LS**	**NI ↓**	**LS ↓**	**LS ↓**	**LS ↓**	**LS ↓**	**5a: LS = 5b: LS ↓**

TABLE 5.6-1 (Continued)
ALTERNATIVES IMPACT SUMMARY

Impact	Proposed Action 10 Slant Wells at CEMEX	No Action	Alt. 1: Slant Wells at Potrero Road	Alt. 2: Open Water Intake at Moss Landing	Alt. 3: Deep Water Desal	Alt. 4: People's Project	Alt. 5: Reduced Size Desal
Section 4.18: Energy Conservation							
Impact 4.18-1: Use large amounts of fuel and energy in an unnecessary, wasteful, or inefficient manner during construction.	LSM	NI ↓	LSM ↑	LSM ↑	LSM ↑	LSM ↑	5a: LSM ↓ 5b: LSM ↑
Impact 4.18-2: Use large amounts of fuel and energy in an unnecessary, wasteful, or inefficient manner during operations.	LS	NI ↓	LS ↑	LS ↑	LS ↑	LS ↑	LS ↓
Impact 4.18-3: Constrain local or regional energy supplies, require additional capacity, or affect peak and base periods of electrical demand during operations.	LS	NI ↓	LS ↑	LS ↑	SU ↑	LS ↑	LS ↓
Impact 4.18-C: Cumulative impacts related to Energy Resources.	LSM	NI ↓	LSM ↑	LSM ↑	SU ↑	LSM ↑	5a: LSM ↓ 5b: LSM ↓
Section 4.19: Population and Housing							
Impact 4.19-1: Induce substantial population growth directly during project construction.	LS	NI ↓	LS =	LS =	LS =	LS =	LS =
Impact 4.19-2: Induce substantial population growth directly during project operations.	LS	NI ↓	LS =	LS =	LS =	LS =	LS =
Impact 4.19-C: Cumulative impacts related to Population and Housing.	LS	NI ↓	LS =	LS =	LS =	LS =	LS =
Section 4.20 Socioeconomics and Environmental Justice							
Impact 4.20-1: Reductions in the rate of employment, total income, or business activity in Monterey County.	LSM	SU ↑	LSM =	LSM =	LSM =	LSM =	LSM =
Impact 4.20-2: Disproportionately high and adverse effects on low-income or minority populations.	LS	SU ↑	LS =	LS ↓	SU ↑	SU ↑	LS ↓
Impact 4.20-C: Cumulative impacts related to Socioeconomics and/or Environmental Justice.	LSM	SU ↑	LSM =	LSM =	SU ↑	SU ↑	LSM ↓

TABLE 5.6-1 (Continued)
ALTERNATIVES IMPACT SUMMARY

Impact	Proposed Action 10 Slant Wells at CEMEX	No Action	Alt. 1: Slant Wells at Potrero Road	Alt. 2: Open Water Intake at Moss Landing	Alt. 3: Deep Water Desal	Alt. 4: People's Project	Alt. 5: Reduced Size Desal
Growth Inducement							
Impact 6.3-1: Secondary effects of planned growth.	**SU**	**NI** ↓	**LS** ↓	**SU** ↑	**SU** ↑	**SU** ↑	**LS** ↓
Impact 6.3-C: Cumulative impacts related to growth inducement.	**SU**	**NI** ↓	**SU** ↑	**SU** ↑	**SU** ↑	**SU** ↑	**SU** =

NOTES:

↑ Increased severity of impact ↓ Decreased severity of impact = Same severity of impact

NI – No Impact
LS = Less than Significant impact, no mitigation proposed
LSM = Less than Significant impact with Mitigation
SU = Significant and Unavoidable impact, even with implementation of mitigation
= Beneficial Impact

This page intentionally left blank

CHAPTER 6
Other Considerations

This chapter addresses other considerations required by CEQA and NEPA, including the potential for the proposed project to have unavoidable significant impacts; the irreversible or irretrievable commitment of resources; the relationship between short-term uses of the project and long-term productivity; growth-inducing effects of the project; and project consistency with MBNMS Desalination Guidelines.

6.1 Significant and Unavoidable Environmental Effects

Section 15126.2(b) of the CEQA Guidelines requires that an EIR identify significant environmental effects that cannot be avoided by the proposed project, including those that can be mitigated, but not to a less-than-significant level. CEQ Regulations 40 CFR Section 1502.16 states that the EIS environmental analysis shall include any adverse environmental effects which cannot be avoided should the proposal be implemented. The analysis in Chapter 4 identifies all adverse impacts associated with the proposed project/proposed action and those impacts that

cannot be avoided. The analysis in Chapter 4 determined that the proposed project would result in impacts related to noise, greenhouse gas (GHG) emissions, air quality, and terrestrial biological resources that, even with implementation of mitigation measures, would remain significant and unavoidable. These impacts are summarized below:

- Nighttime noise impacts on residential receptors during installation of the Castroville Pipeline Optional Alignment 1 and during drilling and development of the ASR-5 and ASR-6 Wells would remain significant and unavoidable, even with implementation of mitigation measures. See Section 4.12, Noise and Vibration, for additional information on this impact.
- Nighttime construction could contribute to a significant unavoidable cumulative impact. 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 five cumulative projects in Table 4.1-2 (Nos. 31, 35, 38, 45, and 51) 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 significant cumulative nighttime noise impact. No additional mitigation within the scope of this EIR/EIS is available to further reduce this potential impact. Therefore, MPWSP nighttime construction noise could have a considerable contribution to a significant cumulative effect. See Section 4.12, Noise and Vibration, for additional information on this impact.
- Greenhouse Gas emissions associated with construction and operation of the proposed project would exceed the emissions significance threshold in Executive Order B-30-15. In addition, although the MPWSP Desalination Plant would include energy recovery and efficiency features, the lead agencies cannot substantiate that the project's electricity use would be consistent with the AB 32 Scoping Plan Measure W-3, which sets a 20 percent electricity use reduction target from 2006 levels. Therefore, such impacts would remain significant and unavoidable, even with implementation of mitigation measures. See Section 4.11, Greenhouse Gas Emissions, for additional information on these impacts.
- Greenhouse Gas emissions could contribute to a significant cumulative impact. Although implementation of mitigation measures would reduce the overall carbon footprint of the project, the lead agencies cannot substantiate that the mitigated GHG emissions would be reduced to a less-than-significant level. Therefore, the project's incremental contribution to the significant cumulative climate change impact related to GHG emissions would remain cumulatively considerable. See Section 4.11, Greenhouse Gas Emissions, for additional information on this impact.
- Short-term air emissions associated with construction of the proposed project could contribute to an exceedance of state and/or federal standards for ozone and NO_x, which could increase the susceptibility of sensitive individuals to respiratory infections and is a significant impact. Such exceedances in ozone would also be inconsistent with the Monterey Bay United Air Pollution Control District's 2012 Air Quality Management Plan (AQMP). Implementation of mitigation measures would not reduce project-related NO_x emissions (a precursor to ozone) to a level below the significance threshold, therefore resulting in significant and unavoidable impacts with regard to violations of air quality standards and compliance with the AQMP. See Section 4.10, Air Quality, for additional information on these impacts.

- Project construction NO_x emissions, in combination with cumulative project emissions, would violate ambient air quality standards and conflict with implementation of the applicable air quality plan, even with implementation of mitigation measures**.** The proposed project's incremental contribution to the cumulative impact would be cumulatively considerable. No further feasible mitigation measures are available to reduce the project's contribution to cumulative impacts.

- Several proposed facilities would occur in areas that may qualify as Primary and Secondary Habitat according to the City of Marina Local Coastal Land Use Plan (LCLUP). These facilities, which include the subsurface slant wells, and portions of the Source Water Pipeline, new Desalinated Water Pipeline, new Transmission Main, and the staging area at Beach Road, would be inconsistent with the City of Marina's LCLUP Policy 25 that prohibits development in Primary Habitat that is not protective of and dependent upon that habitat. The LCLUP states, "Primary habitat areas shall be protected and preserved against any significant disruption of habitat values and only uses dependent on those resources shall be allowed within those areas (City of Marina, 1982)." Implementation of mitigation measures would reduce impacts on special-status species habitat. However, given that project facilities proposed for such habitats are not resource-dependent, and because the LCLUP policy provides no exception to the requirements that development within such habitats be resource-dependent, potential conflicts with this policy would remain unresolved. The effect would be significant and unavoidable. Section 4.6, Terrestrial Biological Resources, for additional information.

- As described above, construction of some of the proposed components would be inconsistent with the City of Marina LCLUP. The test slant well at the CEMEX site is a cumulative project that is within the geographic scope of this analysis. The test slant well was also found to be inconsistent with the City of Marina LCLUP. Implementation of the proposed project would have a cumulatively considerable contribution to the cumulative impact related to inconsistencies with the City of Marina LCLUP. No mitigation measures are available that would reduce this impact to less than cumulatively considerable. See Section 4.6, Terrestrial Biological Resources, for additional information.

- Given the size of the MPWSP, along with the number of cumulative projects and uncertainty regarding cumulative project construction timing, the MPWSP transportation impacts could contribute substantially to cumulative local and regional traffic and roadway capacity disruptions, a cumulatively significant impact. Implementation of Mitigation Measure 4.9-C (Construction Traffic Coordination Plan), could reduce cumulative impacts, however there is no guarantee that local agencies would participate in such coordination efforts. Therefore, the project's incremental contribution to potential significant cumulative effects would be considerable, even with implementation of mitigation measures. See Section 4.9, Traffic and Transportation, for additional information.

- The proposed project would indirectly support growth by removing some 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 effect would be significant and unavoidable. See Section 6.3, Growth-Inducing Impacts, for additional information.

6.2 Significant Irreversible Changes and Short-Term versus Long-Term Uses

In accordance with CEQA Section 21100(b)(2)(B), CEQA Guidelines Sections 15126(c) and 15126.2(c), and CEQ Regulations 40 CFR Section 1502.16, the purpose of this section is to identify significant irreversible environmental changes and commitments of resources that would be caused by implementation of the proposed project. In addition, NEPA (40 CFR §1502.16) requires an EIS to include analysis of the relationship between short-term uses of the environment and the maintenance and enhancement of long-term productivity.

6.2.1 Irreversible Changes

A resource commitment is considered irreversible when primary or secondary impacts from its use limit future use options. Irreversible commitment applies primarily to nonrenewable resources, such as minerals or cultural resources, and to those resources that are renewable only over long time spans, such as soil productivity. A resource commitment is considered irretrievable when the use or consumption of the resource is neither renewable nor recoverable for use by future generations. Irretrievable commitment applies to the loss of production, harvest, or natural resources. The proposed project would involve two types of resources: (1) general industrial resources including fuels and construction materials; and (2) project-specific resources such as land, biotic and cultural resources at the project facility sites. This section identifies any resources that would be lost permanently as a result of undertaking the project.

Implementation of the proposed project would result in a significant irreversible commitment of natural resources during construction and operation through the use of fossil fuels, energy and materials such as concrete, steel, and plastics.

During the life of the project, the land used for the facilities would be committed to the project. Project components, including the slant wells, desalination plant, Terminal Reservoir, ASR-5 and 6 Wells, and Carmel Valley Pump Station, would permanently occupy approximately 30.5 acres of land, via physical siting and security fencing. This land could be used for other purposes in the future; however, the baseline condition of the land would either be irretrievable or renewable in an undeterminable timeframe. Siting of the slant wells would displace sensitive dune habitat and designated mineral resources; the desalination plant would displace non-native grassland; the ASR-5 and 6 Wells and the Terminal Reservoir could displace central maritime chaparral plant communities, including special-status species; and the Carmel Valley Pump Station site could displace non-native grassland with coastal live oak woodland fringe.

Accidents, such as the release of hazardous materials, could trigger irreversible environmental damage. As discussed in Section 4.7, Hazards and Hazards Materials, construction and operation of the proposed project would involve limited quantities of miscellaneous hazardous substances, such as gasoline, diesel fuel, solvents, paints, and other chemicals. An accidental spill of any of these substances could affect water and/or groundwater quality and, if a spill were to occur of significant quantity, the release could pose a hazard to construction workers, the public, and the environment. Improper storage, use, handling, or accidental spilling of such materials could result in a hazard to

the public or the environment. However, 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 National Pollutant Discharge Elimination System General Construction Permit requirements would ensure that public health and safety risks are maintained at acceptable levels. Therefore, significant irreversible changes from accidental releases are not anticipated.

6.2.2 Short-Term versus Long-Term Uses

This section compares the short- and long-term environmental effects of the project. Short-term impacts would result from constructing the various project components. These actions would result in temporary adverse impacts related to soils, air quality, terrestrial biology, water quality, noise, hazardous materials, traffic and transportation, aesthetics, agriculture, energy consumption, and the daily influx of construction workers. The siting and operation of various project components could result in long-term adverse impacts related to terrestrial biological resources, greenhouse gas emissions and the indirect effects of induced growth. All of these short-term and long-term impacts are addressed in Chapter 4 and feasible mitigation measures are identified that would result in a reduction of many impacts to a less than significant level. On balance, impacts would not substantially affect the maintenance and enhancement of long-term environmental productivity, nor pose long-term risks to health or safety.

6.3 Growth-Inducing Impacts

6.3.1 Introduction

This section addresses the indirect growth inducement potential of the proposed MPWSP. Refer to Section 4.19, Population and Housing, for an analysis of the MPWSP's potential direct effects on growth[1] Direct and indirect growth-inducing effects of the alternatives are addressed in Section 5.5. This section describes the relationship between land use planning and water supply; identifies the regulatory framework for the analysis; and discloses the MPWSP's potential to induce growth indirectly. The study area for this analysis consists of the area that would be served by the proposed project – CalAm's Monterey District service area (Monterey District)– which encompasses most of the Monterey Peninsula, and Monterey County. In particular, the MPWSP would provide water supply to customers served by the Monterey District main distribution system and three small satellite water systems, the Ryan Ranch, Hidden Hills, and Bishop systems. The main distribution system serves the cities of Carmel-by-the-Sea, Del Rey Oaks, Monterey, Pacific Grove, Sand City, and most of the City of Seaside, as well as the unincorporated county areas of Carmel Highlands, Carmel Valley, Pebble Beach, and the Del Monte Forest. The analysis also evaluates the proposed delivery of Salinas Valley Groundwater Basin Return Water to the community of Castroville.

[1] "Direct effects" of a proposed project are "caused by the [action or project] and occur at the same time and place," while "indirect or secondary effects" are "caused by" the action or project and are "later in time or farther removed in distance, but are still reasonably foreseeable." (CEQA Guidelines § 15358(a))

Growth can be induced in several ways, such as through the elimination of obstacles to growth, through the stimulation of economic activity within the region, or through the establishment of policies or other precedents that directly or indirectly encourage additional growth. In general, a project may foster spatial, economic, or population growth in a geographic area if the project removes an impediment to growth (for example, the establishment of an essential public service, the provision of new access to an area; a change in zoning or general plan amendment approval); or economic expansion or growth occurs in an area in response to the project (for example, changes in revenue base, employment expansion, etc.).

Assessing the MPWSP's potential to indirectly induce growth means determining whether the project would indirectly support economic expansion, population growth, or residential construction, and if so, determining the magnitude and nature of the potential environmental effects of that growth.

The objectives of the MPWSP include development of water supply to enable CalAm to replace Carmel River and Seaside Groundwater Basin supplies that are currently diverted and pumped in excess of CalAm's legal rights; development of a reliable water supply for its Monterey District service area; and provision of sufficient water supply to serve existing vacant lots of record and accommodate tourism demand under recovered economic conditions. Water supply is one of the primary public services needed to support urban development. A water service deficiency could constrain future development, particularly if coupled with policies that constrain growth relative to water supply. Adequate water supply would play a role in supporting additional growth in CalAm's service area, but it would not be the single impetus behind such growth. Other factors that influence new development and population growth on the Monterey Peninsula include economic factors such as employment opportunities; the availability of adequate infrastructure like public schools, roadways, and sewer service; local land use policies in the affected communities; and constraints on the use of areas like floodplains and sensitive habitats.

6.3.2 Relationship between Land Use Planning and Water Supply

There is a connection between land use planning and water supply. In California, cities and counties have primary authority over land use while water suppliers, through laws and agreements, are expected – and usually required – to provide water service if water supply is available. In the areas served by CalAm, it is the responsibility of the cities or of Monterey County to approve or deny development proposals. In addition, on the Monterey Peninsula, the MPWMD is responsible for allocating water to the jurisdictions within its boundary (which includes the CalAm service area), issuing water permits, and approving new water distribution systems or expansions. Therefore, when deciding whether to approve or deny development projects, including whether water would be available to serve the projects, the jurisdictions within the MPWMD's boundary take into account the MPWMD's allocation and distribution determinations and permits. Numerous laws ensure that water supply planning and land use planning proceed in an orderly fashion. The laws and agencies described below provide the regulatory and planning context in which water agencies, cities, and counties work together and produce key documents (e.g., general plans and regional projections) used in this analysis.

6.3.2.1 Regional Planning and Local Planning

AMBAG

The Association of Monterey Bay Area Governments (AMBAG) is the key regional agency involved in forecasting growth in Monterey County. Although AMBAG can forecast growth, it does not have authority to approve or deny land use plans or development projects. AMBAG is a Joint Powers Authority that serves as the federally-designated Metropolitan Planning Organization and Council of Governments for Monterey, Santa Cruz and San Benito Counties. It is governed by a Board of Directors made up of elected officials from each city and county in the region. AMBAG undertakes metropolitan-level transportation planning on behalf of the region; manages the region's transportation demand model; and prepares regional housing, population and employment forecasts that are used in a variety of regional plans (AMBAG, 2013). AMBAG's regional growth forecast, which it produces approximately every five years, supports regional planning efforts such as the Metropolitan Transportation Plan, and may be used by city and county governments in support of local planning efforts such as the development of general plans and project review. The 2004 and 2008 forecasts describe how the existing water and sewer infrastructure constrains growth (AMBAG, 2004, 2008). AMBAG adopted a different methodology for its current (2014) forecast, which emphasizes employment growth as the primary driver of long-term population change at a regional scale. The 2014 forecast includes population, housing, and employment projections out to the year 2035 (AMBAG, 2014a). While AMBAG does not have authority to approve or deny land use plans, it does direct regional growth decisions by setting state-mandated fair-share regional housing allocations in Monterey and Santa Cruz Counties and their respective cities.[2]

General Plan Requirements

Under state law,[3] each city and county must adopt a comprehensive, long-term general plan for the physical development of the jurisdiction. The general plan is a statement of development policies, and must include land use, circulation, housing, conservation, open space, noise, and safety elements. The land use element designates the general distribution, location, and extent of land uses, and includes a statement of the standards of population density and building intensity recommended for lands covered by the plan. The city or county must prepare the water section of the conservation element in coordination with any countywide water agency and with all district and city agencies that have developed, served, controlled, managed, or conserved water of any type for any purpose in the county or city for which the general plan is prepared. Coordination among relevant agencies is required to include the discussion and evaluation of any water supply and demand information contained in any applicable urban water management plan, current capital improvement program, and related supply and demand information that has been submitted to the city or county by a water agency.[4]

---

2 San Benito County is responsible for setting the fair share regional housing allocation for the cities and unincorporated area in that county.

3 California Government Code § 65300 *et seq*.

4 California Government Code § 65302(d)(1).

6.3.2.2 Coordination of Land Use Planning and Water Supply

Urban Water Management Planning Act

The Urban Water Management Planning Act[5] requires every urban water supplier to prepare an urban water management plan (UWMP) for the purpose of "actively pursu[ing] the efficient use of available supplies."[6] In preparing the UWMP, the water supplier must coordinate with other appropriate agencies, including other water suppliers that share a common source, water management agencies, and relevant public agencies. When a city or county proposes to adopt or substantially amend a general plan, the water agency must provide the planning agency with the current version of the adopted UWMP, the current version of the water agency's capital improvement program or plan, and other information about the system's sources of water supply. The Urban Water Management Planning Act requires urban water suppliers, as part of their long-range planning activities, to make every effort to ensure the appropriate level of reliability in their water service sufficient to meet the needs of their various categories of customers during normal, dry, and multiple dry water years.[7]

Senate Bills (SB) 610 and 221

SB 610[8] and SB 221[9] were companion legislative measures that took effect in January 2002. They require increased efforts to identify and assess the reliability of anticipated water supplies, and require increased levels of communication between municipal planning authorities and local water suppliers.

- **SB 610** requires that the CEQA documents for most large projects[10] (including those that generate water demand greater than an equivalent of 500 dwelling units or increase service connections by 10 percent) include a water supply assessment. A water supply assessment must address whether existing water supplies will suffice to serve the proposed project and other planned development over a 20-year period in average, dry, and multiple-dry year conditions, and must set forth a plan for finding additional supplies necessary to serve the proposed project. Cities and counties can approve projects notwithstanding identified water supply shortfalls if they address those shortfalls in their findings.
- **SB 221** applies when cities and counties approve new tentative subdivision maps. When they do so, the cities and counties must impose a condition on the developers, requiring them to provide a detailed, written verification from the applicable water supplier that sufficient water supply will be available to serve the proposed subdivision. Without that verification, the cities and counties cannot approve the final subdivision map. SB 221 applies to projects similar in size to those addressed in SB 610.

---

5 California Water Code §10610 *et seq.*
6 California Water Code §10610.4(c).
7 California Water Code §10610.2(a)(4)
8 Codified at California Water Code §§ 10631, 10656, 10910, 10911, 10912, and 10915, and California Public Resources Code § 21151.9.
9 Codified at California Government Code §§ 65867.5, 66455.3, and 66473.7, and California Business and Professions Code § 11010.
10 Large projects include residential developments with more than 500 units; retail uses with more than 500,000 square feet of floor space; office buildings with more than 250,000 square feet of floor space; hotels or motels with more than 500 rooms; industrial uses occupying more than 40 acres or having more than 650,000 square feet of floor area; and mixed-use projects that include any use or combination as large as the above uses.

Senate Bill 7 of the Seventh Extraordinary Session (Senate Bill 7)

Enacted in November 2009, Senate Bill 7[11] requires all water suppliers in the State to increase the efficiency of water use. Urban water suppliers like CalAm must reduce per capita water consumption 20 percent by 2020, and must set and achieve interim targets by 2015.

State Policies Encouraging Compact and Sustainable Development

In addition to the laws promoting coordinated land use and water supply planning, several recent laws have been adopted that seek to refocus planning efforts to reduce sprawl, preserve farmland, increase the viability of public transportation, and reduce the emission of greenhouse gases. These efforts promote compact and sustainable development, which allows for the more efficient provision of public services and reduces the consumption of resources, including water. One of the cornerstones of sustainable development is efficient water use. This includes water conservation and efficiency measures such as using recycled water, installing water efficient fixtures, and putting in drought-tolerant landscaping.

- **Assembly Bill (AB) 32,**[12] the Global Warming Solutions Act of 2006, was adopted with the goal of reducing greenhouse gas emissions to 1990 levels by the year 2020. Under the Act, the California Air Resources Board (CARB) adopted a scoping plan that identifies measures to reduce the energy requirements of significant greenhouse gas sources, including those associated with providing reliable water supplies. These measures include increasing water use efficiency, recycling water, and improving water system energy efficiency. CARB updated the Scoping Plan CARB in May 2014.
- **SB 375,**[13] adopted in 2008, requires each of the state's MPOs to coordinate land use and transportation planning, and to develop a "Sustainable Communities Strategy" to reduce sprawl, and to reduce greenhouse gas emissions from automobiles and light trucks. AMBAG, the MPO for the three-county region, adopted its combined Metropolitan Transportation Plan/Sustainable Communities Strategy, which is advisory, in June 2014.
- **SB 732,**[14] adopted in 2008, establishes the Strategic Growth Council, a cabinet-level committee that coordinates the activities of State agencies to improve air and water quality, protect natural resources, and assist in the planning of sustainable communities.
- **AB 857,**[15] signed into law in 2002, establishes three planning priorities for the State: promoting infill development, protecting natural resources, and encouraging efficient development patterns. These priorities are to be incorporated into the Governor's Environmental Goals and Policy Report,[16] which provides a 20- to 30-year overview of State growth and development and guides the commitment of State resources in agency plans and infrastructure projects.

---

11 Codified at California Water Code §§ 10608 and 10800-10853.
12 Codified at California Health and Safety Code § 38500 *et seq*.
13 Codified by amending California Government Code §§ 65080, 65400, 65583, 65584.01, 65584.02, 65584.04, 65587, and 65588; amending California Public Resources Code § 21061.3; adding Government Code §§ 14522.1, 14522.2 and 65080.01; and adding Public Resources Code §§ 21159.28 and 21155 *et seq*.
14 Codified at California Public Resources Code §§ 75076, 75077, 75100 *et seq.*, and 75120 *et seq.*
15 Codified at California Government Code § 65041.1.
16 Required in California Government Code § 65041.

- The **Regional Blueprint Planning Program** is a grant program operated by the California Department of Transportation that provides assistance to COGs in developing long-range plans with the intent of supporting greater transit use, encouraging more efficient land use, improving air quality, and protecting natural resources. AMBAG released its blueprint, *Envisioning the Monterey Bay Area: A Blueprint for Sustainable Growth and Smart Infrastructure,* in June 2011.

6.3.2.3 Water Supply Management and Planning: Monterey Peninsula Water Management District

The MPWMD was established by state statute in 1978[17] to provide integrated management of all water resources for the Monterey Peninsula. In doing so, the MPWMD must ensure that the quantity of water use does not harm public trust resources, and that all water use is reasonable and beneficial. The MPWMD manages surface water produced from the Carmel River,[18] water pumped from municipal and private wells in Carmel Valley, and groundwater in the Seaside Groundwater Basin. Its functions include:

- augmenting the water supply through integrated management of surface water and groundwater resources;
- promoting water conservation;
- promoting water reuse and reclamation of stormwater and wastewater; and
- fostering scenic values, environmental qualities, native vegetation, fish and wildlife, and recreation on the Monterey Peninsula and in the Carmel River basin.

The MPWMD's responsibilities also include:

- computer modeling of water resources systems;
- hydrologic monitoring;
- issuing water connection permits;
- allocating water to jurisdictions;
- adopting water conservation ordinances and performing inspections;
- determining when drought emergencies exist and then imposing rationing programs; and
- approving new water distribution systems and expansions.

The MPWMD includes the cities of Carmel-by-the-Sea, Del Rey Oaks, Monterey, Pacific Grove, Sand City, and Seaside, as well as the Monterey Peninsula Airport District and portions of unincorporated Monterey County (see Figure 3-1 in Chapter 3). Its boundary encompasses CalAm’s Monterey District as well as other territory east of Carmel Valley Village and in the Ord Community. MPWMD is governed by a seven-member Board of Directors: five directors are

[17] West's California Water Code, Appendix Chapters 118-1 to 118-901.

[18] Historically, surface water stored in the San Clemente and Los Padres Reservoirs was diverted for use via the San Clemente Reservoir. Sedimentation claimed most of the San Clemente reservoir’s capacity, however, and in recent years all of the water supply from the Carmel River system has been provided by wells in the Carmel Valley alluvial aquifer. The San Clemente Dam was removed in 2015 after two year of construction work to reroute the river and prepare the site for dam removal. MPWMD and CalAm are currently studying options for use or removal of the Los Padres Reservoir (CalAm et al., 2016a).

elected from voter divisions; one is a member of the County Board of Supervisors; and one is an elected official or chief executive officer appointed by a committee consisting of the mayors from jurisdictions within the District boundaries.

6.3.3 Regulatory Framework

NEPA requires that an EIS discuss the direct and indirect effects of a proposed action. The potential for growth-inducing effects are indirect effects (40 CFR 1508.8). Specifically:

> Effects include:
>
> > Indirect effects, which are caused by the action and are later in time or farther removed in distance [than direct effects], but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems.

The CEQA Guidelines require that an EIR evaluate the growth-inducing impacts of a proposed project (Section 15126.2(d)). The EIR should:

> Discuss the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are projects which would remove obstacles to population growth (a major expansion of a waste water treatment plant might, for example, allow for more construction in service areas). Increases in the population may tax existing community service facilities, requiring construction of new facilities that could cause significant environmental effects. Also discuss the characteristic of some projects which may encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively. It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment.[19]

Economic growth refers to the extent to which a project could cause increased activity in the local or regional economy.

Growth that is induced by a project may be consistent with adopted local or regional land use plans. In that case, a formal CEQA/NEPA review would have identified and evaluated the indirect, or secondary, effects of that planned growth and, if necessary, mitigation would have been adopted to address these effects. If a project would have growth inducement potential that is not consistent with the land use plans and growth management plans and policies for the area affected (e.g., growth beyond that reflected in adopted plans and policies), then additional adverse secondary effects of growth beyond those previously evaluated could occur. Regional and local land use plans provide for land use development patterns and growth policies that allow for the orderly expansion of urban development supported by adequate urban public services, such as water supply, roadway infrastructure, utilities, wastewater, and solid waste service. This urban development may have environmental impacts, as identified in CEQA documents prepared for adoption of local land use plans. A project that would induce “disorderly” growth that conflicts

[19] The CEQA Guidelines define indirect effects the same as NEPA, above, except that the Guidelines refer to “indirect or secondary” effects (Section 15358(a)(2)).

with regional and local planning could indirectly cause additional adverse environmental impacts and impacts on other public services. Thus, it is important to assess the degree to which the growth associated with a project would be consistent with regional and local planning.

6.3.4 Approach to Analysis

Based on the CEQA and NEPA discussions above, assessing the growth-inducement potential of the MPWSP involves answering the question: Would implementation of the proposed project directly or indirectly cause economic or population growth or residential construction? As indicated above, a project can have a direct or indirect growth inducement potential, or both. This chapter addresses the proposed project's indirect effects; the potential direct effects are addressed in Section 4.19, Population and Housing.

To determine the MPWSP's potential to indirectly induce growth, the proposed project was evaluated for its potential to stimulate additional housing development and the need for services as a result of increasing available water supply and providing associated infrastructure improvements. The following steps were taken to investigate the MPWSP's growth inducement potential and to characterize the secondary effects on the environment resulting from such growth.

- **Describe the relationship between land use planning and water supply.** Section 6.3.2 provides an overview of water supply and land use planning requirements in California to provide the reader with an understanding of the rules that govern decisions about water, land use, and growth.
- **Identify Changes in Water Supply and Characterize Growth-Inducement Potential of the Proposed Project.** Section 6.3.5 analyzes the impact of growth-inducement. It describes the water supply that the MPWSP would provide, and characterizes the proposed project's potential to support or foster growth within the service area. The section describes recent growth trends reflected in census data; presents population and housing forecasts prepared by AMBAG; and provides an overview of growth anticipated in the general plans of the jurisdictions served by the MPWSP. To evaluate the proposed project's consistency with growth anticipated by these local planning agencies, the analysis compares project supply that would be available to meet future demand with an analysis of future water needs prepared by the MPWMD in collaboration with service area jurisdictions.

  While Castroville is not in CalAm's service area, the analysis also considers the growth-inducement potential of delivering Salinas Valley Groundwater Basin return water as desalinated supply, to the Castroville Community Services District (see Section 6.3.5.4).
- **Characterize the Indirect or Secondary Effects of Planned Growth.** When the jurisdictions adopt general or specific plans, they must first perform CEQA review. Those CEQA documents have evaluated the environmental effects of planned growth. To characterize and disclose the impacts of planned growth, including the cumulative impacts of such growth, the EIRs prepared for the general plans of jurisdictions served by the proposed project are summarized in Section 6.3.6.

6.3.5 Growth-Inducement Potential

6.3.5.1 Proposed MPWSP Water Service Capacity

As described in Chapter 2, Water Demand, Supplies, and Water Rights, CalAm proposes that the MPWSP provide, along with other supply sources, sufficient water supply to:

- meet existing service area demand;
- serve development that uses existing water entitlements held in the Pebble Beach-Del Monte Forest area;
- develop vacant legal lots of record; and
- support increased water consumption at local restaurants and lodging when tourism increases under improved economic conditions.

Table 6.3-1 summarizes the water demand CalAm proposes to meet with the MPWSP, along with existing and other planned water supply sources. The estimate of existing system demand, 12,270 afy, is based on demand in 2010.[20] Other demand proposed to be served by the MPWSP totals 2,005 acre-feet per year (afy). The proposed water supplies for each of these demand components are analyzed below to determine whether they would have growth-inducement effects.

TABLE 6.3-1
MPWSP DEMAND ASSUMPTIONS

Demand Component	Annual Demand (acre-feet)
Existing System Demand	12,270
Pebble Beach Water Entitlements	325
Hospitality Industry Rebound Economic Recovery	500
Legal Lots of Record	1,180
Total	**14,275**

SOURCE: RBF Consulting, 2013; Svindland, 2016.

Components of Water Demand to be Served by the MPWSP

Existing Demand

CalAm's estimate of existing system demand is based on recent demand data for the areas of CalAm's Monterey District that would be served by the project: the main distribution system and the Ryan Ranch, Hidden Hills, and Bishop satellite systems. As discussed above in Section 6.3.3, a proposed project would induce growth if it would directly or indirectly foster economic or population growth, including by removing an obstacle to growth (such as a constraint on water supply) in the surrounding environment. The portion of MPWSP water used to satisfy existing demand would replace current withdrawals from the Carmel River and Seaside Groundwater

[20] Although demand in 2010 is slightly less than the current 10-year average demand (12,351 afy) CalAm assumes this is the appropriate level of demand for planning purposes to ensure the proposed action is sized appropriately to meet peak demands as required by state regulations; see Section 2.3 in Chapter 2 for more information.

Basin in excess of CalAm's legal rights. The portion of MPWSP supply used to meet existing service area demand would serve existing customers, and would not be available to serve economic or population growth. Therefore, this portion of the MPWSP supply would not be growth-inducing under CEQA and NEPA because it would not remove water supply limitations as an obstacle to additional growth.

Pebble Beach Entitlements

As described in Chapter 2, Water Demand, Supplies and Water Rights, Section 2.3.3, the MPWMD granted water entitlements totaling 380 afy to the fiscal sponsors that underwrote development of the Carmel Area Wastewater District/Pebble Beach Community Services District (CAWD/PBCSD) wastewater reclamation project. The reclamation project now provides all of the irrigation water used on golf courses and some open space areas in the Del Monte Forest, and MPWMD estimates that it saves approximately 1,000 afy of potable water (Stoldt, 2011). In 2013, when CalAm prepared the estimate of demand associated with these entitlements, approximately 325 afy of the entitlements were unassigned. Since then, MPWMD has issued additional water permits and the remaining unassigned Pebble Beach entitlements now stand at about 304 afy (MPWMD, 2016a). Because the recently issued permits may not immediately translate to water connections or water use that is reflected in existing demand data, 325 afy is a reasonable estimate of future demand associated with these entitlements.

The remaining entitlements represent an existing commitment by MPWMD to issue water permits to entitlement-holders but the entitlements do not represent existing demand or development. Supply provided by the MPWSP would enable remaining entitlement holders to convert the entitlements to actual water permits – and water – to serve the development of properties in the Del Monte Forest. MPWSP supply used to serve the Pebble Beach entitlement-holders would remove water supply limitations as a constraint on that development, and would therefore, induce growth.

Hospitality Industry Rebound

Since the 2008 recession, the Monterey Peninsula hospitality industry, which includes hotels, restaurants and other visitor-serving businesses, has experienced lower occupancy rates – and therefore lower water use – than it had before the recession (Svindland, 2013). With the recession over, the industry expects to rebound. Industry representatives are concerned that basing the estimate of existing demand on water use in recent years will understate water needs at existing businesses during a more robust economy. CalAm estimates that a tourism rebound will increase annual demand by about 500 afy and the rebound will be evenly distributed between May and September, which is the high tourist season (RBF Consulting, 2013). CalAm based this estimate on its review of past water use by commercial sector customers (Svindland, 2013) and "recent discussions in the region" (RBF Consulting, 2013). As described in Chapter 2, Water Demand, Supplies, and Water Rights, Section 2.3.3, the MPWMD performed several comparisons of recent commercial sector water demand with earlier levels of demand, considering the years 1998 through 2011, and determined that recent demand ranged from 194 to 440 afy lower than in previous years, depending on the years compared and the methodology used (refer to Chapter 2 for more information).

This analysis performed several additional comparisons of commercial sector water consumption, based on annual CalAm consumption reports that the MPWMD provided for water years[21] 2003 through 2015 (MPWMD, 2008, 2013a, 2016b). **Table 6.3-2** summarizes commercial sector consumption data from these reports; the data reflect consumption in CalAm's Monterey District main distribution system and the Ryan Ranch, Hidden Hills and Bishop satellite systems. As the table shows, over this 13-year period, annual commercial sector consumption declined in all but two years; therefore, comparing the earliest years in the period with the most recent years yields the most pronounced differences. For example, consumption in 2003 was 980 af higher than in 2015, whereas the average annual consumption for the first seven years (water years 2003 through 2009) was 467 af higher than average annual consumption in the last six years (water years 2019 through 2015). Consumption in the last year before the recession (water year 2007) was higher than the year before and any year since. Since the region was experiencing a serious drought during the last four years of this record, at least some of the reductions in demand shown in these years may reflect short term behavioral water conservation practices that may not be sustained during normal rainfall years.

TABLE 6.3-2
MONTEREY DISTRICT COMMERCIAL SECTOR WATER CONSUMPTION
WATER YEARS[a] 2003 THROUGH 2015

2003-2009		2010-2015	
Water Year[a]	**Consumption (acre-feet)[b]**	**Water Year[a]**	**Consumption (acre-feet)[b]**
2003	3,284	2010	2,857
2004	3,320	2011	2,839
2005	3,108	2012	2,770
2006	3,093	2013	2,731
2007	3,125	2014	2,498
2008	3,097	2015	2,304
2009	2,920		
Annual Average 2003-2009	3,135	Annual Average 2010-2015	2,667

NOTES:
a A water year runs from October 1 through September 30 and is named for the year in which it ends.
b Consumption shown is for the CalAm's Monterey County District excluding the Ambler, Ralph Lane, Chualar, and Toro satellite systems, which would not be served by the proposed project.

SOURCE: MPWMD, 2008; 2013a, 2016b.

MPWMD's water conservation programs have continued over this period, and have permanently reduced some consumption through, for example, the replacement of less efficient water fixtures with more efficient ones or the replacement of more water-intensive landscaping with drought-tolerant landscaping. Thus, the years just prior to the recession should better indicate the increases in commercial sector demand that could result from economic recovery and a rebound of tourism in the area than do the earlier years. In addition, MPWMD's analysis of occupancy levels and

[21] A water year runs from October 1 through September 30 and is named for the year in which it ends.

commercial sector water consumption indicated that, based on four hospitality-industry businesses in Monterey and one in downtown Carmel, occupancy levels in 2011 were about 7 percent lower than the average occupancy levels for the years 1998 to 2001. Based on this difference, and on commercial sector water consumption data, MPWMD calculated that a 7 percent increase in the average annual commercial water demand for years 2009 to 2011 would increase annual demand by about 194 af. Therefore, based on this comparison, increases in demand at area businesses from a rebounding economy and hospitality industry may more likely be on the order of 200 or 300 afy rather than CalAm's estimate of 500 afy.

A recent study of the economic impacts of travel in California suggests that the tourism in Monterey County may have largely returned to pre-2008 levels (Dean Runyon Associates, Inc., 2016). For example, by 2013, the California transient occupancy tax, which had decreased in the years following 2008, had surpassed 2007 levels for all but one of the Peninsula cities listed. And by 2014, all of the listed Peninsula cities showed higher occupancy tax receipts than in 2008. While the increases in tax receipts reflect any increases in hotel room rates that have occurred over this period, it is assumed that the increase in occupancy tax receipts also reflect increased occupancy rates since 2008. Thus, it seems that Monterey County's hospitality industry has experienced a substantial rebound. However, because the last four years were also drought years, the water demand shown in Table 3.6-2 may be somewhat lower than what could be expected during normal rainfall years. Therefore, demand associated with hospitality industry rebound on the order of 200 to 300 afy is a reasonable estimate for purposes of this analysis.

This rebound in demand is assumed to occur due to increased occupancy rates without any expansion in physical capacity. Because no development or expansion of physical capacity would cause those demand increases, water supply provided to meet such increases would not be considered growth-inducing under CEQA or NEPA.

To the extent that businesses were to expand, or to the extent that increased tourism in the area were to cause new businesses to open, that new development would only be possible if water supply were available. Water supply serving new or expanded businesses would remove water supply limitations as a constraint to such development and therefore would induce growth. Based on the analysis above, a portion of 500 afy capacity proposed to meet demand for the existing hospitality industry may exceed the need for this purpose. This analysis assumes that the excess water service capacity provided by the project would be available to support future growth; that would therefore be considered growth-inducing. According to the analysis above, even with economic recovery, between 200 and 300 afy of the project capacity earmarked for hospitality industry rebound may be available to serve additional growth in the service area. For simplicity's sake, this analysis assumes that about 250 afy of supply designated for rebound of the hospitality industry would likely be used for this purpose and 250 afy would be available for new development. How this surplus could be allocated is discussed below under "Assumptions Regarding Allocation and Use of MPWSP Water Service Capacity."

Vacant Lots of Record

The proposed project would provide 1,181 afy of water to serve the development of vacant legal lots of record in the service area. This estimate is apparently based on an estimate presented in CalAm's 2006 UWMP, which cited a 2001 MPWMD estimate of demand associated with vacant buildable lots of record (CalAm, 2006).[22] However, as described in Chapter 2, Water Demand, Supplies, and Water Rights, Section 2.3.3, the MPWMD no longer considers this a valid estimate. The most recent demand assessment prepared for MPWMD specifically on lots of record was a 2002 estimate that identified demand of 1,211 afy for lots of record in the incorporated cities of the service area. The District never adopted this estimate because it did not include demand associated with vacant lots on improved parcels in the unincorporated County areas. In 2013, the MPWMD testified that CalAm's estimate of 1,181 afy may underestimate demand associated with lots of record (Stoldt, 2013). MPWMD's most recent estimate of future service area demand, prepared in collaboration with service area jurisdictions, was completed in 2006. In that estimate, the MPWMD did not evaluate demand associated with lots of record *per se*, although it included demand associated with new residential and non-residential development under general plan buildout, which would include developable lots within the respective jurisdictions. Water supply that would serve currently vacant lots of record would remove water supply limitations as an obstacle to the development of these lots and would induce growth under CEQA and NEPA. As discussed below in Section 6.3.5.3, this would not be growth beyond the level anticipated in adopted General Plans.

According to the MPWMD's methodology for calculating demand, and according to its water permit system, new demand can also be generated at developed lots of record by, for example, adding bathrooms and fixtures. For this analysis, absent the addition of new dwelling units or similar intensification of use at a given lot, supply that would meet demand associated with remodels or fixture additions at developed lots would not be considered to be removing an obstacle to new development and therefore would not be growth-inducing. In any event, because the 1,181 afy that the MPWSP would provide could support new development at currently vacant lots of record, this analysis assumes that it would be so used, and that MPWSP supply used to serve this component of demand would be growth-inducing.

Assumptions Regarding Allocation and Use of MPWSP Water Service Capacity

As noted above in Section 6.3.2, MPWMD is responsible for allocating water to the jurisdictions within its boundary. MPWMD has not prepared an allocation program for the water that the MPWSP would provide. MPWMD will start updating its water allocation program's EIR once construction has started on an identified water supply project (MPWMD, 2015). Separate from CalAm's current MPWSP application, MPWMD plans to collaborate with CalAm and the service area jurisdictions to address the allocation of water from the MPWSP. In the meantime, absent a new allocation for the MPWSP water, this analysis assumes that the MPWMD's allocation of water provided by the project would be similar to the District's current and past allocation

[22] The 2006 UWMP refers to a 2001analysis by the MPWMD that "projected an additional California American Water demand of 1,181 afy, based on a review of vacant legal buildable lots of record" (CalAm, 2006). Note that this is not CalAm's currently adopted UWMP; CalAm's current UWMP (WSC, 2012) does not include an estimate of demand associated with vacant lots of record.

programs. That is, for purposes of this EIR/EIS, it is assumed that supply provided by the proposed project would be allocated to meet existing demand within the CalAm service area, and that water service capacity beyond that would be allocated to the jurisdictions in general proportion to an estimate – which the MPWMD has not yet developed – of their future water supply needs. Once the water were allocated, each city and the County (for the unincorporated areas) would have the responsibility and discretion to approve or deny proposed development projects for which water was available, consistent with the jurisdiction's role as the primary land use authority (discussed in Section 6.3.2 above) and applicable land use plans, policies, regulations and laws. For example, this analysis recognizes that supply based on an estimate of demand associated with lots of record may not exclusively serve development of existing vacant lots; some portion of it could, for example, support development of lots created after the preparation of this EIR/EIS or the approval of this project, depending on the jurisdiction's internal allocation system and assuming water service capacity were available.

This analysis also recognizes that the MPWMD could choose not to allocate to the County the approximately 325 afy proposed to serve Pebble Beach water entitlement-holders, to ensure that adequate water supply would be available when development associated with those entitlements was proposed. If, on the other hand, the MPWMD did allocate this water to the County, the County could then elect to allocate at least a portion of the 325 afy to other development – if, for example, other development was proposed first or the County determined that the entitlement-holders were unlikely to use the full amount. In either case, this portion of the proposed MPWSP supply would be used to serve new development.

Similarly, because there is no guarantee that the 500 afy proposed to meet demand associated with hospitality industry rebound will actually go to that use, this analysis assumes that either the MPWMD or the local jurisdictions could elect not to set aside 500 afy exclusively for use by existing businesses. Therefore, some portion of this 500 afy could actually serve new development within the service area.

Conclusion: MPWSP Water Service Capacity

Along with existing and other planned water supply sources, the MPWSP would provide up to 16,294 afy during the 25-year Seaside Groundwater Basin replenishment period; an additional 700 afy of Seaside Groundwater Basin supply would be available to the CalAm service area at the end of the replenishment period.[23] Of this, 12,270 afy would serve existing service area demand, and another 2,005 afy is proposed to meet anticipated future demand. This includes an estimated 250 afy associated with the local hospitality industry, absent new development, assuming increased economic activity. Thus, 12,520 afy would be used to meet existing demand and demand of existing business customers, and 1,755 afy would support new development. **Table 6.3-3** provides a breakdown of demand associated with existing and anticipated land uses assumed for the MPWSP. **Table 6.3-4** shows water supplies that would be available with the

[23] For the first 25 years of MPWSP operation, CalAm would provide in-lieu replenishment of the Seaside Groundwater Basin in repayment of groundwater CalAm has pumped from the basin in excess of CalAm's adjudicated right, as discussed in Chapter 2, Section 2.2.4. Replenishment would occur at a rate of 700 afy. During the replenishment period, available supply from the Seaside Groundwater Basin would be limited to 774 afy; at the end of the replenishment period, available supply would equal CalAm's adjudicated right of 1,474 afy.

MPWSP, compared with the service area demands shown in Table 6.3-3, as well as two estimates of the SVGB return water obligation associated with operating the proposed 9.6-mgd desalination plant. As discussed in Chapter 2, the SVGB return water obligation will be based on the amount of fresh water component in the source water. In order to consider the effect of the return water for this EIR/EIS, groundwater modeling simulated scenarios with return water obligations representing 0, 3, 6, and 12 percent of the source water (see Section 4.4, Groundwater Resources).

TABLE 6.3-3
EXISTING AND ANTICIPATED DEMAND
(acre-feet per year)

Demand Component	MPWSP Demand Assumptions	Demand Associated with Existing Land Uses	Demand Associated with Anticipated Development
Existing System Demand	12,270	12,270	-
Pebble Beach Water Entitlements	325		325
Hospitality Industry Bounce-Back	500	250[a]	250
Legal Lots of Record	1,180		1,180
Total	**14,275**	**12,520**	**1,755**

NOTES:

[a] A comparison of commercial sector demand prepared for this analysis suggests that demand by the hospitality industry under improved economic conditions may be lower than identified by CalAm; refer to text discussion for more information.

SOURCE: Table 6.3-1.

TABLE 6.3-4
WATER SUPPLIES AND DEMANDS DURING SEASIDE GROUNDWATER BASIN REPLENISHMENT PERIOD, 9.6-MGD DESALINATION PLANT WITH SVGB RETURN
(acre-feet per year)

	Existing Demand		Anticipated Demand	
Supplies and Demands	**6% SVGB Return**	**12% SVGB Return**	**6% SVGB Return**	**12% SVGB Return**
Total Supplies[a]	**16,294**	**16,294**	**16,294**	**16,294**
Service Area Demand (Existing and Anticipated)	12,520	12,520	14,275	14,275
Supply Available for Other Use (Total Supplies Minus Service Area Demand)	3,774	3,774	2,019	2,019
SVGB Return (6% and 12%)	1,620	3,240	1,620	3,240
Surplus or (Deficit)	**2,154**	**535**	**399**	**(1,220)**

NOTES: mgd = million gallons per day; Seaside GW Basin = Seaside Groundwater Basin; SVGB = Salinas Valley Groundwater Basin

[a] Water supply sources include: Carmel River (3,376 afy), Seaside Groundwater Basin (774 afy), Aquifer Storage and Recovery Project (1,300 afy), Sand City Coastal Desalination Plant (94 afy), and the proposed MPWSP Desalination Plant (10,750 afy), as shown in Table 2-4 of Chapter 2.

SOURCE: Table 2-4, Table 6.3-3.

Table 6.3-4 illustrates available and surplus supply (or deficit) during the Seaside Groundwater Basin replenishment period, assuming a 6 percent or 12 percent return water obligation. As shown, under either of these return water scenarios, the available supply would meet existing service area demand and demand associated with the existing hospitality industry (12,520 afy), with a surplus of 535 or 2,154 afy depending on the return water obligation. The table also compares available supply with the total 14,275 afy demand that the MPWSP is proposed to meet. Assuming a 6 percent SVGB return water obligation, there would be enough water to meet existing and anticipated demand. But assuming a 12 percent return water obligation, supplies would not be able to fully meet anticipated demand. Total projected demand associated with development of lots of record and Pebble Beach entitlements would not occur immediately, however; rather, it is expected to occur gradually over time. At the end of the Seaside Groundwater Basin replenishment period an additional 700 afy of Seaside Groundwater Basin supply would be available to the CalAm service area.

Supply not used to meet existing demand or demand of existing business customers under more robust economic conditions would be available to support new development. New development might include development of existing vacant lots of record and development by Pebble Beach water entitlement holders. Water supply capacity to serve new development would remove water supply limitations as an obstacle to such development and would be considered growth-inducing under CEQA and NEPA.

6.3.5.2 MPWSP Infrastructure Capacity

Pipeline Capacity

CalAm sized the proposed project pipelines to accommodate a range of flow volumes, including flows associated with the proposed 9.6-mgd MPWSP desalination plant, or with a 6.4-mgd desalination plant – the size of the plant that would be built if CalAm were able to purchase water from the Pure Water Monterey Groundwater Replenishment (GWR) project. The 6.4-mgd desalination plant is evaluated in Chapter 5, Alternatives, and described in Sections 5.4.7 and 5.4.8. Consistent with standard engineering practice, pipeline sizing takes into account the need to meet peak demands, since water demand fluctuates daily, monthly and seasonally over the course of a year. Refer to Chapter 2, Water Demand, Supplies, and Water Rights, Section 2.3.2, for more information regarding consideration of peak demands. **Table 6.3-5** shows the flow capacity of the proposed service area pipeline segments and the flows that would be generated by the 6.4- and 9.6-mgd plants. The table also shows that all pipelines would have the capacity to accommodate flows generated by a somewhat larger-capacity plant.

Added pumping pressure enables pipelines of a given size to accommodate the higher flows. For example, in the normal course of business, the estimated operating pressure needed to pump flows generated by a 9.6-mgd plant to the proposed Terminal Reservoir is 132 pounds per square inch (psi). The plant itself would comprise seven modules – six in operation plus one on standby – each of which independently produces 1.6 mgd. While CalAm does not propose to regularly run all seven modules, it might have to do so in an emergency (Svindland 2014). Running all seven modules would produce a total of 11.2 mgd: 9.6 plus 1.6. To pump that additional 1.6 mgd would require an operating pressure of 136 psi.

TABLE 6.3-5
RANGE OF FLOW VOLUMES ACCOMMODATED BY PIPELINE SEGMENT

Pipeline Segment	Pipeline Capacity (Flow Volumes Accommodated) (mgd)	Flow per Pipeline Segment for 6.4-mgd Plant[a] (mgd)	Flow per Pipeline Segment for 9.6-mgd Plant[b] (mgd)	Flow per Pipeline Segment for 11.2-mgd Plant[c] (mgd)	Flow per Pipeline Segment for 12.8-mgd Plant[d] (mgd)
Source Water Pipeline	16-30	16	24	28	30
Brine Discharge Pipeline	12-20	10	14	17	18
Salinas Valley Return Pipeline	2-4	2	3	3	4
Desalinated Water Pipeline	6-13	6	10	11	13
Transmission Main	6-13	6	10	11	13
ASR Pipeline	15	15	15	15	15

NOTES:

a Flow that would be generated by four 1.6-mgd reverse osmosis modules; i.e., operation of the 6.4-mgd plant not including its 1.6-mgd standby module.

b Flow that would be generated by six 1.6-mgd reverse osmosis modules; i.e., operation of the 9.6-mgd plant not including its 1.6-mgd standby module.

c Flow that would be generated by seven 1.6-mgd reverse osmosis modules; i.e., concurrent operation of all six modules of a 9.6-mgd plant and its 1.6-mgd standby module.

d Flow that would be generated by eight 1.6-mgd reverse-osmosis modules. While this size plant is not proposed, this column shows that all pipeline segments would have capacity, with increased pumping pressure, to accommodate flows from a 12.8-mgd plant.

SOURCE: Svindland, 2014.

The smaller 6.4-mgd plant that would be built in conjunction with purchase of GWR water would have four working modules plus one on standby; each, again, would produce 1.6 mgd. Under normal conditions, the smaller plant would require an operating pressure of 128 psi to pump water to the Terminal Reservoir, and an additional 2 psi to pump the 8.0 mgd produced by all five units.

CalAm's initial basis for pipeline sizing assumed seven 1.6-mgd modules operating concurrently for the 9.6-mgd plant, and five 1.6-mgd modules operating concurrently for the 6.4-mgd plant. As **Table 6.3-5** shows, all of the pipeline segments would have the capacity to accommodate flows associated with a 12.8 mgd plant, which is somewhat higher than flows that would be generated by a 9.6-mgd plant plus its standby module. CalAm has noted that the lower end of the range of flows would have lower overall energy requirements (e.g., if the smaller plant were constructed) and that the pipelines' capacity to accommodate the higher end of the flows would delay the possible need for future, disruptive, pipeline expansion projects (Svindland, 2014).

Sizing the pipelines to accommodate flows beyond that needed to serve the proposed project would remove constrained pipeline capacity as an obstacle to future growth and therefore would induce growth. Additional water supply would be required to generate the higher future flows that the MPWSP pipelines could accommodate. Expanding the desalination plant to increase its production capacity beyond 9.6 mgd would require additional CEQA review and approval by the CPUC and, if more source wells were needed, NEPA review and approval by the MBNMS. In addition, before CalAm could increase production capacity, the MPWMD would need to review the proposed increase under CEQA and issue a permit under its Rule 22; CalAm would likely require other permits as well.

According to a proposed Settlement Agreement between CalAm and other parties relating to CalAm's MPWSP application, MPWMD intends to collaborate with the Monterey Peninsula Regional Water Authority, Monterey County, and CalAm to determine an accurate estimate of the added water supply capacity needed to meet the General Plan buildout projections for communities served by CalAm (CalAm et al., 2013). That process has not yet begun, however, and we cannot predict its results. Depending on the results, the proposed pipelines would accommodate some or all of the added water supply needs identified in this process. Growth anticipated in jurisdictions' General Plans is summarized below in Section 6.3.5.3 and the effects of growth under General Plan buildout that would be induced by pipeline capacity, and the added water supply the pipelines could accommodate, are evaluated in Section 6.3.6.

Permitted Desalination Plant Capacity

If CalAm does purchase water from the GWR project, it could reduce the size of its MPWSP Desalination Plant. Because the GWR project's timing and cost were uncertain when CalAm submitted its application for the MPWSP, CalAm proposes a 9.6-mgd desalination plant (proposed project), but also seeks authorization to reduce the size of the desalination plant to 6.4 mgd (Alternative 5a) and purchase water from the MRWPCA and MPWMD. The MRWPCA certified the Final EIR for the GWR project and approved the project in October 2015. The CPUC authorized CalAm's entry into a water purchase agreement in September 2016. However, while the CPUC has authorized CalAm's entry into a water purchase agreement, given the possibility that the GWR project could run into financing or permitting obstructions, CalAm continues to seek approval of the 9.6-mgd desalination plant in the event that the GWR project is not developed. CalAm is not proposing a 9.6-mgd desalination plant plus the GWR water purchase and this analysis does not consider the growth inducement potential of such a combination. Refer to Chapter 5, Alternatives, for more information about the 6.4-mgd desalination plant (Alternatives 5a and 5b) and to Chapter 4, Section 4.1, Overview, for more information on the GWR project and how it is considered in this EIR/EIS.

6.3.5.3 Growth Trends and Planning Agency Projections

In evaluating the potential environmental effects of growth, a key consideration is whether the growth induced or supported by a project would be planned growth – i.e., growth that is anticipated in the adopted planning documents of the jurisdictions served by that project. This section presents census data indicating recent growth trends in service area jurisdictions, the projections of future growth prepared by the regional planning agency, and growth trends and planned development anticipated in the general plans of service area jurisdictions, and compares water supply that would be provided by the MPWSP and potentially available to serve future development with estimates of water supply needed for general plan buildout.

Service Area Growth Trends 1990-2010

Table 6.3-6 shows population and housing data from the U.S. census for the years 1990, 2000, and 2010. Except for Sand City, population in all of the cities in the service area declined between 1990 and 2000; population in the service area cities as a whole decreased by about 9 percent. The decrease in population slowed between 2000 and 2010, decreasing by 3 percent for the cities as a

TABLE 6.3-6
SERVICE AREA AND MONTEREY COUNTY GROWTH TRENDS 1990-2010
POPULATION AND HOUSING

	Population							Housing Units						
Jurisdiction	**1990 Census**	**2000 Census**	**2010 Census**	**Change 1990-2000**	**Percent Change 1990-2000**	**Change 2000-2010**	**Percent Change 2000-2010**	**1990 Census**	**2000 Census**	**2010 Census**	**Change 1990-2000**	**Percent Change 1990-2000**	**Change 2000-2010**	**Percent Change 2000-2010**
Carmel-by-the-Sea	4,241	4,081	3,722	-160	-3.8%	-359	-8.8%	3,325	3,334	3,417	9	0.3%	83	2.5%
Del Rey Oaks	1,661	1,650	1,624	-11	-0.7%	-26	-1.6%	733	727	741	-6	-0.8%	14	1.9%
Monterey (city)	31,954	29,696	27,810	-2,258	-7.1%	-1,886	-6.4%	13,497	13,383	13,584	-114	-0.8%	201	1.5%
Pacific Grove	16,117	15,522	15,041	-595	-3.7%	-481	-3.1%	7,916	8,032	8,169	116	1.5%	137	1.7%
Sand City	192	261	334	69	35.9%	73	28.0%	86	87	145	1	1.2%	58	66.7%
Seaside	38,826	33,097	33,025	-5,729	-14.8%	-72	-0.2%	11,214	11,005	10,872	-209	-1.9%	-133	-1.2%
Subtotal: Cities	***92,991***	***84,307***	***81,556***	***-8,684***	**-9.3%**	***-2,751***	**-3.3%**	***36,771***	***36,568***	***36,928***	***-203***	**-0.6%**	***360***	**1.0%**
Unincorporated Monterey County[a]	100,461	101,414	100,213	953	0.9%	-1,201	-1.2%	34,342	37,139	38,296	2,797	8.1%	1,157	3.1%
Monterey County (Total)	355,660	401,762	415,057	46,102	13.0%	13,295	3.3%	121,224	131,708	137,910	10,484	8.6%	6,202	4.7%

NOTES:

a Data are for the entire unincorporated county.

SOURCE: California Department of Finance, 2007; 2013.

whole. Sand City's population increased in both decades, by 36 percent (69 new residents) between 1990 and 2000 and 28 percent (73 new residents) between 2000 and 2010. The total number of housing units in service area cities decreased by 0.6 percent between 1990 and 2000 and increased by 1 percent between 2000 and 2010. Information shown for the unincorporated county is for the entire county, not just the part in CalAm's service area. Population in unincorporated Monterey County stayed about the same over these two decades, increasing by about 1 percent between 1990 and 2000 and decreasing by about 1 percent between 2000 and 2010, while the number of housing units increased.

AMBAG Projections

In 2014, AMBAG adopted its current forecast of population, housing and employment, and its Metropolitan Transportation Plan/Sustainable Communities Strategy for the region. **Table 6.3-7** shows the growth forecast to the year 2035 for the cities in the CalAm service area and unincorporated Monterey County. Unlike AMBAG's previous forecast, which it adopted in 2008, the current forecast takes into account the 2010 census, the Sustainable Communities Strategy requirements of SB 375, and the effects of the economic downturn that occurred between 2008 and 2012. Development of the forecasts involved substantial input and feedback from the jurisdictions in the AMBAG region (AMBAG, 2014a). Although population, housing, and jobs in the service area cities and in unincorporated Monterey County were lower in 2010 than had been projected in AMBAG's 2008 forecast, AMBAG now projects faster population and housing growth rates in the service area cities over the 2010-2035 planning period compared to the previous forecast. As **Table 6.3-7** shows, the population of each service area city is projected to increase over the 2010-2035 projection period, although Carmel is projected to lose population between 2010 and 2020 before beginning to grow again. In terms of percentage increase, Sand City is projected to grow the fastest although, because of its small size, its net population increase over the 25-year projection period is smaller than that of several other service area cities. Seaside is projected to have the largest net increase in population over the projection period. Overall, the population of service area cities is projected to increase by 21 percent between 2010 and 2035. Housing stock in the cities is projected to grow at a slower pace, increasing by 12 percent over the projection period. Employment in service area cities as a whole is projected to grow faster than population, with the number of jobs increasing by almost 30 percent by 2035. Projections shown in **Table 6.3-7** for unincorporated Monterey County are for the entire unincorporated area, much of which is outside CalAm's service area. Population in the unincorporated areas of the county is projected to grow by 4 percent over the projection period, while the number of housing units is projected to increase by 2 percent, and the number of jobs is projected to increase by 9 percent.

Growth Trends and Projections in Jurisdiction Land Use Planning Documents

As discussed above in Section 6.3.5.1, the MPWSP would provide more water than needed to meet existing demand and demand associated with existing businesses. In other words, there would be water to serve additional development – water for growth. The land use plans of the jurisdictions served by CalAm establish land use development patterns and growth policies that allow for the orderly expansion of urban development supported by adequate public services and

TABLE 6.3-7
AMBAG POPULATION, HOUSING, AND EMPLOYMENT PROJECTIONS

Jurisdiction	2010	2020	2025	2030	2035	Percent Change 2010–2035
POPULATION						
Cities – CalAm Service Area						
Carmel	3,722	3,541	3,661	3,789	3,917	5%
Del Rey Oaks	1,624	1,889	2,345	2,806	3,468	114%
Monterey	27,810	28,004	28,839	29,743	30,647	10%
Pacific Grove	15,041	15,394	15,914	16,472	17,030	13%
Sand City	334	1,048	1,198	1,414	1,550	364%
Seaside	33,025	36,120	40,260	41,308	42,256	28%
Total - CalAm Cities	**81,556**	**85,996**	**92,271**	**94,533**	**98,868**	**21%**
Unincorporated County[a]	100,213	102,847	103,147	104,028	104,304	4%
Monterey County (Total)	415,057	447,516	463,884	479,487	495,086	19%
HOUSING UNITS	**2010**	**2020**	**2025**	**2030**	**2035**	
Cities – CalAm Service Area						
Carmel	3, 417	3,417	3,417	3,417	3,418	0%
Del Rey Oaks	741	898	1,035	1,246	1,521	105%
Monterey	13,584	13,665	13,695	13,750	14,001	3%
Pacific Grove	8,169	8,169	8,169	8,274	8,478	4%
Sand City	145	439	496	586	629	334%
Seaside	11,335	12,556	12,907	13,311	13,664	21%
Total - CalAm Cities	**37,391**	**39,144**	**39,719**	**40,584**	**41,711**	**12%**
Unincorporated County[a]	38,971	39,337	39,633	39,730	39,735	2%
Monterey County (Total)	139,048	147,106	150,260	154,585	157,992	14%
EMPLOYMENT (JOBS)						
Cities – CalAm Service Area						
Carmel	2,282	2,645	2,716	2,793	2,875	26%
Del Rey Oaks	414	640	602	592	573	38%
Monterey	26,934	31,249	32512	33,597	34,828	29%
Pacific Grove	8,792	10,161	10,499	10827	11,194	27%
Sand City	1,561	1,839	1,873	1,908	2,500	60%
Seaside	7,790	8,828	9,092	9,344	9,628	24%
Total - CalAm Cities	**47,773**	**55,362**	**57,294**	**59,061**	**61,597**	**29%**
Unincorporated County[a]	58,071	62,998	63,795	63,955	63,443	9%
Monterey County (Total)	182,000	205,977	211,218	216,486	222,137	22%

NOTES:
[a] Projections are for all unincorporated areas of Monterey County.

SOURCE: AMBAG, 2014a.

infrastructure. A project that would induce growth that was inconsistent with those plans and policies could result in adverse environmental impacts not previously addressed in the CEQA review of those plans. Therefore, the general plans of jurisdictions that would be served by the MPWSP were reviewed.

This section briefly summarizes expected growth in service area jurisdictions contained in the jurisdictions' general plans and related planning documents. The summaries include the jurisdictions' housing need allocation identified through the Regional Housing Need Allocation (RHNA) process, since that represents potential residential growth planned for in the jurisdictions' general plan housing elements. To the extent the general plans describe the jurisdiction's approach to allocating its water supply (from the allocation administered by MPWMD), that information is noted.[24] The summaries include estimates of current and projected population and housing to the extent this information is provided.

According to the general plans, except for the former Fort Ord lands that several cities have annexed,[25] most jurisdictions in the service area are largely built out, and infill development and intensification of land uses is a means of accommodating additional growth. All of the jurisdictions cite limited water supply as a key factor limiting planned development within their boundaries. Most of the general plans were adopted before the start of the 2008 economic recession and therefore do not reflect or anticipate its effects. The general plan housing elements were adopted more recently, between 2010 and 2016.

City of Carmel-by-the-Sea

- The City of Carmel-by-the-Sea adopted its General Plan, in 2003 and adopted its 2015-2023 Housing Element in December 2015 (City of Carmel, 2003, 2015a).
- Citing the U.S. Census and California Department of Finance, the Housing Element states that the city's population decreased by 11.6 percent between 1990 and 2015, and that there was a net increase of 83 housing units between 2000 and 2015.
- Noting that AMBAG's Regional Housing Need Allocation for 2014 to 2023 identified a housing need in Carmel of 31 additional housing units, the Housing Element identifies the capacity to accommodate a total of 164 additional residential units.
- The Housing Element identifies the lack of water as the primary infrastructure constraint to the development of housing in Carmel, and states that the lack of an available water supply continues to limit growth in Carmel and throughout the Monterey Peninsula region. The City allocates its share of Monterey Peninsula water supply based on policies in the General Plan's Land Use and Community Character and Housing Elements, which affirm the City's commitment to housing. Residential uses have high priority and the largest water allocation. Existing subdivided lots zoned for housing are first in line for limited water resources, except when this would preclude development of essential public services, recreational uses or facilities, or visitor-serving uses consistent with the Coastal Act. The

[24] CalAm has not proposed how the jurisdictions should allocate MPWSP water to serve vacant lots of record, for example, nor does the MPWMD dictate to the jurisdictions how they must manage the water allocated to them. To the extent the general plans included information on how the jurisdiction currently allocates its water supply, such information may provide insight on how the jurisdiction would allocate its MPWSP supply.

[25] The former Fort Ord lands are served by another water provider, Marina Coast Water District, not CalAm; therefore development planned for these lands is not a focus of this analysis.

City limits new subdivisions of land until existing subdivided lots have a secure water supply, and endorses the concept of distributing the limited water resources across many properties to prevent any single project from consuming a disproportionate share of available water, and to maximize the number of units that can be built or approved.

- According to the Housing Element, the City is close to expending its water allocation from MPWMD: the City has about 3.251 af of available water, of which about 1.67 af are in the City's reserves. The City supports efforts by the MPWMD and other agencies to expand the water supply, and it has a representative on both the MPWMD Technical Advisory Committee and the Policy Advisory Committee. Housing Element Program 3-5.6 b, Water Conservation, recognizes the need to conserve and manage the City's water resources to accommodate regional housing need. The City's Municipal Code includes specific requirements for water conservation in existing and new developments. New development projects and existing structures needing a building permit for substantial proposed construction must meet the City's water conservation requirements. The Housing Element noted that several projects were under discussion as options for providing a new water supply for the Monterey Peninsula in response to SWRCB Orders 95-10 and 2009-0060, and that a more immediate supply may be available to the city from the amendment of the Eastwood Trust water rights license. This supply is described in Chapter 2, Section 2.4.6.2, Malpaso Water Company, LLC.

City of Del Rey Oaks

- The City of Del Rey Oaks General Plan was adopted in 1997 and has a planning period of approximately 20 years (City of Del Rey Oaks, 1997a). A draft update of the Housing Element was prepared in August 2006 but not adopted. The California Department of Housing and Community Development indicates that the City has not submitted a housing element for the 2015-2023 planning period to the department for certification (California Department of Housing and Community Development, 2016).

- The General Plan estimates that the City had a population of 1,692 in 1996, and provided about 321 jobs in the City's commercial and institutional sectors. The 2010 census indicates the city had a population of 1,624 in 2010; AMBAG's 2014 forecast estimates that the city had 414 jobs in 2010.

- Buildout under the General Plan of the part of the city served by CalAm – that is, the area within the city limits before the former Fort Ord land was annexed – would result in five additional residential units, and the development of 43,500 gross square feet of retail/commercial land uses and a 205-room hotel. General Plan policies call for expanded and new revenue-generating businesses on visitor-serving and commercially zoned parcels in the City, development of commercial uses at the City's Highway 68/218 entrance, intensification of existing development, and the annexation of former Fort Ord land to provide additional sites for economic development.

- Buildout under the General Plan of the part of the city served by another water provider (i.e., the former Fort Ord land that was annexed to the city and is served by water provided via the Fort Ord Reuse Authority [FORA] and the Marina Coast Water District [MCWD]), includes development of a conference center, hotel, golf course, retail shops, a fitness center, office park, and corporate office center.

- AMBAG's Regional Housing Need Allocation for the 2014-2025 period states that Del Rey Oaks needs 27 additional housing units.[26]
- The General Plan indicates that the City had about 5.8 af of water for new land uses remaining in its allocation from MPWMD as of June 1995, but according to MPWMD's November 2013 monthly allocation report, Del Rey Oaks has no water remaining in its allocation (MPMWD, 2013b.)
- The General Plan identifies water as a paramount concern for all of the jurisdictions on the Monterey Peninsula, and states that setbacks in providing additional supply, along with SWCRB's requirement that CalAm decrease withdrawals from the Carmel River, have magnified concern about the availability of water to support growth. General Plan policies call for the City to develop a water allocation program to prioritize water connections; work with the appropriate water management districts to encourage water conservation, retrofitting, education, reclamation, and reuse; consider water usage and conservation in all land use decisions; adopt and enforce a water conservation ordinance; and condition development plan approval on verification of available water service for projects.

City of Monterey

- The City of Monterey General Plan was adopted in 2005 and includes amendments through March 2016, including incorporation of the action program of the City's 2016 housing element. The City of Monterey Housing Element 2015-2023 was adopted March 16, 2016 (City of Monterey, 2016a, 2016b).
- The General Plan EIR (City of Monterey, 2004) projected that the city would have a population of about 34,660 residents at buildout, which is a 14 percent increase from the city's population in 2003 of about 30,350. As shown in **Table 6.3-7**, the 2010 census indicates that the City's population that year was 27,810; the California Department of Finance estimates that the City's population in 2015 was 28,576.
- The Housing Element states that the city is almost entirely built out and that future residential development is expected to occur through infill development – that is, through the recycling of existing sites and a limited amount of vacant land.
- AMBAG's Regional Housing Need Allocation for 2014-2023 states that Monterey needs 650 additional units. According to the City of Monterey 2015-2023 Housing Element, the City had issued permits or entitlements for 113 units since January 2015, so it needs 537 more. The Housing Element identifies a total capacity to develop 715 units based on an inventory of vacant and underutilized sites.
- The lack of available water is a primary obstacle to meeting General Plan goals; therefore, it is the goal of the City of Monterey and the General Plan to obtain a long-term, sustainable water supply. Among other things, the City is evaluating water supply options outside the present MPWMD framework (City of Monterey 2016a). The Housing Element states that all of the City's water allocation from the MPWMD has been allocated to projects. (City of Monterey, 2016b).

[26] This housing need allocation is substantially lower than the 150 units identified for Del Rey Oaks in the previous regional housing need allocation. AMBAG's RHNA for 2007-2014 did not explain the relatively high number of units allocated to Del Rey Oaks for that period.

Presidio of Monterey

- The Presidio of Monterey is an active installation of the U.S. Department of the Army. While it is located within the Monterey city limits, the City does not govern it. Water used at the Presidio is part of MPWMD's overall allocation to the City. In 2013, the Army completed an EIS for the Presidio's Real Property Master Plan (U.S. Army, 2013a, 2013b), which replaces the 1983 Presidio of Monterey Master Plan.

- The Master Plan proposes short-range and long-range project building renovations or upgrades to be implemented over a 20-year planning horizon. The short-range project consists of Phase I of a multi-phase barracks complex project at the Presidio. The long-range projects include access control point upgrades, classroom renovations, and demolition and construction of three barracks complex projects and several instructional buildings. The EIS evaluated the environmental consequences of the short-range project at a project level of detail and the long-range projects were evaluated at a programmatic level. As the long-range projects move forward, they may need additional NEPA review.

- The Master Plan alternative selected for implementation locates most improvements within the Presidio, with some support facilities at the Ord Military Community site in the former Fort Ord military base. The EIS and Record of Decision for the EIS (U.S. Army, 2013a, 2013b) conclude that, over the Master Plan's 20-year planning horizon, the long-range projects would increase water demand at the Presidio by an estimated 34 afy. Water for the short-range project would be provided through the Presidio's existing permit. To meet demand for the long-range projects, the EIS identifies a total of 36.9 afy from water currently used at outdated barracks that are scheduled to be demolished as part of the long-range projects, and from water credits that the Presidio has from the MPWMD. While the EIS concludes that both action alternatives of the overall Master Plan development project would have a less than significant impact with respect to water supply, it notes that future developments concerning the Cease and Desist Order and the March 2011 moratorium on water service connections could affect water supply in the Monterey Region; the EIS therefore identifies mitigation measures to reduce future water demand. Measures include conserving more water, implementing best management practices at all new facilities, and installing rainwater collection systems and purple piping (in anticipation of the availability of future recycled water supply) in all new buildings. The EIS states that the Army could also consider additional measures to ensure long term water supply at the Presidio and Ord Military Community, like contracting with current water providers for additional water along with the development of future regional water supply projects.

City of Pacific Grove

- The City of Pacific Grove adopted its General Plan in 1994, and adopted its Housing Element 2015-2023 in March, 2016 (City of Pacific Grove, 1994, 2016).

- The Housing Element states that the city has experienced a small decline in population over the past 25 years, from 16,177 in 1990 to 15,388 in 2015. The size and composition of the city's housing stock changed very little over that period, with a net increase of about 270 units. The City is almost fully built-out, with very little vacant land available for new housing development. By the 1980s, the City had recognized that further growth would occur only as infill development on vacant lots and through the intensification of existing development.[27] The 1994 General Plan estimates that a maximum of 5,431 additional residential units could be built within the city limits. Most units would be accommodated through the intensification of existing development, including almost 3,500 secondary units

[27] The General Plan did not contemplate the City annexing any unincorporated land except for a three-acre parcel (the Mission Linen parcel) on unincorporated county land entirely surrounded by city lands.

attached to existing single family homes. Vacant lots could accommodate a total of 105 new single-family or multi-family units. Notwithstanding this estimate, the General Plan notes that in the 10 years preceding its publication, only 42 secondary units had been built, and that this actual rate of development suggested that, apart from water supply constraints, new secondary units would be added slowly and would not number in the thousands. Past trends suggested that the other identified residential capacity also would be developed slowly. The General Plan projected that commercially-zoned vacant parcels could accommodate an estimated 270,000 square feet of commercial development, and that more than 1 million square feet of commercial development could theoretically be added by intensifying existing uses.

- AMBAG's Regional Housing Need Allocation for 2014-2023 states that Pacific Grove needs 115 additional housing units. The City's 2016 Housing Element identifies a realistic potential for 148 new units to be built on vacant parcels and a total potential for 210 new units to be built on vacant and underutilized sites and sites with second unit potential.

- The Housing Element identifies the lack of available water as the greatest constraint on the production of new housing in Pacific Grove, stating that lack of water supply has resulted in very little new housing construction for over a decade. It is the City's policy to continue working aggressively with MPWMD and other Monterey Peninsula cities to find long-term solutions to the water problem, to increase the water available for residential uses, and to provide for drought protection. The City is working on projects to reduce the use of potable water where feasible, such as at the city's golf course and cemetery, consistent with Housing Element Program 3.1. In 1994, when it prepared the General Plan, the City had less than 8 af of its water allocation remaining. In 2008, the City had 5 af left, and the City Council distributed most of that 5 af, which enabled construction of more than 50 residential and non-residential projects. Most of the City's allocation has been distributed and the City has established a new water wait list. As of July 2015, 12 single family dwellings were on the wait list. The Housing Element states that without a new water allocation, the City will be unable to permit any new housing construction, except for the few properties that have sufficient onsite water credits for second units.

- The 2016 Housing Element notes that although additional water supply needed to meet demand associated with buildout of the 1994 General Plan was previously estimated to be 1,264 afy, this estimate was based in part on the maximum potential for second units and that long-term demand is now expected to be less. In testimony provided to the CPUC on the MPWSP, a City representative revised the future demand estimate the City had provided MPWMD in 2006, from 1,264 afy to 500 afy (as shown in **Table 2-5** of Chapter 2).

Sand City

- The Sand City General Plan: 2002-2017 was adopted in 2002 and the City of Sand City Housing Element Update 2009-2014 was adopted in 2010 (City of Sand City, 2002, 2010).

- Describing the city's historic growth rates, the General Plan states that the city's population reached 600 in the 1960s, but then declined as industrial and commercial land uses displaced housing. Between 1970 and 2000, the city's population fluctuated, ranging from a low of 182 in 1980 to a high of 261 in 2000. As shown in Table 6.3-5, the city continued to grow over the past decade, to a population of 334 in 2010.) Due to the city's commercial and industrial land uses, its daytime population of employees and shoppers increased to almost 10,000 (LAFCO of Monterey County, 2011).

- The 2002 General Plan projects a buildout population of 1,295, and points out that this city-generated estimate is lower than the population of approximately 1,800 that had been forecasted in AMBAG 's then-current 1997 forecast. AMBAG, in turn, had based its forecast in part on the city's 1984 General Plan. The 2010 Housing Element cites AMBAG's 2008 forecast projecting that the city's population would grow dramatically between 2010 and 2015 (from 447 to 1,498) and would not change further between 2015 and 2035. The Housing Element confirms that population growth beyond what AMBAG had projected for 2015 was unlikely due to the city's small size. As shown in Table 6.3-6, AMBAG's most recent forecast also projects substantial growth for the city, especially between 2010 and 2020, and now projects that the city will reach the earlier population estimate of about 1,500 residents between 2030 and 2035. The 2002 General Plan focuses on achieving a vision for the community that includes economic diversification; active redevelopment; enhanced community appearance and image; organized and well-planned growth; elimination of land use conflicts; and cohesive residential neighborhoods.

- AMBAG's Regional Housing Need Allocation for 2007-2014 identified a housing need in Sand City of 120 additional units.[28] According to the City's 2010 Housing Element, 31 units had been built between January 2007 and February 2009, and an inventory of vacant and underutilized sites identified the capacity to accommodate a total of 277 additional units on those sites. The City expects that 60 additional units will be produced by the end of 2014 (City of Sand City, 2010).

- The General Plan states that the critical shortage of water on the Monterey Peninsula limits the availability of water for new development, and that this condition is expected to continue until either a long-term source of water is developed for the region or until Sand City develops a desalination facility as its own water supply. As of 2001, Sand City had allocated essentially all of its available water to specific development parcels. Since the General Plan was prepared, Sand City completed construction of a 300 afy desalination plant, which is operated by CalAm. While water from the desalination plant is delivered to the CalAm system, Sand City is entitled to 206 afy to support its future development: MPWMD Ordinance 132, in consideration for the delivery of 300 afy of potable water from this plant to the CalAm system, establishes a water entitlement of 206 afy from the CalAm system for Sand City, separate from the city's current water allocation; the ordinance indicates that the remaining 94 afy is permanently added to the broader CalAm's system.

Seaside

- Seaside adopted its General Plan in 2004, and adopted its General Plan Housing Element in 2011 (City of Seaside, 2004a, 2011a).

- According to the General Plan, the city will have a total of about 12,300 dwelling units, 19,800 square feet of non-residential development, and a population of about 43,000 at buildout of the General Plan, assuming the average levels of development allowed under the plan. While the General Plan's estimate does not indicate how much of this overall development is existing development and how much represents expected future growth, a comparison of the buildout estimates for housing and population with 2010 census data for Seaside indicates that under General Plan buildout the city expects to add almost 1,500 new housing units and 10,000 new residents. The General Plan identifies the need for more employment opportunities and tax-generating land uses to improve the overall quality of life in the City, and includes policies to encourage regional commercial and visitor-serving

[28] AMBAG's RHNA for the 2014-2023 period (AMBAG, 2014b), which the next version of jurisdictions' Housing Elements will cover, identified a housing need in Sand City of 55 units.

commercial development, community-serving retail development, fuller use of underutilized properties, development that helps increase the City's ratio of jobs to housing, and provision of a variety of housing types that complement employment opportunities in the community.

- AMBAG's Regional Housing Need Allocation for 2007-2014 states that Seaside needs 589 additional units.[29] The City's 2011 Housing Element says that the City can accommodate 1,113 additional units on vacant and underutilized residential and mixed use properties.
- The 2011 Housing Element states that lack of adequate water supply is one of the three primary environmental constraints to the development of housing in Seaside. The other constraints are environmental hazards on former Fort Ord lands and significant biological resources in the eastern portion of the city. General Plan policies call for cooperating with regional and local water providers to ensure that adequate water supply is available to meet the needs of existing development and future growth; encouraging the production and use of recycled water; protecting and enhancing local and regional groundwater and surface water resources; eliminating long-term groundwater overdraft as soon as feasible; and reviewing development proposals to ensure that adequate water supply, treatment, and distribution capacity is available to meet the needs of the proposed development.
- For the part of the city served by CalAm, which is the area that had been within the City boundaries before the City annexed the former Fort Ord lands to the north and east,[30] the portion of MPWMD's allocation that the City's had allotted for residential use has been exhausted and the City has established a waiting list pending the allocation of future supply. Part of the allocation the City had reserved for economic development in mixed use projects is still available. In a comment on the 2015 MPWSP DEIR, the City stated that a water supply assessment prepared in 2008 for the West Broadway Urban Village Specific Plan determined that water credits for the commercial areas and residential units that were being redeveloped would supply some but not all of the water needed for the specific plan, and that a net increase of 80 afy was estimated above exiting water use to accommodate full buildout of the specific plan (City of Seaside, 2015). This information refines the estimated demand for general plan buildout that was provided to MPWMD in 2006 (shown as "Future Supply Needs (2006 Estimate)" in Table 6.3-7). Therefore, Seaside's estimate of future water supply needs, shown in Table 6.3-7 and in Table 2-6 in Chapter 2, increased by 80 afy. Water for former Fort Ord lands annexed to the city is provided via the FORA and MCWD, not CalAm.[31]

Monterey County

The facts and figures presented in this section pertain to the County as a whole (or the unincorporated County as a whole, as noted), although CalAm does not serve the whole County.

[29] AMBAG's RHNA for the 2014-2023 period (AMBAG, 2014b), which the next version of jurisdictions' Housing Elements will cover, identified a housing need in Seaside of 393units.

[30] The part of the city that had been within the city limits prior to the annexation of former Fort Ord lands, which is also the part of the city within the jurisdiction of the MPWMD, is variously referred to in the general plan as the southwestern portion of the city, southwest Seaside, the central core of the city, and Seaside proper. Part of this central core of the city is also served by the City-operated Seaside Municipal System, which operates three groundwater wells that serve the Del Monte Heights neighborhood.

[31] Seaside was allocated 748 af of the FORA's total supply to serve the Fort Ord annexation lands in North Seaside. The City does not expect this allocation to increase in the near future, and the General Plan identifies the use of recycled water for golf courses and other non-potable uses in North Seaside as the best option for expanding the availability of the North Seaside allocation for economic development and residential uses.

- The *2010 Monterey County General Plan* (Monterey County, 2010a) was adopted in October 2010 and the *County of Monterey 2015-2023 Housing Element* (Monterey County, 2016) was adopted in January 2016. The General Plan has a 2030 planning horizon, while the EIR prepared for the General Plan (Monterey County, 2010b, 2010c) considers conditions under the plan in 2030 and under plan buildout, estimated to occur in 2092.
- The County's population increased from 247,450 in 1970 to an estimated population of 425,756 in 2014. The decade with the fastest growth was 1980-1990, during which the population increased by 22 percent. Data from the 2010 census indicate that the County's population increased by 3 percent between 2000 and 2010. The California Department of Finance's estimate of county population in 2014 (presented in the Housing Element) represents a 2.5 percent increase from 2010. The proportion of the county's population living in unincorporated areas has gradually decreased, from 29 percent in 1980 to 24 percent in 2010.
- Growth assumptions for the General Plan's 2030 planning horizon are based on AMBAG's 2004 population growth forecast, which projected that the county would grow from an estimated population of 464,847 in 2010 to 602,731 in 2030, a 30 percent increase. AMBAG projected that the population in unincorporated county areas would grow from 105,485 in 2010[32] to 135,375 in 2030, a 28 percent increase. The General Plan EIR notes that, in allocating the projected growth within the County, AMBAG considered growth trends and the availability of water among other factors. The Monterey Peninsula was projected to accommodate much lower levels of growth than the Salinas Valley due to the peninsula's greater water constraints.
- AMBAG's Regional Housing Need Allocation for 2014-2023 states that the unincorporated Monterey County needs 1,551 additional housing units. The 2016 Housing Element indicates that, since January 1, 2014, 185 units had been built, and another 2,955 units had been approved. Because those units do not completely meet the RHNA targets for affordable units, however, the County still needs 208 units of very low, low, and moderate income housing. The County determined that the remaining allocation of 208 very low, low, and moderate income units could fit within areas covered by adopted community and area plans including the Castroville Community Plan, the North County Land Use Plan, the Central Salinas Area Plan, (Chualar, King City, and San Lucas Areas) and the South County Area Plan (Bradley and San Ardo areas).
- According to the General Plan EIR, implementing the plan would increase water demand over the planning period. When the EIR was published, although CalAm's Coastal Water Project was forecasted to meet the then-current demand on the Monterey Peninsula, the General Plan EIR anticipated that new or expanded water supply facilities and new or expanded water entitlements would be needed to meet future demand on the peninsula. The General Plan prohibits new development that requires a discretionary permit, and that will use water, unless there is proof that a long-term, sustainable water supply is available to serve the development. The General Plan also requires that tentative subdivision maps be denied until the applicant provides evidence of a long-term sustainable water supply for all of the proposed lots. To ensure the accuracy and consistency of water supply evaluations, the Monterey County Health Department must coordinate with the MCWRA to develop guidelines and procedures for conducting water supply assessments and determining water availability. Other policies call for the County to work with all of the agencies responsible for managing existing and new water resources. As a mitigation measure, the General Plan

[32] 2010 census data indicate that the County's population in 2010 was 415,057, somewhat lower than the 2004 forecast anticipated; according to the census the population of the unincorporated county in 2010 was 100,213.

EIR added a General Policy stating that the County will participate in regional coalitions to identify and support a variety of new water supply projects, water management programs, and multiple agency agreements that will provide additional domestic water supplies for the Monterey Peninsula and the Seaside basin. According to this new policy, the County's general objective is to complete the cooperative planning of these water supply alternatives within five years of adoption of the General Plan and to implement the selected alternatives within five years of that. The County recognizes, though, that timing will depend on the dynamics of the regional group. Other General Plan policies encourage the use of gray water and cisterns for commercial and multi-family residential landscaping; the use of recycled water as a potable water offset; and the establishment of ordinances that identify conservation measures to reduce demand for agricultural water and potable water.

- The Greater Monterey Peninsula Area Plan encourages development projects to get their water from public utilities or mutual water companies. If this is not possible, the County should consider the cumulative effects of the development's water use on wildlife, fish, and plant communities, and the supply available to existing users.
- The Carmel Valley Master Plan requires that pumping from the Carmel River aquifer be managed consistent with the Carmel River Management Program and that all beneficial uses of the total water resources of the Carmel River and its tributaries be considered in planning decisions. Other policies support water projects designed to address future growth in the Carmel Valley and encourage the establishment of regulations limiting development in Carmel Valley to vacant lots of record and already-approved projects, unless additional water supplies are identified.

Monterey Peninsula Airport District

- The Monterey Peninsula Airport District is developing a new master plan, a process that is expected to take two years. A draft plan has been prepared, but CEQA documentation has not been completed and the new plan has not been adopted. Until a new master plan is adopted, the Airport District's 1992 Monterey Peninsula Airport Master Plan Update Final Report (Master Plan) (Monterey Peninsula Airport District, 1992) is the applicable land use planning document for airport development activities (Johnston, 2013).
- The goals of the 1992 Master Plan are to address airport requirements over a 20-year planning period. 2010 is the horizon year for specific aspects of the plan including projected airport activity and facility requirements. Based on anticipated changes in the fleet mix and projected growth in the number of passengers, annual operations (take-offs and landings), and general aviation aircraft based at the airport, the Master Plan was intended to meet the identified need for additional terminal areas, general aviation hangars, and aviation fuel storage, an expanded fire station, a larger maintenance building, and vehicle access improvements. The Master Plan includes three concepts each for the terminal area, the west end of the airport, and the northside of the airport, and recommends adoption of one of them, called "Concept C", for each of the three components. Each of the concepts would increase the area for the terminal ramp, the size of the terminal building, the number of parking places, the number of hangars, and the amount of space available for fixed-base operators, other tenants, and airport support facilities.
- Master Plan Appendix B, Utilities Inventory and Pavement Plan, reviews water service to the airport. The review states that past cases before the CPUC that concerned the adequacy of the water supply system for the Monterey Peninsula may restrict CalAm from serving new territory until additional supplies are assured, or until additional impounding reservoirs are built. The discussion concludes, however, that the airport lies completely within the

water company's existing service area, that service to the airport property is long-standing, that airport water use is not excessive, and that curtailment of water for use by the Airport is not expected.

- In a discussion of past studies related to the airport, the Master Plan states that the environmental document for the 1983 Airport and Runway Development Program concluded that development of the northside industrial area would require water service that was not currently allocated to the Airport District, and that the District would need to work with MPWMD to resolve the issue to the extent possible. The Master Plan also discusses a 1987 EIR for the Comprehensive Land Use Plan for the Monterey Peninsula Airport which identified water resources as an area of controversy (Monterey Peninsula Airport District, 1992).

Comparison of Proposed Water Supply Capacity with MPWMD Estimate of Future Supply Needs

The project supply components that would provide water for future development (e.g., water for lots of record and Pebble Beach water entitlements) do not directly compare to the levels of growth planned for and described in the jurisdictions' general plans. To relate the portion of MPWSP supply that would support future development to the growth anticipated in jurisdictions' adopted general plans, the MPWSP supply is compared with the estimate of future water supply needs that the MPWMD prepared in 2006 (MPWMD, 2006).[33]

The 2006 MPWMD estimate was a comprehensive assessment of long term water needs of customers in CalAm's Monterey District main distribution system based on information obtained from the service area jurisdictions. It included demand associated with expected remodels within the jurisdictions, and with anticipated development of single-family and multi-family residences, secondary units, and non-residential development expected to occur under buildout of each jurisdiction's general plan. The MPWMD translated the growth estimate provided by the jurisdictions into water demand using water use factors for different land use categories. The estimate also included repayment of any water credits owed to property owners for implementing water-saving retrofits, and a 20 percent contingency to address unforeseen water requirements. Based on this assessment, the estimated future water supply needs to support growth anticipated in the general plans of the jurisdictions in the CalAm service area totaled 4,545 afy.[34] The 2009 EIR prepared for CalAm's proposed Coastal Water Project evaluated in detail whether the growth assumptions underlying MPWMD's 2006 demand estimate were consistent with growth anticipated in the jurisdictions' general plans, and confirmed that, overall, the MPWMD's

[33] As noted in Section 2.5.3.4 of Chapter 2, Water Demand, Supplies, and Water Rights, the MPWMD plans to collaborate with CalAm and the service area jurisdictions to evaluate the added water supply capacity needed to meet general plan buildout projections. Given that this new MPWMD process has not yet started and that most of the general plans considered in the 2006 evaluation are still in effect, this EIR uses the 2006 MPWMD analysis, adjusted as noted below, as the basis for comparison.

[34] Because the jurisdictions' general plans were prepared in different years and covered different planning periods, MPWMD did not characterize its estimate of future demand as accommodating growth over a given period of time or to a given year. The estimate was intended, however, to accommodate growth reasonably expected by each jurisdiction consistent with its adopted general plan.

estimate of future demand was consistent with growth under the general plans.[35] That analysis is included in **Appendix J1** for reference.

Since the 2006 estimate was prepared, the future water needs of four jurisdictions have been revised, reducing the total estimate of future water needs from 4,545 to 3,526 afy. The new Monterey County General Plan, adopted in 2010, is the basis for one of the revisions; the City of Pacific Grove provided another revision, reducing its original 2006 estimate of future demand in testimony that the City provided regarding the MPWSP; the City of Seaside provided a revision that increased its estimate of future water demand; and the water entitlement that Sand City has from construction of its 300-afy desalination plant would cover roughly half of Sand City's 2006 estimated future demand. Refer to the discussion of general plan buildout in Chapter 2, Water Demand, Supplies, and Water Rights, Section 2.5.3.4, for more information on the revised estimates.

California Water Code Section 10608 requires water suppliers to reduce per capita water consumption 20 percent by 2020, relative to baseline demand calculated under Department of Water Resources guidelines. According to CalAm's 2010 UWMP, current per capita consumption in CalAm's Monterey District is already below its 20 percent reduction target (WSC, 2012). Nevertheless, conservatively assuming that the Water Code 20 percent reduction target could apply to the water use assumptions MPWMD used in its 2006 estimate, the revised estimate of future water needs discussed above, reduced by an additional 20 percent, would be 2,820 afy. **Table 6.3-8** shows these estimates of future water supply needs.

As discussed in Section 6.3.5.1 and shown in Table 6.3-4, during the 25-year Seaside Groundwater Basin replenishment period, the portion of the water supply provided by the MPWSP and other supply sources that would be available for future development – including the future development assumed for the MPWSP shown in Table 6.3-3 – would range from 2,154 afy to 535 afy after meeting estimated SVGB return water obligations of 6 percent to 12 percent, respectively. Assuming a 6 percent SVGB return water obligation, the 2,154 afy of supply that would be available to meet future needs would represent 61 percent of 3,526 afy, the 2006 estimate of future water supply needs as revised based on updated information. This 2,154 afy of available supply would represent 76 percent of 2,820 afy, the 2006 estimate of future demand as updated and reduced by an additional 20 percent. Thus, assuming a 6 percent SVGB return water obligation, available supply would meet more than half the estimated future water supply needs of the service area. Assuming a 12 percent SVGB return water obligation, during the Seaside Groundwater Basin Replenishment period, the 535 afy of supply that would be available to meet future needs would represent 15 percent of 3,526 afy and 19 percent of 2,820 afy, the two updates of MPWMD's 2006 estimate of future water supply needs discussed above. Thus, based on the updates of future demands and these return water assumptions, the portion of the water supply

[35] The analysis determined that with a few exceptions, the estimates of residential growth were consistent with estimates contained in the general plans or general plan housing elements. Estimates of non-residential development were more difficult to compare because of substantial differences in the levels of detail in information submitted by jurisdictions to the MPWMD compared with information included in the general plans; to the extent the development potential could be compared, the estimates were determined to be consistent.

TABLE 6.3-8
FUTURE WATER DEMAND AND AVAILABLE SUPPLIES: TWO RETURN WATER SCENARIOS
(acre-feet per year)

Future Demands and Supplies	Jurisdiction Total
Future Supply Needs (2006 Estimate)	4,545
Future Supply Needs (Revised)[a]	3,526
Future Supply Needs (Revised and Reduced by 20%)[b]	2,820
MPWSP Supply for Future Development[c] Assuming 6% SVGB Return	2,154
MPWSP Supply for Future Development[c] Assuming 12% SVGB Return	535
MPWSP Supply for Future Development[c] as % of Future Supply Needs (Revised)[d]	15 to 61%
MPWSP Supply for Future Development[c] as % of Future Supply Needs (Revised and Reduced)[d]	19 to 76%

NOTES: SVGB = Salinas Valley Groundwater Basin

[a] Future supply needs revised based on changes in future demand estimates in four service area jurisdictions (discussed in more detail in Section 2.5.3.4 of Chapter 2).

[b] Estimated future supply needs reduced by an additional 20 percent based on the conservative assumption that water reduction requirements of Water Code Section 10608 may apply. CalAm's Monterey District 2010 UWMP indicates that the service area has already met the 20 percent reduction target.

[c] Supply available for future development consists of MPWSP supply and CalAm's other supplies, shown in Table 2-4 of Chapter 2, minus existing demand and minus estimated SVGB return water obligations shown in Table 6.3-4.

[d] Lower percentage of supply available to meet future development needs assumes 12 percent SVGB return water obligation; higher percentage assumes 6 percent SVGB return water obligation

SOURCES: Table 2-4, Table 2-5, Table 6.3-4.

provided by the MPWSP that would be available to support future development would supply 15 to 76 percent of the water demand associated with planned growth, depending primarily on the return water obligation. Table 6.3-8 summarizes these estimates.

The 1,755 afy of MPWSP supply that is proposed for anticipated development, shown in Table 6.3-3, is about half of 3,526 afy, the 2006 estimate of future demand as revised based on updated information and about 60 percent of 2,820 afy, the 2006 estimate of future demand as updated and reduced by an additional 20 percent.

As discussed above in this section, MPWMD's 2006 estimate of future water supply needs was generally consistent with the level of growth planned for in the adopted general plans of service area jurisdictions. The MPWSP would provide less water for growth than the 2006 estimate of future water supply needs as revised based on updated information (3,526 afy, or 2,820 afy if further reduced by 20 percent). The smaller MPWSP supply that would be available to support future development would similarly be consistent with the service area's planned growth.

6.3.5.4 Delivery of SVGB Return Water To Castroville

Delivery of SVGB Return Water to Castroville Community Services District

The community of Castroville, located north of the desalination plant and outside of CalAm's service area, would receive Salinas Valley Groundwater Basin (SVGB) return water (see **Section 2.5.1** in **Chapter 2, Water Demand, Supplies, and Water Rights, and Section 3.2.3.9** in **Chapter 3, Description of the Proposed Project**. The water would flow to the Castroville

Community Services District (CCSD) for domestic use in lieu of groundwater pumping. The SVGB return water supply would only be used to replace, or offset, CCSD's current use of groundwater (approximately 800 afy), under the terms of the Return Water Settlement Agreement (CalAm et al., 2016b). Thus, the water provided by the desalination plant would not remove water supply constraints as an obstacle to additional development in the Castroville area and therefore would not induce growth. The pipeline that would be built to convey the desalinated product water to the CCSD system would be sized to accommodate the 800 afy volume of return water. Although increased pumping pressure can increase a pipeline's capacity, as discussed above in Section 6.3.5.2, the use of the pipeline to the CCSD would be limited to providing return water to offset CCSD's current groundwater use. Therefore, pipeline capacity is not anticipated to expand in the future, and building this pipeline would not remove an obstacle to growth in the Castroville area.

Delivery of SVGB Return Water to the Castroville Seawater Intrusion Project

Under the proposed project, the MPWSP would deliver the first 800 afy of SVGB return water to the CCSD and deliver the remaining return water to the Castroville Seawater Intrusion Project (CSIP). The CSIP provides recycled water to farmers in the Castroville area to irrigate crops, thereby enabling reduced pumping of seawater-tainted groundwater. SVGB return water in excess of that needed for the CCSD would supplement the recycled water currently available to CSIP from the Monterey Regional Water Pollution Control Agency. Return water provided to the CSIP would be used to offset groundwater use for agricultural production; it would not contribute to domestic water supply and therefore would not be growth-inducing.

6.3.6 Secondary Effects of Growth

Impact 6.3-1: Secondary effects of planned growth.

The MPWSP would support a degree of planned growth in the jurisdictions served by the proposed project. In general, development planned and approved through the general plan process in the CalAm service area would have environmental impacts. The environmental consequences of this planned growth have been largely addressed in local plans and the associated CEQA review as well as in other, project-specific documentation. Some of the identified indirect effects of growth are significant and unavoidable; others are significant but can be mitigated.

Although most of the general plan EIRs reviewed for this EIR/EIS were prepared prior to the passage of the California Global Warming Solutions Act of 2006, and do not include assessments of impacts of greenhouse gas emissions, it is expected that planned growth in the area could contribute to significant and unavoidable increases in greenhouse gas emissions (e.g., from increased fossil fuel use for transportation and construction, increased industrial and commercial activities, residential energy use, operation of power plants, and oil refining).

The following environmental documents for city and county general plans and general plan elements were reviewed in order to identify the significant impacts associated with planned growth in the area:

- City of Carmel-by-the-Sea, 2015b. *Addendum to Initial Study/Negative Declaration, City of Carmel-by-the-Sea 2015-2023 Housing Element and Related Zoning Amendments,* November 18, 2015. (Addendum to *City of Carmel-by-the-Sea 2007-2014 Housing Element Public Review Draft Initial Study / Mitigated Negative Declaration*, April 2010.)
- City of Del Rey Oaks, 1997b. *Final Environmental Impact Report for the General Plan Update Project*, May 16, 1997.
- City of Monterey, 2004. *City of Monterey General Plan Update Draft Environmental Impact Report* and *Final Environmental Impact Report, State Clearinghouse No. 2003081011*, October 11, 2004.
- City of Sand City, 2001. *Expanded Environmental Impact Study and Proposed Negative Declaration, General Plan Update 2001-2016*, October 12, 2001.
- City of Sand City, 2009. *Sand City 2009 Housing Element Initial Study and Negative Declaration,* December 16, 2009.
- City of Seaside, 2004b. *Final Seaside General Plan EIR*, January 2004.
- City of Seaside, 2010. *Public Review Draft Initial Study/Proposed Negative Declaration for the of Seaside Local Coastal Program*, August 2010.
- City of Seaside, 2011b. *Public Review Draft Initial Study/Proposed Negative Declaration: City of Seaside Housing Element Update 2009-2014,* September 2010, adopted by the Seaside City Council January 27, 2011.
- Monterey County, 2010b, 2010c. *Monterey County General Plan Final Environmental Impact Report, SCH No. 2007121001*, March 2010, and *Revised Supplemental Materials to the Final EIR (October 15, 2010)*, October 2010.
- Monterey County Resource Management Agency, 2010. *Initial Study: Housing Element 2009-2014*, April 19, 2010.
- U.S. Department of the Army, 2013a. *Final Environmental Impact Statement, Real Property Master Plan, Presidio of Monterey, California*, February 2013.

Copies of these documents are available for review at the respective city and county planning departments.

Table 6.3-9 summarizes the environmental effects associated with planned growth in the project area, as identified in the general plan EIRs for the jurisdictions in the CalAm service area. Because the table reflects the determinations of multiple jurisdictions, some impacts are listed as both significant and unavoidable and significant but mitigable, reflecting differences among the jurisdictions in the service area. In addition, one EIR evaluates general plan impacts over two time periods: the planning horizon for the plan and buildout. As a result, some impacts were identified as significant and unavoidable, and significant but mitigable, depending on the timeframe. Under CEQA Guidelines Section 15130, the EIRs prepared for the jurisdictions' general plans evaluate the potential for development under the respective plans to contribute to cumulative impacts on the environment; significant cumulative impacts identified in the general plan EIRs are also shown in the table. **Appendix J2**, **Table J2-1** presents a more detailed summary of the growth impacts and mitigation measures identified in the EIRs for general plans

in the CalAm service area. These environmental impacts are the indirect effects of growth that would be supported in part by the proposed project.

TABLE 6.3-9
SIGNIFICANT IMPACTS ASSOCIATED WITH PLANNED GROWTH IN THE PROJECT AREA

Significant and Unavoidable Impacts

- Degradation of visual character or quality of the area and surroundings
- Substantial new sources of light and glare
- Cumulative impacts on aesthetics, light and glare
- Conversion of farmland to non-agricultural use and cumulative loss of farmland
- Construction-related air quality impacts
- Net change in ozone precursor and particulate matter emissions
- Cumulative air quality impacts
- Effects on special status species
- Effects on riparian habitat and other sensitive natural communities
- Cumulative impacts on biological resources
- Potential effects on archaeological, paleontological, or historic resources
- Cumulative exposure to wildland fire hazard
- Increased demand for water supply and/ or water storage, treatment, and conveyance facilities and associated secondary effects[a]
- Substantial depletion of groundwater supply[b]
- Increased demand on groundwater in areas experiencing or susceptible to saltwater intrusion[b]
- Cumulative impacts on groundwater quality[c]
- Cumulative indirect impacts of water supply projects[a]
- Increased flood hazard and impacts from flooding
- Increases in traffic noise
- Induced population growth
- Effects on adjacent land uses of operation of new or expanded schools
- Local and regional traffic impacts
- Impacts of cumulative development on traffic
- Demand for water resources that exceed available water supply[d]
- Cumulative impacts on water supply[d]
- Contribution to cumulative greenhouse gas emissions and global climate change

Significant but Mitigable Impacts

- Adverse effects on scenic vistas
- Adverse effects on scenic or historic resources within a state scenic highway
- Degradation of visual character or quality of the area and surroundings
- Construction-related air quality impacts
- Transportation-related air quality impacts
- Exposure to increased diesel exhaust
- Emission of objectionable odors
- Effects on special-status species
- Effects on riparian habitat and other sensitive natural communities
- Effects on federally protected wetlands
- Conflicts with local policies or ordinances protecting biological resources
- Effects on a variety of biological resources
- Interference with migratory patterns or wildlife corridors
- Potential effects on migratory birds and raptors
- Introduction of exotic species
- Potential effects on archaeological, paleontological, or historic resources

TABLE 6.3-9 (Continued)
SIGNIFICANT IMPACTS ASSOCIATED WITH PLANNED GROWTH IN THE PROJECT AREA

Significant but Mitigable Impacts (cont.)

- Exposure of new development to potential seismic or geologic hazards
- Creation of or exposure of new development to hazards related to soil erosion or expansive soils
- Exposure of new development to tsunami or seiche hazards
- Potential exposure of people and development, including schools, to hazardous materials releases
- Increased risk of hazardous materials releases
- Safety hazards from development near airports
- Increased flood hazard and impacts from flooding
- Exposure of structures to increased risk of wildland fires
- Cumulative wildfire hazard exposure
- Impacts on water quality, including groundwater quality[c]
- Impacts on hydrology and surface water
- Substantial depletion of groundwater supplies[b]
- Increased demand on groundwater in areas experiencing or susceptible to saltwater intrusion[b]
- Inconsistency with zoning code
- Conflicts between incompatible land uses
- Impacts on open space areas
- Exposure of existing and new sensitive land uses to increased noise
- Increases in construction, traffic, stationary, and/or airport noise
- Potential conflicts between new development and existing or expanded recreational uses
- Effects of park construction and degradation of parks or recreational facilities
- Demand for new or expanded parks and recreational facilities
- Increased demand for law enforcement and/or fire protection services
- Effects of school construction to accommodate new development
- Local and regional traffic impacts
- Decreased parking capacity
- Increased demand for transportation alternatives
- Demand for water resources that exceed available water supply[d]
- Require construction of new water supply and treatment facilities[e]
- Increased demand for additional sewer or stormwater drainage infrastructure
- Increased demand for and Impacts of new or expanded public utilities and facilities
- Exposure of property and persons to otherwise avoidable physical harm due to climate change

NOTES:

[a] While the County General Plan EIR impact analysis identifies the impacts of providing additional water supply as *secondary* or indirect effects, Chapter 4 of this EIR/EIS evaluates the *direct* effects of constructing and operating the MPWSP in addition to the indirect effects of growth described in this chapter.

[b] The MPWSP is intended to provide sufficient supply for CalAm to reduce pumping from the Seaside Groundwater Basin to no more than CalAm's adjudicated right, and to "repay," over a 25-year period, the amount of water CalAm has pumped in excess of its adjudicated right since the adjudication, while meeting the water demands shown in Table 6.3-1.

[c] The effects of the proposed project on surface water and groundwater quality, including cumulative effects, are evaluated in Sections 4.3 and 4.4, respectively, of Chapter 4 of this EIR/EIS. As stated above in Note b, the proposed project would help eliminate the need for over-pumping of the Seaside Groundwater Basin in order to meet current demand, thereby helping to mitigate impacts on groundwater quality caused by seawater intrusion.

[d] The MPWSP would provide sufficient supply to enable CalAm to comply with the SWRCB Order 95-10 and Cease and Desist Order and the Seaside Groundwater Basin Adjudication while meeting current water demands and a degree of additional demands, as shown in Table 6.3-1 and discussed in this chapter. The MPWSP is not sized, however, to meet anticipated water demand under full buildout of the service area jurisdictions' general plans.

[e] This impact was identified in the Mitigated Negative Declaration prepared for the Sand City General Plan; since then, after completing required CEQA review Sand City constructed a desalination plant that is providing the City and the CalAm service area new source of water supply. The impacts of constructing the MPWSP are evaluated in this EIR.

SOURCES: City of Del Rey Oaks, 1997b; City of Monterey, 2004; City of Sand City, 2001; City of Seaside, 2004b; Monterey County, 2010b, 2010c; U.S. Army, 2013a.

6.3.6.1 MPWSP Role in Addressing the Indirect Effects of Growth

Three jurisdictions in the area served by the proposed project – the City of Monterey, City of Seaside, and Monterey County – identified demand for, or impacts related to, water supply, including groundwater supply, as significant and unavoidable impacts of planned growth; other service area jurisdictions identify similar significant but mitigable impacts. In general, these impacts identify insufficient supply to meet demands associated with development that is planned for in the jurisdictions' general plans. Some EIRs address impacts associated with supply limitations, such as the potential risk of over-pumping groundwater resources and seawater intrusion, and many acknowledge the limitations on current supply sources imposed by SWRCB Order 95-10. With respect to the impacts of potential over-pumping of the Seaside Groundwater Basin and the associated threat of seawater intrusion, the MPWSP is sized to enable CalAm to "repay" to the groundwater basin, over a 25-year period, the amount of water it has pumped in excess of its adjudicated right since the groundwater basin was adjudicated. (Refer to Section 2.2.4 in Chapter 2, Water Demand, Supply, and Water Rights, for more information.) The supply to be provided by the MPWSP would thus help address the potential impacts of over-pumping the Seaside Groundwater Basin. The MPWSP would provide some water beyond that needed to meet existing demand (discussed above in Section 6.3.5.1) but not the full amount identified in MPWMD's 2006 assessment of future supply need, as adjusted by more recent information (discussed above in Section 6.3.5.3). The MPWSP would thus help address impacts related to a supply that does not meet current and projected future water supply needs within the service area jurisdictions. The MPWSP is not expected to fully meet projected future demands, however. With respect to the physical effects of providing additional water supply – that is, building and operating the proposed infrastructure – this EIR/EIS evaluates the potential impacts of the MPWSP and identifies mitigation measures to reduce those impacts to the extent feasible.

6.3.6.2 Authority to Mitigate Effects of Growth

CalAm, the CPUC, and MBNMS do not have the authority to make land use decisions or to approve growth. As described in Section 6.3.2, the authority to regulate growth, and by extension to mitigate the environmental effects of growth, resides primarily with land use planning agencies. **Table 6.3-10** identifies the agencies with the authority to implement measures to avoid or mitigate the environmental impacts of growth in the area served by the proposed project;[36] the agencies generally fall into two categories, as discussed below.

- Agencies with primary authority over land use planning and CEQA lead agency status for approval of land use plans, permits and other approvals.
- Agencies responsible for stewardship of environmental resources.

[36] While MBNMS does not have authority to make land use decisions, NOAA does have authority to mitigate impacts on biological resources through Section 7 and Section 10 consultation requirements, as shown in Table 6.3-9.

TABLE 6.3-10
AGENCIES WITH THE AUTHORITY TO IMPLEMENT OR REQUIRE IMPLEMENTATION OF MEASURES TO AVOID OR MITIGATE GROWTH-RELATED IMPACTS

Agency	Authority
Planning Agencies	
Cities within the Area Served by Project	***Planning and Enforcement.*** Responsible for planning, land use, and environmental protection of the area within the city's jurisdictional boundaries and adoption of the general plan governing this area. Responsible for enforcing city environmental policies through zoning and building codes and ordinances.
	CEQA. Cities typically act as the lead agency for CEQA compliance for development projects in incorporated areas; as such they bear responsibility for adopting measures to mitigate the project's significant direct and indirect impacts on the environment and programs to ensure that mitigation measures are successfully implemented.
Monterey County	***Planning and Enforcement.*** Responsible for planning, land use, and environmental protection of unincorporated areas and adoption of the general plan governing unincorporated county lands. Responsible for enforcing County environmental policies through zoning and building codes and ordinances.
	CEQA. Counties typically act as the lead agency for CEQA compliance for development projects in unincorporated areas; as such they bear responsibility for adopting measures to mitigate the project's significant direct and indirect impacts on the environment and programs to ensure that mitigation measures are successfully implemented.
Local Agency Formation Commission	Empowered to approve or disapprove all proposals to incorporate cities, to form special districts, or to annex territories to cities or special districts. Also empowered to guide growth of governmental service responsibilities.
California Coastal Commission	Issues Coastal Development Permits for development in the Coastal Zone, except where the local jurisdiction has an approved Local Coastal Program. Retains coastal development permit authority over development on the immediate shoreline, tidelands, submerged lands, and certain public trust lands, and over major public works projects.
U.S. Environmental Protection Agency	Responsible for writing regulations and setting national standards to implement a variety of federal environmental protection and human health laws. In California, EPA has delegated much of the authority to enforce the Clean Air Act, Clean Water Act and Drinking Water Quality Act to state agencies, but it retains some oversight. EPA also comments on the environmental review of projects by participating in the NEPA process.
Water Resources	
State Water Resources Control Board (SWRCB)[a]	Shares responsibility with the regional water quality control boards (RWQCBs) to protect and restore water quality; approves regional basin plans; provides support to regional boards; and administers surface water rights. Develops water quality control plans and polices where water quality issues cross regional boundaries or have statewide application.
Central Coast RWQCB	Shares responsibility with SWRCB to protect and restore water quality. Formulates and adopts water quality control plans. Implements portions of the Clean Water Act when EPA and SWRCB delegate authority, as is the case with issuance of NPDES permits for waste discharge, reclamation, and storm water drainage.
California Department of Public Health	Responsible for ensuring the purity and potability of domestic water supplies. Assists the SWRCB and the RWQCBs in setting quality standards.
Monterey Peninsula Water Management District	Responsible for managing water resources on the Monterey Peninsula. Allocates water to jurisdictions; issues permits for new or expanded water distribution systems and water connections; and adopts water conservation ordinances.
Air Resources	
California Air Resources Board[a]	Responsible for adopting and enforcing standards, rules, and regulations for the control of air pollution from mobile sources throughout the state. Also responsible for developing plans and regional reduction targets for greenhouse gas emissions.
Monterey Bay Unified Air Pollution Control District	Adopts and enforces local regulations governing stationary sources of air pollutants within the North Central Coast Air Basin. Issues Authority to Construct Permits and Permits to Operate. Provides compliance inspections of facilities and monitors regional air quality. Develops Clean Air Plans in compliance with the Clean Air Act.

TABLE 6.3-10 (Continued)
AGENCIES WITH THE AUTHORITY TO IMPLEMENT OR REQUIRE IMPLEMENTATION OF MEASURES TO AVOID OR MITIGATE GROWTH-RELATED IMPACTS

Agency	Authority
Biological Resources	
National Oceanic and Atmospheric Administration (NOAA)	Under NOAA's National Marine Sanctuary Program requirements, authorization by the Monterey Bay National Marine Sanctuary's superintendent is required for any permit, lease, license, approval, or other authorization issued or granted by a federal, state, or local agency for activities within the sanctuary.
National Oceanic and Atmospheric Administration Fisheries (NOAA Fisheries)	Requires consultation under Section 7 or Section 10 of the Endangered Species Act for projects that could impact endangered or threatened species under the purview of NOAA Fisheries. Prepares biological opinions on the status of species in specific areas and potential effects of proposed projects. Approves reasonable and prudent measures to reduce impacts and establishes Habitat Conservation Plans.
U.S. Fish and Wildlife Service (USFWS)	Requires consultation under Section 7 or Section 10 of the Endangered Species Act for projects which could impact endangered or threatened species. Prepares biological opinions on the status of species in specific areas and potential effects of proposed projects. Approves reasonable and prudent measures to reduce impacts and establishes Habitat Conservation Plans.
U.S. Army Corps of Engineers	Issues permits to dredge or place fill in waters of the United States, including wetlands, under the Clean Water Act. Required to consult with USFWS and NMFS regarding compliance with the federal Endangered Species Act.
California Department of Fish and Wildlife	Issues Stream Bed Alteration Agreements for projects potentially impacting waterways. If specific criteria are met, issues incidental take permits for projects that would take species listed the California Endangered Species Act. Under the Natural Community Conservation Planning Act, provides oversight for the development of regional Natural Community Conservation Plans, which aim to balance ecosystem protection and land use.

NOTE:

[a] These agencies fall under the umbrella of the California Environmental Protection Agency.

SOURCE: ESA

Implementation of Environmental Protection Measures by Land Use Planning Agencies

Cities and counties (for unincorporated areas) have the greatest authority over land use decisions within their jurisdictions, through implementation of their general plans, locally adopted ordinances and regulations to manage growth, and development approval processes. Some ordinances and policies adopted at the local level (e.g., ordinances establishing urban growth limit lines, protecting natural resources such as riparian habitat, or establishing resource conservation easements) are intended to avoid or reduce environmental impacts.

In their capacities as lead agencies under CEQA (California Public Resources Code Section 21002 and Section 21067), cities and counties also have the authority and responsibility to evaluate the environmental impacts that would result from the implementation of plans and individual development projects within their jurisdictions, and to adopt measures to mitigate any significant adverse impacts. Cities and counties must identify mitigation measures in the CEQA documents for these plans and projects, must adopt feasible measures within their authority, and must adopt programs to monitor and report on their implementation, as conditions of approval.

Implementation of Environmental Protection Measures by Resource Management Agencies

Mitigation of impacts relating to specific resource categories generally falls under the responsibility of resource-specific agencies at the federal, state, and regional levels through the regulatory processes summarized in **Table 6.3-10**. Through their permitting authority, these agencies mitigate the impacts of proposed land uses and enforce the provisions of adopted resource protection plans (e.g., water basin plans and air basin plans). For example, the Central Coast Regional Water Quality Control Board identifies specific requirements and water quality standards for facilities by issuing waste discharge requirements, and the Monterey Bay Unified Air Pollution Control District addresses the effects of pollutant emissions by issuing permits to build and operate stationary sources of air emissions.

Conclusion

Significant and Unavoidable. 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. But the proposed project would indirectly support growth by removing some 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 cities and county in the area served by the proposed project have the authority to approve or deny development projects and to impose mitigation to address significant environmental impacts associated with development projects within their respective jurisdictions. In addition, numerous federal, state, regional, and local agencies are specifically charged with protecting environmental resources, and ensuring that planned development occurs in a sustainable manner. Together, these agencies exercise the authority to reduce the effects of development on the environment. Some unavoidable impacts would still, however, be expected to occur.

6.3.7 Growth Inducement Potential of Cumulative Water Supply Projects

This section considers the indirect growth inducement potential of the cumulative projects identified in **Table 4.1-2**. The geographic scope for the cumulative analysis of indirect growth inducement consists of the CalAm service area jurisdictions and other areas of Monterey County that could experience similar indirect growth inducement. The baseline environmental setting against which the MPWSP is being analyzed includes the effects of existing, operational water supply projects identified in Table 4.1-2 such as the Seaside Groundwater Basin Aquifer Storage and Recovery projects (Nos. 29 and 30), and Sand City Coastal Desalination Plant (No. 6), which are assumed in water supply planning undertaken for the proposed project (as discussed in Chapter 2, Section 2.4 and shown in Table 2-4). The CalAm Slant Test Well at CEMEX (No. 47) is assumed to be used for production of the proposed MPWSP supply.

Several of the planned future cumulative projects identified in Table 4.1-2 would provide new sources of potable water supply in Monterey County. The Monterey Bay Regional Water Project (DeepWater Desal) (No. 34) would provide water to the City of Salinas as well as parts of Santa

Cruz County. If both the MPWSP and DeepWater Desal were approved, water from DeepWater Desal could be used to support growth in other nearby areas such as northern Monterey County. The RUWAP Desalination Element (No. 31) would serve the Marina Coast Water District's Ord Community with approximately 1,000 afy of potable supply. Through an agreement with FORA and the MRWPCA, an additional 1,400 afy of potable supply from the Pure Water Delivery and Supply Project (RUWAP #35 in Table 4.1-2) would meet the build-out needs of the Ord Community (which is contiguous with CalAm's service area). The Granite Ridge Water Supply Project would increase water supply availability for the area of northern Monterey County that it would serve. The Interlake Tunnel project would reduce the amount of water spilled at Nacimiento Dam by allowing water from Nacimiento Reservoir to be stored at San Antonio Reservoir for later use. This project would enhance flood control, provide environmental benefits, and offset groundwater pumping. Because this project would provide groundwater recharge, this analysis assumes it could indirectly augment supply available for groundwater users, including municipal supply that could serve additional growth. Although the primary purpose of the Salinas Valley Water Project Phase II (No. 1) is to combat seawater intrusion by providing a new source of surface water to offset groundwater consumption, the availability of a reliable surface water supply provided by this project could induce growth by removing supply reliability limitations as an obstacle to urban development.

Growth induced by one or more of these cumulative water supply projects in combination with the proposed project would result in secondary effects of growth in Monterey County that are similar to, but would likely be more severe and widespread than, those summarized above in Table 6.3-9; these impacts including increased traffic, noise, and air pollution and loss of open space and biological resources.

Other water projects listed in Table 4.1-2, including the RUWAP Recycled Water Project (No. 35), West Broadway Stormwater Retention Project (41), Del Monte Boulevard Dry Weather Diversion project (44), Pacific Grove Local Water Project (No. 22), Pacific Grove Recycled Water Project (No. 23), and Monterey Pacific Grove Area of Special Biological Significance (ASBS) Stormwater Management Project (No. 45) would either provide non-potable recycled water supply or enhance groundwater recharge. Projects providing recycled water could offset demand for potable supply that is currently used for non-potable uses, thereby making that potable supply available for other uses including growth. Projects capturing and diverting stormwater runoff to enhance groundwater recharge would primarily improve surface water quality and help stop seawater intrusion, but may overtime increase the availability of groundwater supply. These projects could contribute to the growth-inducing impacts of the cumulative potable supply projects described above by increasing the availability of existing potable supplies and groundwater.

As stated in Table 4.1-2, because the Peoples' Project would serve the same customers as the MPWSP, it is not reasonably foreseeable as a cumulative project but instead is considered an alternative to the MPWSP. The Pure Water Monterey Groundwater Replenishment (GWR) Project is not a cumulative project in the context of the proposed project or any alternative that includes a 9.6-mgd desalination plant built and operated by CalAm, because if the GWR is implemented, CalAm would not need to construct a 9.6-mgd desalination plant. The GWR

Project is a cumulative project in the context of Alternatives 5a and 5b, which evaluate a 6.4-mgd desalination plant. The cumulative growth inducement of implementing the GWR and Alternative 5a or 5b and the other water supply projects discussed here would be similar to the cumulative growth inducement of the proposed project because water supply available to the CalAm service area with implementation of the GWR project plus Alternative 5a or 5b would be similar to the supply provided by the proposed project.

6.4 Project Consistency with Monterey Bay National Marine Sanctuary Desalination Guidelines

In 2010, MBNMS, in collaboration with the California Coastal Commission, California Central Coast Regional Water Quality Control Board, and NOAA Fisheries, published Guidelines for Desalination Plants in Monterey Bay National Marine Sanctuary which implement the desalination action plan included in the MBNMS Final Management Plan (described in Section 4.5, Marine Biological Resources) (MBNMS, 2010). These non-regulatory guidelines were developed to help ensure that any future desalination plants in the sanctuary would be sited, designed, and operated in a manner that results in minimal impacts on the marine environment. They address numerous issues associated with desalination including site selection, construction and operational impacts, monitoring and reporting, plant discharges, and intake systems.

General provisions in the Guidelines outline the desired approach for developing desalination projects, demonstrating project need, designing alternatives, and complying with NEPA, including the following:

- Desalination plant proponents should pursue collaborations with other water suppliers and agencies currently considering water supply options in the area to evaluate the potential for an integrated regional water supply project. This should include an evaluation of other potential desalination locations and alternatives, as well as other forms of water supply;
- Desalination should only be considered when other preferable alternatives for meeting water needs, such as increased conservation and wastewater recycling are maximized or otherwise determined not feasible, and it is clear that desalination is a necessary component of the region's water supply portfolio;
- Project proponent should provide a complete evaluation of the need for a desalination plant. This should include a background of the water supply situation and discussion and evaluation of alternatives that have been considered to obtain the necessary volume of water; including the potential to use other economically and environmentally preferable alternatives including increased conservation, brackish water desalination, and wastewater recycling to meet some or all of the water needs of a proposed project; and
- Desalination plant proponents should provide a thorough analysis of the potential impacts on the coastal ecosystem for the proposed desalination plant and all project alternatives and plans to mitigate any potential impacts, or recover any resources that may be disturbed during construction.

The scope of this EIR/EIS analysis complies with Guideline provisions outlining the required elements of impact analysis. The key guidelines with specific recommendations that are relevant

to the proposed project are listed in the following table, along with summaries of the proposed project's consistency with each guideline. Potential inconsistencies associated with the alternatives are addressed in individual issue area analyses Section 5.5.

ASSESSMENT OF PROJECT CONFORMITY WITH GUIDELINES FOR DESALINATION PLANTS IN MONTEREY BAY NATIONAL MARINE SANCTUARY

Summary of NOAA Desalination Guidelines	Summary of MPWSP Conformity with Guidelines	Section of EIR/EIS Containing Additional Information
Guidelines Regarding Cumulative Impacts (Sec. D.3, p. 5)		
Desalination plants should be designed, sited, and operated to avoid or minimize cumulative impacts. The project proponent should provide a detailed analysis on the potential cumulative effects of the proposed discharges in combination with other existing and future point sources of pollution (i.e., wastewater discharges, power plant cooling water, and other desalination plants) as well as non-point sources of pollution (i.e., large rivers and outfalls) and other seawater intakes. Where it is feasible to combine the desalination discharge with another discharge, the project proponent should compare the likely effects of the combined discharges with the two separate discharges.	**Consistent**. The proposed project would utilize the existing MRWPCA treated effluent discharge pipeline, outfall, and diffuser to discharge brine into MBNMS. The dense brine discharge would be released alone during the irrigation season, and blended with varying volumes of secondary treated wastewater during the winter months. Cumulative impacts of the brine-only and combined discharges are fully analyzed in Chapter 4 of this EIR/EIS. Impacts on MBNMS resources from the brine-only and cumulative discharges would be less than significant with implementation of the proposed mitigation. The proposed project would not contribute to a cumulatively considerable impact.	• Overview, Section 4.1 • Surface Water Hydrology and Water Quality, Sections 4.3.5 and 4.3.6 • Marine Biological Resources, Section 4.5.5 and 4.5.6 • Appendices D1, D2 and D3 (brine plume and water quality modeling)
Guidelines for Entrainment and Impingement (Sec. D.3, p. 6)		
All desalination plants should be designed and sited to avoid and minimize impingement and entrainment to the extent feasible. Project proponents should investigate the feasibility of using subsurface intakes as an alternative to traditional intake methods. Other options for consideration should include, but may not be limited to: vertical and radial beach wells, horizontal directionally drilled (HDD) and slant-drilled wells, seabed filtration systems and other structures beneath the sea floor. Where feasible and beneficial, subsurface intakes should be used. It must be ensured however, that they will not cause saltwater intrusion to aquifers, negatively impact coastal wetlands that may be connected to the same aquifer being used by the intake, and they must address the likelihood of increased coastal erosion in the future. Subsurface intakes have the potential to minimize or eliminate impingement and entrainment impacts and improve the performance and efficiency of a desalination project by providing a certain level of pretreatment.	**Consistent**. The proposed project would utilize subsurface intakes that penetrate the sea floor of MBNMS and avoid impingement and entrainment of marine biological resources. The proposed project would have a less than significant impact on groundwater supply and recharge, and subsurface intakes would facilitate the reduction of seawater intrusion in the long term. In addition, proposed slant wells would be located inland of the modeled anticipated inland extent of coastal retreat, but the rate of retreat may vary due to unforeseen changes in climate change. Therefore, the slant wells could become located on the beach within the project lifetime, a significant impact that would be reduced to a less than significant impact with Mitigation Measure 4.2-9 (Slant Well Abandonment Plan).	• Description of the Proposed Project, Section 3.2.1 • Geology and Soils, Section 4.2.5 • Groundwater Resources, Section 4.4.5 • Marine Biological Resources, Section 4.5.5 • Alternatives, Section 5.3 • Appendices C1 (Sea Level Rise) and C2 (Coastal Erosion) • Appendix E2 (North Marina Groundwater Model)

ASSESSMENT OF PROJECT CONFORMITY WITH GUIDELINES FOR DESALINATION PLANTS IN MONTEREY BAY NATIONAL MARINE SANCTUARY

Summary of NOAA Desalination Guidelines	Summary of MPWSP Conformity with Guidelines	Section of EIR/EIS Containing Additional Information
Guidelines for Entrainment and Impingement (Sec. D.3, p. 6) (cont.)		
Any impacts on essential fish habitat (EFH) and the biota it supports that cannot be avoided through project design or operations will require mitigation, as per NMFS' regulatory requirements. The necessary level of mitigation is to be determined through the use of a biologically based model, such as the habitat production foregone method, in order to account for all "non-use" impacts on affected biota. Mitigation projects should attempt to directly offset the impacted species or habitat (in-place, in-kind mitigation) although NOAA will work with the project proponent to identify appropriate mitigation if this is not possible.	**Not Applicable**. Essential Fish Habitat is not present in the study area. The proposed project does not include any construction activities on the sea floor; operation of the proposed slant wells and discharge of brine into MBNMS would not affect EFH.	● Marine Biological Resources, Section 4.5.5
Guidelines for Brine Discharge (Sec. D.3, pp. 6-7)		
All desalination plants should be designed to minimize impacts from the discharge. Project proponents should investigate the feasibility of diluting brine effluent by blending it with other existing discharges. The proponent should evaluate the use of measures to minimize the impacts from desalination plant discharges including discharging to an area with greater circulation or at a greater depth, increasing in the number of diffusers, increasing the velocity while minimizing the volume at each outlet, diluting the brine with seawater or another discharge, or use of a subsurface discharge structure.	**Consistent**. The proposed project would utilize the existing MRWPCA outfall and diffuser in MBNMS to discharge brine from the desalination process. Brine would generally be discharged alone during the irrigation season, and combined with intermittent flows of treated wastewater in the non-irrigation season. Brine discharge modeling evaluated salinity and water quality impacts on receiving waters for six flow scenarios. Impacts were determined to be less than significant with implementation of Mitigation Measures 4.3-4 (Operational Discharge Monitoring Analysis, Reporting, and Compliance) and 4.3-5 (Implement Protocols to Avoid Exceeding Water Quality Objectives).	● Surface Water Hydrology and Water Quality, Section 4.3.5 ● Appendices D1, D2 and D3 (brine plume and water quality modeling)
The project proponent should provide a detailed evaluation of the projected short-term and long-term impacts of the brine plume on marine organisms based on a variety of operational scenarios and oceanographic conditions: ● Brine plume modeling should address different types of seasonal ocean circulation patterns, including consideration of "worst case scenarios." ● Modeling results should be included, to illustrate how the plume will behave during variable oceanographic conditions. ● The plume model should estimate salinity concentrations at the discharge point, as well as where and when it would reach ambient ocean concentrations. The extent, location, and duration of the plume	**Consistent**. Brine plume modeling was conducted for six flow scenarios, assuming no current at the sea floor and ignoring orbital velocities from waves. Brine plume effects were evaluated for salinity levels in the pipe, adjacent to the diffuser, within the zone of initial dilution (ZID), along the sea floor to the edge of the brine mixing zone (BMZ) (+100 meters from the diffuser) and beyond. Input to the brine plume model included temperature and salinity levels within the ambient water column for three ocean circulation patterns, which encompass the range of seasonal patterns typical of this area. Brine plume effects on physical and chemical parameters, including salinity, temperature, metal concentrations, pH, and dissolved oxygen, and all constituents regulated under the Ocean Plan are addressed in Impact 4.3-4 and Impact 4.3-5. Mitigation Measures 4.3-4 (Operational Discharge Monitoring Analysis, Reporting, and Compliance) and 4.3-5 (Implement Protocols to Avoid	● Surface Water Hydrology and WQ, Section 4.3.5 ● Marine Biological Resources, Section 4.5.5 ● Appendices D1, D2 and D3 (brine plume and water quality modeling)

ASSESSMENT OF PROJECT CONFORMITY WITH GUIDELINES FOR DESALINATION PLANTS IN MONTEREY BAY NATIONAL MARINE SANCTUARY

Summary of NOAA Desalination Guidelines	Summary of MPWSP Conformity with Guidelines	Section of EIR/EIS Containing Additional Information
Guidelines for Brine Discharge (Sec. D.3, pp. 6-7) (cont.)		
where the salinity is 10% above ambient salinity should also be provided. ● Information should be provided on the physical and chemical parameters of the brine plume including salinity, temperature, metal concentrations, pH, and oxygen levels. These water quality characteristics of the discharge should conform to California Ocean Plan requirements and should be as close to ambient conditions of the receiving water as feasible.	Exceeding Water Quality Objectives) would reduce impacts on receiving waters to a less than significant impact, thus the project conforms to Ocean Plan requirements.	
A continuous monitoring program should be implemented to verify the actual extent of the brine plume, when deemed necessary (see Monitoring section below) and to determine if the plume is impacting EFH, critical habitat, or sanctuary resources. If it is, then mitigation for the EFH impact will be required.	**Consistent**. To ensure that operational discharges are in compliance with the Ocean Plan, CalAm shall implement Mitigation Measure 4.3-4 (Operational Discharge Monitoring Analysis, Reporting, and Compliance), which requires a Monitoring and Reporting Plan that includes specific water quality monitoring protocols and frequencies to assess baseline conditions and track Project compliance. Continuous monitoring is required one year prior to commencement of operational discharges and for a minimum of five years after operational discharges commence. EFH is not present within the study area.	● Surface Water Hydrology and WQ, Sections 4.3.5
Guidelines for Energy Use and Greenhouse Gas Emissions (Sec. D.3, p. 7)		
The project proponent should provide estimates of a facility's projected annual electricity use and the greenhouse gas emissions resulting from that use. Applicants should also identify measures available to reduce electricity use and related emissions (e.g., energy efficient pumps, low resistance pipes, use of sustainable electricity sources, etc.) and to mitigate for all remaining emissions (e.g., purchase of offsets and/or credits that are consistent with the policies and guidelines of the California Global Warming Solutions Act of 2006 (AB 32), etc.).	**Consistent**. Section 4.11, Greenhouse Gas Emissions, provides estimates of the proposed project's anticipated total operational emissions, including those from indirect emissions, exhaust emissions, brine degassing emissions, annual electricity demand, and disturbance of carbon sequestration. The analysis provides the net increase in electrical power demand, and greenhouse gas emissions for CO_2, N_20, CH_4, and CO_2e. The proposed project includes numerous energy conservation measures, including energy recovery using pressure-exchanger technology, which is expected to substantially reduce overall energy consumption during the reverse osmosis process. GHG emission impacts would be significant and unavoidable, even with these energy saving measures and implementation of Mitigation Measure 4.11-1 (GHG Emissions Reduction Plan) that would require employment of additional energy conservation technologies and would ensure that "clean" renewable energy sources make up 20 percent of the operational energy use requirements. The GHG analysis does not propose the purchase of offsets because the proposed	● Project Description, Chapter 3 ● Greenhouse Gas Emissions, Section 4.11.5 ● Energy Conservation, Section 4.18

ASSESSMENT OF PROJECT CONFORMITY WITH GUIDELINES FOR DESALINATION PLANTS IN MONTEREY BAY NATIONAL MARINE SANCTUARY

Summary of NOAA Desalination Guidelines	Summary of MPWSP Conformity with Guidelines	Section of EIR/EIS Containing Additional Information
Guidelines for Energy Use and Greenhouse Gas Emissions (Sec. D.3, p. 7) (cont.)		
	project would primarily result in indirect emissions associated with electricity use from PG&E's power grid, which is fueled by power plants that are already subject to and participate in CARB's cap-and-trade program and future opportunities to purchase additional offsets are uncertain.	
Guidance for Co-location with Power Plant (Sec. D.3, p. 7)		
Desalination plants proposing to co-locate with power plant once-through cooling systems should include an assessment, during the environmental documentation phase, of the impacts that would occur when the power plant cooling system does not operate, along with an analysis of alternative intake and outfall structures that would avoid or minimize these impacts.	**Not applicable**. The proposed project is not co-located with a power plant.	Not applicable
Guidance for Co-location with Sewage Treatment Facilities (Sec. D.3, p.8)		
In consideration of recent interest by many municipalities regarding water recycling projects, the project proponent should evaluate the continued availability and reliability of that discharge in the future due to the potential for additional wastewater recycling projects. Additionally, where treated wastewater is available for recycling, proponents should determine the feasibility of using it as the source water to be desalinated for use in groundwater recharge – i.e., indirect potable reuse.	**Consistent**. MRWPCA certified the Final EIR and approved the Groundwater Replenishment Project (GWR) in October 2015. In September 2016, the CPUC authorized CalAm to purchase 3,500 afy of purified recycled water from the MRWPCA and MPWMD. If the GWR Project is successful at developing water, CalAm would build a reduced-size desalination project (6.4-mgd) and utilize the GWR Project, which would advance treat a variety of water sources including wastewater, stormwater, food industry processing water, and impaired surface waters of the State.	• Water Demand and Supplies, Section 2.4.5, Groundwater Replenishment • Overview, Section 4.1, Table 4.1-2, Cumulative Project #59 • Alternatives, Sections 5.4.7 and 5.4.8 Reduced Project Desalination Plant
The project proponent should provide a thorough analysis of the potential impacts on marine organisms resulting from the combined properties of the discharge, as well as how the addition of brine effluent would affect the dispersal/dilution of the wastewater effluent.	**Consistent**. Impacts on marine organisms from the brine-only discharge, and a discharge of brine combined with treated wastewater effluent, are analyzed in Impacts 4.5-4, 4.5-5, and 4.5-6; impacts on marine biological resources would be less than significant. Brine plume modeling included analysis of the effects of the brine on wastewater effluent dispersal/dilution.	• Surface Water Hydrology and WQ, Section 4.3.5 • Marine Biological Resources, Section 4.5.5 • Appendices D1, D2 and D3 (brine plume and water quality modeling)
The project proponent should evaluate diurnal fluctuations in wastewater discharge operations. When modeling for dilution of the brine plume, it is crucial to include a "worst case scenario" analysis of the dilution properties of the combined wastewater effluent and brine plume, during lowest expected flow rates for the treated wastewater effluent. The project proponent should include an assessment of the impacts that would occur from brine discharge if the wastewater discharge were to cease.	**Consistent**. Brine modeling evaluated and the EIR/EIS presents the impacts from six operational scenarios ranging from baseline wastewater-only discharges to "worst case" brine-only discharges. The brine-only discharge would exceed 2ppt for a very small area above the sea floor, and it would be less than 2 ppt above ambient at the edge of the ZID, the point at which the plume contacts the sea floor (less than 30 feet from the point of discharge).	• Surface Water Hydrology and WQ, Section 4.3.5 • Marine Biological Resources, Section 4.5.5 • Appendices D1, D2 and D3 (brine plume and water quality modeling)

ASSESSMENT OF PROJECT CONFORMITY WITH GUIDELINES FOR DESALINATION PLANTS IN MONTEREY BAY NATIONAL MARINE SANCTUARY

Summary of NOAA Desalination Guidelines	Summary of MPWSP Conformity with Guidelines	Section of EIR/EIS Containing Additional Information
Guidelines for Use of Chemicals for Treatment and Cleaning (Sec. D.3, p. 8)		
The project proponent should provide a complete list of all chemicals that may be used for the desalination facilities, as well as the quantities of chemicals and how these will be stored and disposed. They should also include an evaluation of the potential for these chemicals to cause impacts on local marine organisms. This should also include a detailed spill prevention and response plan for chemicals stored at the project site.	**Consistent**. A list of chemicals and their proposed annual usage in the desalination process is presented for the proposed project in Table 3-3 and Table 4.7-5 and includes standard treatment chemicals such as Sodium Hypochlorite, Sodium Bisulfite, Carbon Dioxide, Lime, Sodium Hydroxide, and Zinc Orthophosphate. Information regarding storage and disposal is in Impact 4.7-6. The desalination plant would be located approximately 1.75 miles from the MBNMS and chemical usage and storage at the desalination plant would not cause impacts on local marine organisms. CalAm would be required to implement the project in accordance with all applicable laws and regulations governing hazardous materials storage, handling, and disposal. Chemicals used in the pretreatment process will be disposed of as sludge in a sanitary landfill. Spent cleaning solutions and waste effluent for the RO System would be discharged into a collection sump, chemically neutralized, then pumped into tank trucks and transported offsite for disposal. Spill prevention measures and a response plan would be included in the SWPPP and the Hazardous Materials Business Plan.	● Description of the Proposed Project, Section 3.2.2.4 ● Hazards and Hazardous Materials, Section 4.7.5.2
The project proponent should evaluate the feasibility of using alternative pretreatment techniques such as ozone pretreatment, subsurface intakes, and membrane filtration, aimed at reducing the use of chemicals.	**Consistent**. The proposed project would use pretreatment techniques including subsurface intakes, pressure filters or multimedia gravity filters, backwash supply and filtered water equalization tanks, backwash settling basins with decanting system, cartridge filters, filtered water pumps, and backwash supply pumps.	● Description of the Proposed Project, Chapter 3
Guidelines for other Environmental and Socioeconomic Impacts (Sec. D.3, p.9)		
Desalination plants should be designed and operated to minimize impacts on recreational and commercial activities that occur within MBNMS. The project proponent should provide a thorough evaluation of the potential impacts on recreation, public access and safety, including but not limited to potential impacts on SCUBA divers, kayakers, recreational boaters, and commercial and recreational fishermen.	**Consistent**. The MPWSP Desalination Plant itself would not be located within MBNMS; slant wells from onshore locations would extend into the submerged lands of MBNMS. The proposed project is consistent with regional and local plans and policies designed to promote and protect public safety and recreational opportunities. No construction or operational activities proposed by the MPWSP would impact divers, kayakers, boaters or fishermen.	● Land Use, Land Use Planning, and Recreation, Section 4.8 ● Table 4.8-2 Applicable Regional and Local Land Use Plans and Policies Relevant to Land Use and Recreation
Desalination plants should not interfere with vertical or lateral public access to the shoreline or to coastal waters.	**Consistent**. Construction of the proposed new Transmission Main would temporarily close 1 of 3 entrances to Fort Ord Dunes State Park. Implementation of Mitigation Measure 4.9-1 (Traffic Control and Safety Assurance Plan), would provide continued safe access. The subsurface slant wells would be set back from the beach at a distance that would not preclude public	● Land Use, Land Use Planning, and Recreation, Section 4.8 ● Traffic and Transportation, Section 4.9

ASSESSMENT OF PROJECT CONFORMITY WITH GUIDELINES FOR DESALINATION PLANTS IN MONTEREY BAY NATIONAL MARINE SANCTUARY

Summary of NOAA Desalination Guidelines	Summary of MPWSP Conformity with Guidelines	Section of EIR/EIS Containing Additional Information
Guidelines for other Environmental and Socioeconomic Impacts (Sec. D.3, p.9) (cont.)		
	access on the beach. No other proposed components would interfere with vertical or lateral public access to the shoreline or coastal waters.	
Desalination plants in MBNMS should not contribute to coastal retreat and should not be designed to anticipate the possibility of installing coastal armoring at any time in the future to protect the plant or its infrastructure from the effects of coastal erosion, wave action, or sea level rise.	**Consistent**. The only proposed component that could become vulnerable to coastal retreat during the project lifetime is the existing test slant well. CalAm would implement Mitigation Measure 4.2-9 (Slant Well Abandonment Plan), which would require annual monitoring of the rate of coastal retreat and abandonment of the facility when necessary. CalAm would remove the susceptible facility prior to its exposure or potential contribution to coastal retreat. No coastal armoring is planned to protect the subsurface slant wells.	● Geology and Soils, Impact 4.2-10 ● Appendix C2, Analysis of Historic and Future Coastal Erosion with Sea Level Rise.
Desalination plants should be designed to minimize visual impacts on coastal resources.	**Consistent**. The MPWSP Desalination Plant would minimize coastal visual impacts on resources because of its inland location. The subsurface slant wells and associated facilities at CEMEX would be located in an area with moderate aesthetic resource value. The site's dune topography and vegetation would substantially limit views of the slant well sites from locations outside of the CEMEX property, including from the beach and from Hwy 1. Views from the beach would be nearer and longer in duration compared to roadside views, but the above ground facilities would not appear dominant relative to surrounding features and would not obstruct coastal views. As a result, these facilities would minimize visual impacts on coastal resources.	● Aesthetic Resources, Section 4.14.5
The project proponent should provide an analysis of the potential population growth-inducing impacts of the desalination project. This should be compared for consistency with projected development patterns in relevant planning documents such as Local Coastal Programs and the County's General Plan. NOAA recommends that the freshwater production capacity of all desalination projects be consistent with established local government land use policies in county and city general plans and local coastal programs.	**Consistent**. The proposed project is sized to provide existing customers with a reliable water supply, accounting for peak month demand; to accommodate tourism demand under a recovered economy; to provide supplies for vacant legal lots of record; and for Pebble Beach Entitlements. The direct effects on population and housing were determined to be less than significant. The indirect growth inducement potential of the MPWSP was evaluated in conjunction with population and housing forecasts prepared by the Association of Monterey Bay Area Governments and with projections from local General Plans or specific plans. While the MPWSP would provide sufficient supply to enable CalAm to comply with the SWRCB Order 95-10 and the Seaside Groundwater Basin Adjudication (see Table 6.3-1), it would provide some water for growth. The indirect impacts of that growth were identified in the EIRs prepared for the general and specific plans that guide that growth.	● Population and Housing, Section 4.19 ● Growth-Inducing Impacts, Section 6.3 ● Secondary Effects of Growth, Appendix J2

ASSESSMENT OF PROJECT CONFORMITY WITH GUIDELINES FOR DESALINATION PLANTS IN MONTEREY BAY NATIONAL MARINE SANCTUARY

Summary of NOAA Desalination Guidelines	Summary of MPWSP Conformity with Guidelines	Section of EIR/EIS Containing Additional Information
Guidelines for Plant Site Selection and Structural and Engineering Considerations (Sec. D.3, pp. 9-10)		
Desalination plant intakes should be sited to avoid sensitive habitats. For open-water intakes, areas of high biological productivity, such as upwelling centers or kelp forests or other dense beds of submerged aquatic vegetation should be avoided, since the entrainment and impingement impacts of a desalination plant are in large part dictated by the biological productivity in the vicinity of that intake.	**Consistent for MBNMS Resources; Inconsistent for Onshore Resources**. The proposed project would include subsurface intakes under the MBNMS seafloor that avoid impingement and entrainment impacts. No construction is planned on the seafloor surface. Onshore, the proposed project would use subsurface slant wells at the CEMEX sand mining property. A thorough intake alternatives analysis identified the proposed location to minimize impacts. The wellheads would be located on the inland side of the dunes; sensitive communities and critical habitat within or adjacent to the project construction area could be temporarily (9 acres) or permanently (1 acre) impacted during construction. Slant well construction would occur outside of western snowy plover critical habitat. However, conversion of the test slant well to a permanent well and construction of aboveground facilities could indirectly impact the primary constituent elements of this critical habitat if worker foot traffic extends beyond the designated construction work area, if trash and debris is left behind following construction, or if invasive plant species are introduced or spread at the site. Implementation of mitigation measures would reduce impacts on sensitive natural communities and critical habitat resulting from slant well construction to a less-than-significant level.	● Description of the Proposed Project, Chapter 3 ● Terrestrial Biological Resources, Impact 4.6-2 ● Alternatives Development and Screening Process, Chapter 5.3
Desalination plant discharges should not be located in or near ecologically sensitive areas, including Areas of Special Biological Significance as designated by the State Water Resources Control Board, EFH Habitat Areas of Particular Concern as designated by the Pacific Fishery Management Council, and Marine Protected Areas designated under the Marine Life Protection Act. These areas include: Elkhorn and Pescadero Sloughs, James V. Fitzgerald Marine Reserve, Año Nuevo, Pacific Grove Marine Gardens, Edward F. Ricketts, Carmel Bay, Point Lobos, Point Sur and Big Creek State Marine Conservation Areas and Marine Reserves, Julia Pfeiffer Burns Underwater Park, and the Ocean Area Surrounding the Mouth of Salmon Creek.	**Consistent**. The MPWSP Desalination Plant discharges would not be located in or near ecologically sensitive areas.	● Description of the Proposed Project, Chapter 3 ● Marine Biological Resources, Figure 4.5-5 Sanctuary Ecologically Significant Areas Designated in MBNMS

ASSESSMENT OF PROJECT CONFORMITY WITH GUIDELINES FOR DESALINATION PLANTS IN MONTEREY BAY NATIONAL MARINE SANCTUARY

Summary of NOAA Desalination Guidelines	Summary of MPWSP Conformity with Guidelines	Section of EIR/EIS Containing Additional Information
Guidelines for Plant Site Selection and Structural and Engineering Considerations (Sec. D.3, pp. 9-10) (cont.)		
Areas with limited water circulation such as enclosed bays or estuaries, which can "trap" the brine discharge, should be avoided, as should EFH HAPC, such as rocky substrate and kelp forests, due to their high biological productivity. As a general rule, the stronger the hydrodynamic force, the better dilution is achieved due to faster dispersal from the natural mixing action of the ocean. Desalination plant discharges should be designed and sited to minimize impacts on marine biological resources of the sanctuary.	**Consistent**. The proposed project would utilize the existing MRWPCA ocean outfall in Monterey Bay, within MBNMS. The location is on a shelf with a 1 percent slope towards the Monterey Submarine Canyon; it is not enclosed, not an estuary, and the only hard substrate is the ballast rock supporting the outfall pipe. There are no kelp beds nearby.	● Marine Biological Resources, Section 4.5, Figure 4.5-1 Identified Subtidal Habitats in Study Area
The project proponent should provide complete plans, which include detailed information on: location, depth, engineering, and configuration of intake and outfall pipes; sizing and configuration of seabed structures; proposed depth and distance from shore of the intake and discharge points; local bathymetry; and dilution zones for each discharge pipeline alternative. The pipeline placement and configuration of intake and discharge structures should be designed as to avoid sensitive biological areas in the sanctuary.	**Consistent**. The proposed project would utilize an existing outfall and diffuser, and subsurface intakes; no proposed component would be constructed or placed on the surface of the sea floor. Local bathymetry and dilution zones are provided.	● Description of the Proposed Project, Chapter 3 − Table 3-1 − Sections 3.2.1 and 3.2.2.5 − Figure 3-3a MPWSP Seawater Intake System − Figure 3-3b Illustrative Cross-Sectional View of Subsurface Slant Wells ● Geology and Soils, Section 4.2 − Figure 4.2-7 Representative Profile at Test Slant Well − Figure 4.2-8 Representative Profile at Proposed Slant Wells ● Surface Hydrology and WQ, Section 4.3 − Figure 4.3-7 Brine Mixing Zone (BMZ) and Diffuser Overview ● Marine Biological Resources, Section 4.5 − Figure 4.5-1 Identified Subtidal Habitats in Study Area − Figure 4.5-4 Essential Fish Habitat Designated in MBNMS under Federal Regulations − Figure 4.5-5 Sanctuary Ecologically Significant Areas Designated in MBNMS − Figure 4.5-6 Marine Protected Areas along the California Coast ● Appendix D1, Brine Modeling

ASSESSMENT OF PROJECT CONFORMITY WITH GUIDELINES FOR DESALINATION PLANTS IN MONTEREY BAY NATIONAL MARINE SANCTUARY

Summary of NOAA Desalination Guidelines	Summary of MPWSP Conformity with Guidelines	Section of EIR/EIS Containing Additional Information
Guidelines for Plant Site Selection and Structural and Engineering Considerations (Sec. D.3, pp. 9-10) (cont.)		
The project proponent should provide an analysis of the potential for co-location of desalination plants to make use of existing infrastructure.	**Consistent**. The proposed desalination plant would be located adjacent to the MRWPCA and would use the existing outfall pipeline and diffuser.	● Description of the Proposed Project, Chapter 3.
Guidelines for Desalination Plant Construction Phase (Sec. D.3, pp. 10-12)		
The project proponent should identify and provide a complete explanation of potential impacts from the construction process to the marine and coastal environment. They should also provide an evaluation of marine historical or archaeological resources that could be disturbed, and plans to mitigate any potential impacts, or recover any resources that may be disturbed during construction.	**Not applicable**. The proposed desalination plant would be located approximately 1.75 miles from the coast and would not impact marine and coastal resources during the construction phase.	● Description of the Proposed Project, Chapter 3.
All proposed projects should provide a stormwater pollution prevention plan (SWPPP). Stormwater runoff from the site should be managed to prevent any discharge of silt or chemical contaminants to the ocean or any other surface water body. The SWRCB General Construction Storm Water Permit for Construction Activities (General Permit) is required by the Central Coast Water Board for all construction activities that disturb at least one acre of soil, including grading and stockpiling. Local jurisdictions may require additional construction permits and SWPPPs at lower disturbance thresholds. In the case of any accidental spills or construction-related impacts on marine biological resources, MBNMS and NMFS management should be notified immediately and mitigation plans developed.	**Consistent**. Construction of the proposed project would be conducted under a General Construction Permit, which is implemented and enforced by the Central Coast RWQCB and requires project operators to prepare a SWPPP. The proposed project would include a Hazardous Materials Business plan (HMBP) that is required by the Hazardous Materials Release Response Plans and Inventory Act of 1985 for businesses and construction contractors that use and store hazardous materials. The HMBP includes information on hazardous material handling and storage, including containment, site layout, and emergency response and notification procedures (including MBNMS and NMFS) in the event of a spill or release.	● Surface Water Hydrology and Water Quality, Section 4.3.5 ● Hazards and Hazardous Materials, Section 4.7.5
Best Management Practices should be developed and adhered to in order to avoid or minimize impacts on the marine environment during the construction phase of a desalination project. This should include the use of materials and practices that minimize disturbances to the environment to the maximum extent practicable.	**Consistent**. All construction activities associated with the proposed project would occur several hundred feet inland of MHW and potential impacts on the marine environment within MBNMS would be less than significant, or no impact.	● Surface Water Hydrology and Water Quality, Section 4.3.5 ● Marine Biological Resources, Section 4.5.5
The plant construction phase should include techniques and plans to avoid impacts on maritime heritage resources of the MBNMS. This includes submerged cultural and archeological resources including shipwrecks.	**Consistent**. The proposed project would not be located near any MBNMS maritime heritage resources. The existing MRWPCA outfall would be used for the discharge of brine; no new construction activities would occur on the sea floor or in a MBNMS maritime heritage resource area.	● Description of the Proposed Project, Chapter 3 ● Cultural and Paleontological Resources, Section 4.15.5

ASSESSMENT OF PROJECT CONFORMITY WITH GUIDELINES FOR DESALINATION PLANTS IN MONTEREY BAY NATIONAL MARINE SANCTUARY

Summary of NOAA Desalination Guidelines	Summary of MPWSP Conformity with Guidelines	Section of EIR/EIS Containing Additional Information
Guidelines for Desalination Plant Construction Phase (Sec. D.3, pp. 10-12) (cont.)		
Project proponents should adhere to specific conditions for all construction activities occurring on the beach. See bulleted list on page 11 of MBNMS Guidelines.	**Consistent**. All construction activities associated with the proposed project would occur at a minimum of several feet inland of MHW; construction materials and equipment would be delivered by existing access roads, no fill material would be discharged into waters of MBNMS. A list of anticipated required permits and approvals is presented in Chapter 3. Many of these would include specific conditions for work on or near the beach. All project construction activities would comply with specific conditions of any and all authorizations, regardless of construction location.	● Description of the Proposed Project, Chapter 3. ● Surface Water Hydrology and Water Quality, Section 4.3.5
Mitigation should be provided for the loss of EFH from the placement of the intake structure, delivery pipeline, and outfall structure.	**Not Applicable**. The marine biological resources study area for the proposed project does not include EFH and does not include the placement of any new structure in MBNMS. The proposed project would not affect EFH.	● Marine Biological Resources, Section 4.5, Figure 4.5-4 Essential Fish Habitat Designated in MBNMS under Federal Regulations
Monitoring (Sec. D.4, pp.12-13)		
The project proponent should develop an ongoing monitoring program to evaluate the extent of impacts from the plant's intake and discharge operations on marine biological resources. The monitoring program should focus on: a) developing a statistically acceptable baseline for the project area, b) monitoring source water for potential contaminants that may require additional treatment, c) monitoring the effluent prior to discharge to ensure it is in compliance with the California Ocean Plan d) monitoring the effects of the effluent on marine organisms within the plume, after the discharge begins, e) monitoring the impingement and entrainment effects on marine organisms, if applicable, and f) monitoring any required mitigation for unavoidable impacts to make sure the mitigation is performing as intended. The proposed monitoring system should be carried out for at least three years, with an evaluation report and cumulative impact evaluation generated each year. After the third year, the RWQCB and the MBNMS	**Consistent**. Mitigation Measure 4.3-4 (Operational Discharge Monitoring, Analysis, Reporting, and Compliance) applies to the proposed project operational discharges to ensure compliance with Ocean Plan requirements, and includes the following protocols, which are consistent with the guidelines: ● To establish baseline conditions, continuously record water quality parameters of salinity and dissolved oxygen at one hour intervals at several locations in the receiving waters of the Monterey Bay for one year prior to commencement of operational discharges (consistent with a.). ● Continue WQ monitoring for a minimum of five years once operational discharges have commenced to confirm compliance with Ocean Plan receiving water quality limitations. ● Assess changes to the benthic community composition within the Zone of Initial Dilution (ZID) through the collection of visual observation data for the first 3 years with assessment to continue an additional 2 years (consistent with d.) ● Prepare annual reports of analyses and summaries and send to RWQCB and MBNMS, and make publically available via project website. Mitigation Measure 4.3-5 (Implement Protocols to Avoid Exceeding Water Quality Objectives) would require CalAm to	● Surface Water Hydrology and Water Quality, Section 4.3.5

ASSESSMENT OF PROJECT CONFORMITY WITH GUIDELINES FOR DESALINATION PLANTS IN MONTEREY BAY NATIONAL MARINE SANCTUARY

Summary of NOAA Desalination Guidelines	Summary of MPWSP Conformity with Guidelines	Section of EIR/EIS Containing Additional Information
Monitoring (Sec. D.4, pp.12-13) (cont.)		
should determine the extent of additional water quality monitoring for the final two years of the NPDES permit, and NOAA Fisheries and MBNMS should determine the extent of additional biological monitoring that may be needed.	perform extensive water quality assessment prior to implementation of the proposed project as well as during operation of the facility to ensure compliance with MRWPCA NPDES Permit amendment process (Order No. R3-2014-0013, NPDES Permit No. CA0048551) and includes the following protocols: ● Quantify projected final design discharge volumes by month. ● Collect samples of source waters and operational discharges and analyze for constituents listed in Table 1 of Ocean Plan. (Consistent with b. and c.) ● Demonstrate compliance for the full range of regulated water quality constituents specified in the Ocean Plan and NPDES water quality requirements in the context of minimum initial dilution values at the edge of the ZID. ● If results do not meet NPDES water quality requirements and Ocean Plan limitations, then MPWSP operational discharges shall not be released as proposed and would be subject to additional design features, engineering solutions, and/or operational measures to bring water quality constituents into conformance. ● Additional design features and operational measures include additional pretreatment or source water, treatment of discharge, retrofitting the existing outfall to increase dilution, and flow augmentation. ● The intakes would be subsurface; no impingement and entrainment effects would result. (Consistent with e.) Mitigation would be monitored in accordance with the Mitigation Monitoring and Reporting Program. (Consistent with f.)	

References – Other Considerations

Association of Monterey Bay Area Governments (AMBAG), 2004. AMBAG Population, Housing Unit, and Employment Forecasts. Adopted April 14, 2004.

Association of Monterey Bay Area Governments (AMBAG), 2008. Monterey Bay Area 2008 Regional Forecast. Adopted by the AMBAG Board of Directors June 11, 2008.

Association of Monterey Bay Area Governments (AMBAG), 2013. About Us. Available online at: www.ambag.org/about-us. Accessed October 17, 2013.

Association of Monterey Bay Area Governments (AMBAG), 2014a. 2014 Regional Growth Forecast: Technical Documentation, adopted June 11, 2014.

Association of Monterey Bay Area Governments (AMBAG), 2014b. Regional Housing Needs Allocation Plan: 2014-2023, adopted June 11, 2014.

California American Water (CalAm), 2006. *Monterey District Urban Water Management and Water Shortage Contingency Plan 2006-2010*, February 2006 Revision, 2006.

California American Water (CalAm) et al., 2013. Settlement Agreement of California American Water Company, Citizens for Public Water, City of Pacific Grove, Coalition of Peninsula Businesses, County of Monterey, Division of Ratepayer Advocates, Landwatch Monterey County, Monterey County Farm Bureau, Monterey County Water Resources Agency, Monterey Peninsula Regional Water Authority, Monterey Peninsula Water Management District, Monterey Regional Water Pollution Control Agency, Planning and Conservation League Foundation, Salinas Valley Water Coalition, Sierra Club, and Surfrider Foundation, Before the Public Utilities Commission of the State of California, Application 12-04-019, July 31, 2013.

California-American Water Company, Monterey Peninsula Regional Water Authority, Monterey Peninsula Water Management District, Pebble Beach Company, City of Pacific Grove (CalAm, et al.), 2016a. Amended Application for Order Modifying State Water Board Order WR 2009-0060 (Cease and Desist Order), In the Matter of the Unauthorized Diversion and Use of Water by the California American Water Company; Cease and Desist Order WR 2009-0060, April 28, 2016, p. 18.

California American Water, Coalition of Peninsula Businesses, LandWatch Monterey County, Monterey County Farm Bureau, Monterey County Water Resources Agency, Monterey Peninsula Regional Water Authority, Planning and Conservation League Foundation, Salinas Valley Water Coalition (CalAm et al), 2016b. Joint Motion for Approval of Settlement Agreement on Desalination Plant Return Water. California American Water Company, Coalition of Peninsula Businesses, LandWatch Monterey County, Monterey County Farm Bureau, Monterey County Water Resources Agency, Monterey Peninsula Regional Water Authority, Planning and Conservation League Foundation, Salinas Valley Water Coalition, Application 12-04-019, June 14, 2016.

California, Department of Finance (DOF), 2007. E-8 Historical Population and Housing Estimates for Cities, Counties, and the State, 1990-2000. Sacramento, California, August 2007. Available online at: http://www.dof.ca.gov/research/demographic/reports/estimates/e-8/. Accessed October 20 and November 18, 2013.

California Department of Finance (DOF), 2013. E-5 Population and Housing Estimates for Cities, Counties and the State, January 1, 2011-2013, with 2010 Benchmark, Revised May 10, 2013. Available online at: http://www.dof.ca.gov/research/demographic/reports/estimates/e-5/2011-20/view.php. Accessed October 17, 2013.

California Department of Housing and Community Development, 2016. Housing Element Review Status, Available via http://www.hcd.ca.gov/housing-policy-development/housing-resource-center/plan/he/. Accessed September 21, 2016.

City of Carmel-by-the-Sea, 2003. *Carmel- by-the-Sea General Plan/Coastal Land Use Plan*. Adopted June 3, 2003.

City of Carmel-by-the-Sea, 2015a. *City of Carmel-by-the-Sea 2015-2023 Housing Element*, December 1, 2015.

City of Carmel-by-the-Sea, 2015b. *Addendum to Initial Study/Negative Declaration, City of Carmel-by-the-Sea 2015-2023 Housing Element and Related Zoning Amendments*, November 18, 2015.

City of Del Rey Oaks, 1997a. *General Plan Update for the City of Del Rey Oaks*, January 1997.

City of Del Rey Oaks, 1997b. *Final Environmental Impact Report for the Del Rey Oaks General Plan Update Project*, May 16, 1997.

City of Monterey, 2004. *City of Monterey General Plan Update Draft Environmental Impact Report (July 14, 2004)* and *Final Environmental Impact Report, State Clearinghouse No. 2003081011*, October 11, 2004.

City of Monterey, 2016a. *City of Monterey General Plan*, Adopted January 2005; amended through March 2016.

City of Monterey, 2016b. City of Monterey 2015-2023 Housing Element, Adopted March 23, 2016.

City of Pacific Grove, 1994. *City of Pacific Grove General Plan*. Adopted October 5, 1994.

City of Pacific Grove, 2016. Housing Element 2015-2023. Adopted March 16, 2016.

City of Sand City, 2001. *Expanded Environmental Impact Study and Proposed Negative Declaration, General Plan Update 2001-2016*, October 12, 2001.

City of Sand City, 2002. *Sand City General Plan: 2002-2017*. February 2002.

City of Sand City, 2009. *Sand City 2009 Housing Element Initial Environmental Study and Negative Declaration*, December 16, 2009.

City of Sand City, 2010. *City of Sand City Housing Element Update 2009-2014*. February 2010.

City of Seaside, 2004a. *Seaside General Plan*. Adopted August 5, 2004.

City of Seaside, 2004b. *Final Seaside General Plan EIR*, Volume 1, January 2004.

City of Seaside, 2010. *Public Review Draft Initial Study/Proposed Negative Declaration for the of Seaside Local Coastal Program*, August 2010.

City of Seaside, 2011a. Housing Element Update, adopted by the Seaside City Council January 27, 2011.

City of Seaside, 2011b. *Public Review Draft Initial Study/Proposed Negative Declaration: City of Seaside Housing Element Update 2009-2014*, September 2010, adopted by the Seaside City Council January 27, 2011.

City of Seaside, 2015. Letter to Andrew Barnsdale, CPUC, from Diana Ingersoll, Deputy City Manager-Resource Management Services, City of Seaside, RE: Comments on the DEIR for the Monterey Peninsula Water Supply Project, including letter Attachment 3, Draft Water Supply Assessment of West Broadway Urban Village Specific Plan, prepared for City of Seaside by Schaaf & Wheeler in 2008. June 20, 2015.

Dean Runyan Associates, Inc., 2016. *California Travel Impacts 1992-2015p*, Prepared for Visit California, April 2016.

Johnston, Desmond, Project Manager, Planning and Environmental, Monterey Peninsula Airport District, telephone communication with Chris Mueller, ESA, November 22, 2013.

Local Agency Formation Commission (LAFCO) of Monterey County, 2011. City of Sand City 2011 Municipal Service and Sphere of Influence Review, Adopted January 24, 2011.

Monterey Bay National Marine Sanctuary (MBNMS), 2010. Guidelines for Desalination Plants in the Monterey Bay National Marine Sanctuary. Prepared by NOAA's Monterey Bay National Marine Sanctuary and National Marine Fisheries Service. Available online at http://montereybay.noaa.gov/resourcepro/resmanissues/pdf/050610desal.pdf. Accessed November 11, 2016.

Monterey County, 2010a. *2010 Monterey County General Plan*. Adopted October 26, 2010.

Monterey County, 2010b. *Monterey County General Plan Final Environmental Impact Report, SCH # 2007121001*, March 2010. (Includes *2007 Monterey County Draft Environmental Impact Report, SCH # 2007121001*, September 2008.)

Monterey County, 2010c. *Revised Supplemental Materials to the Final EIR (October 15, 2010)*, Exhibit I of the Board Package for the October 26, 2010 Board of Supervisors meeting; available online: http://www.co.monterey.ca.us/planning/gpu/GPU_2007/ 102610_Board_Package/102610_Board_Package.htm.

Monterey County, 2016. *County of Monterey 2015-2023 Housing Element*, Adopted January 26, 2016.

Monterey County Resource Management Agency, 2010. *Initial Study: Housing Element 2009-2014*, April 19, 2010.

Monterey Peninsula Airport District, 1992. *Monterey Peninsula Airport Master Plan Update Final Report*, September 1992.

Monterey Peninsula Water Management District (MPWMD), 2006. Estimated Long-Term Water Needs by Jurisdiction Based on General Plan Build-out in Acre-Feet, Exhibit 1C of Special Meeting/Board Workshop Agenda Item 1, MPWMD Board of Directors Packet. May 18, 2006.

Monterey Peninsula Water Management District (MPWMD), 2008. California American Water consumption data for water years 2003 through 2007; provided by MPWMD to ESA June 13, 2008.

Monterey Peninsula Water Management District (MPWMD), 2013a California American Water consumption data for water years 2008 through 2012; provided by MPWMD to ESA October 18, 2013.

Monterey Peninsula Water Management District (MPWMD), 2013b. Monthly Allocation Report Exhibit 25-A, MPWMD Board Meeting, Item 25, November 18, 2013b.

Monterey Peninsula Water Management District (MPWMD), 2015. Letter to Ken Lewis, CPUC, from David J. Stoldt, General Manager, MPWMD, Subject: MPWMD Comments on Draft EIR for Monterey Peninsula Water Supply Project, CPUC Application A. 12-04-019; Subsequent EIR to SCH# 2006101004, September 14, 2015.

Monterey Peninsula Water Management District (MPWMD), 2016a. Monthly Allocation Report: Entitlements, Reported in Acre-Feet For the month of May 2016, Agenda Item 25-B, Board of Directors Regular Meeting, June 20, 2016. Available online at: http://www.mpwmd.net/asd/board/boardpacket/2016/20160620/June-20-Agenda.htm. Accessed June 28, 2016.

Monterey Peninsula Water Management District (MPWMD), 2016b. California American Water consumption data for water years 2013 through 2015; provided by MPWMD to ESA July 11, 2016.

RBF Consulting, 2013. Memorandum from Paul Findley to Richard Svindland, California American Water, Subject Recommended Capacity for the Monterey Peninsula Water Supply Project (MPWSP) Desalination Plant, January 7, 2013.

Stoldt, David J., 2011. Letter from David J. Stoldt, 2011. General Manager, Monterey Peninsula Water Management District, to Mike Novo, Director of Planning, Monterey County Resource Management Agency, Re: Pebble Beach Company Water Entitlement, December 14, 2011. Available: http://www.co.monterey.ca.us/planning/major/Pebble%20Beach%20Company/DEIR_Comment_Letters/COMMENTb_LETOo_PLN100138_MPWMD_12-14-2011.pdf.

Stoldt, David J., 2013. Direct Testimony of David J. Stoldt Before the Public Utilities Commission of the State of California, Application No. 12-04-019, February 22, 2013.

Svindland, Richard C., 2013. Supplemental Testimony of Richard C. Svindland Before the Public Utilities Commission of the State of California, Application No. 12-04-019 (Filed April 23, 2012), January 11, 2013.

Svindland, Richard C., 2014. Memorandum to Kelly White, ESA, From Richard C. Svindland, CAW, Re: Pipeline Sizing for MPWSP, January 23, 2014.

Svindland, Richard C., 2016. Supplemental Testimony of Richard C. Svindland; ERRATA, Before the Public Utilities Commission of the State of California, Application No. 12-04-019 (Filed April 23, 2012), April 14, 2016, plus Attachment 1, Demand Scenarios.

United States Department of the Army (U.S. Army), 2013a. *Final Environmental Impact Statement, Real Property Master Plan, Presidio of Monterey, California*, February 2013.

United States Department of the Army (U.S. Army), 2013b. *Record of Decision: Presidio of Monterey Real Property Master Plan Final Environmental Impact Statement*, Monterey, California, signed September 20, 2013.

WSC, 2012. *Final 2010 Urban Water Management Plan for the Central Division – Monterey County District*, Prepared for California-American Water Company, Prepared under the Responsible Charge of Jeffery M. Szytel, California R.C.E. No. 63004, September 7, 2012.

This page intentionally left blank

CHAPTER 7
Report Preparation

7.1 Coordination and Consultations

Monterey Bay National Marine Sanctuary (MBNMS) has coordinated and consulted with several agencies during the National Environmental Policy Act (NEPA) process for the proposed project to meet the requirements of other federal laws. Summaries are provided below of the current status of consultations with National Marine Fisheries Service (NOAA Fisheries) under Endangered Species Act Section 7 and the Magnuson-Stevens Fishery Conservation and Management Act, with the State Historic Preservation Officer (SHPO) under National Historic Preservation Act (NHPA) Section 106. In addition, MBNMS has invited the U.S. Army (Presidio of Monterey) and the U.S. Army Corps of Engineers to be Cooperating Agencies under NEPA.

7.1.1 Endangered Species Act Section 7

Endangered Species Act Section 7(a)(1) directs federal agencies to use their authority to carry out programs for the conservation of threatened and endangered species. Federal agencies also must consult with NOAA Fisheries under Section 7(a)(2) of the Act on activities that may affect a listed species (16 U.S.C. §1531 et seq.). These interagency Section 7 consultations are intended to assist federal agencies in fulfilling their duty to ensure that federal actions do not jeopardize the continued existence of a species or destroy or adversely modify critical habitat. In the event that NOAA Fisheries determines that a proposed action would jeopardize a species or adversely modify critical habitat (81 Fed. Reg. 7214), it would suggest Reasonable and Prudent Alternatives to the proposed action.

For the proposed project, the MBNMS will initiate consultation through the preparation and submittal of a Biological Assessment (BA) that describes the proposed action to NOAA Fisheries and evaluates the potential effects of the proposed project on listed and proposed species and designated and proposed critical habitat and makes an determination as to whether any such species or habitat are likely to be adversely affected by the project. See generally 50 CFR 402.12. Following review of the BA, NOAA Fisheries is expected to issue a Biological Opinion (BO) that addresses whether or not the proposed project is likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of critical habitat. A copy of the BO would be included in the Record of Decision for the proposed the proposed project, when issued.

7.1.2 Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation

The Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. §§1801–1884) establishes Essential Fish Habitat (EFH) provisions to identify and protect important habitats of federally managed marine and anadromous fish species. The Act defines EFH as those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (16 U.S.C. §1802(10); 50 CFR 600.10). Federal agencies that fund, permit, or undertake activities that may adversely affect EFH are required to consult with NOAA Fisheries regarding the potential effects of their actions on EFH, and respond to NOAA Fisheries' recommendations (16 U.S.C. §1855). Federal agencies consult with NOAA Fisheries under the Magnuson-Stevens Act as part of other existing interagency coordination processes to review proposed projects and other actions that may affect marine resource habitat.

For the proposed project, MBNMS is consulting with NOAA Fisheries as part of the Endangered Species Act Section 7 consultation process. MBNMS notified NOAA Fisheries regarding the proposed federal action, which may adversely affect EFH, in its August 26, 2015 NOI to prepare an EIS for the proposed project (80 Fed. Reg. 51787) and is providing additional information about potential impacts of the proposed project in this Draft EIR/EIS, which describes the proposed project, analyzes the potential for the proposed project to result in adverse impacts to EFH, and draws conclusions about the proposed project's effects on EFH. See Chapter 3, Project Description, and Section 4.5, Marine Biological Resources.

Following receipt and review of this information, NOAA Fisheries will provide EFH Conservation Recommendations to the MBNMS detailing measures, if appropriate, that can be taken by MBNMS to conserve EFH. Within 30 days of receiving recommendations, MBNMS will provide a detailed written response to NOAA Fisheries. The response will describe measures proposed to avoid, mitigate, or offset the impact of the proposed project on EFH.

7.1.3 National Historic Preservation Act Section 106 Consultation

Federal agencies must demonstrate compliance with the NHPA (16 U.S.C. §470 et seq.). NHPA Section 106 requires a federal agency with jurisdiction over a project to take into account the effect of the proposed federal action on historic properties included on, or eligible for inclusion on, the National Register of Historic Places (16 U.S.C. §470f). Federal agencies also must provide the Advisory Council on Historic Preservation (ACHP) an opportunity to comment on the undertaking. Under NHPA Section 106, the MBNMS consults with Indian tribes as part of its responsibilities to identify, evaluate, and resolve adverse effects to historic properties affected by the Sanctuary's undertakings.

Implementation of the proposed project also requires local and state agencies to demonstrate compliance with the California Environmental Quality Act (CEQA), for which specific guidance regarding cultural resources is presented in Appendix K of the CEQA Guidelines. Local agencies

may use the NHPA process to demonstrate compliance with those CEQA requirements. Analysis of impacts in this document and implementation of the mitigation measures in Section 4.15, Cultural and Paleontological Resources, provide evidence of the MBNMS's compliance with Section 106 of the NHPA and NEPA as well as the California Public Utilities Commission's compliance with CEQA with respect to cultural resources. The basic steps in the Section 106 process are described in Section 4.15, Cultural and Paleontological Resources. For the proposed project, MBNMS contacted the Native American Heritage Commission (NAHC) and requested a search of the Sacred Lands File. The search identified no results, and the NAHC recommended MBNMS contact the tribes. MBNMS contacted 10 tribes and received one response.

7.1.4 Coastal Zone Management Act Federal Consistency Review

The federal consistency requirement set forth in Section 307 of the Coastal Zone Management Act (CZMA) requires that activities approved or funded by the federal government that affect any land or water use or natural resource of a state's coastal zone, must be consistent with the enforceable policies of the state's federally approved coastal management program.

For the proposed project, the MBNMS is coordinating with the California Coastal Commission. Under Section 307 of the CZMA (16 U.S.C. §1456), activities that may affect coastal uses or resources that are undertaken by federal agencies, require a federal license or permit, or receive federal funding must be consistent with a State's federally approved coastal management program. California's federally approved coastal management program consists of the California Coastal Act, the McAteer-Petris Act, and the Suisun Marsh Protection Act. The California Coastal Commission implements the California Coastal Act and the federal consistency provisions of the CZMA for activities affecting coastal resources outside of San Francisco Bay.

7.2 EIR/EIS Preparers

National Oceanic and Atmospheric Administration, Monterey Bay National Marine Sanctuary

Karen Grimmer, Bridget Hoover
99 Pacific Street, Bldg 455a
Monterey, CA 93940

California Public Utilities Commission

Mary Jo Borak
Energy Division, CEQA Unit
505 Van Ness Avenue
San Francisco, CA 94102

Environmental Science Associates (ESA)

550 Kearny Street, Suite 800
San Francisco, CA 94108

Project Director	Eric Zigas
Project Manager	Alexandra Thompson
Project/Document Coordinator	Hilary Finck
Project Description	Kelly White
Demand and Supply	Christine Mueller
Water Rights	Anna Shimko (Burke, Williams and Sorensen, LLP)
Geology, Soils and Seismicity	Michael Burns, Pete Hudson
Coastal Erosion	Bob Battalio, Doug George, David Revell, Elena Vandebroek
Surface Water Hydrology and WQ	Justin Taplin, Asavari Devadiga, Pablo Quiroga
Groundwater Resources	Pete Hudson, Michael Burns
Marine Biological Resources	Dane Hardin, Jay Johnson (Applied Marine Sciences)
Terrestrial Biological Resources	Chris Rogers, Michelle Giolli, Rachel Danielson
Hazards and Hazardous Materials	Michael Burns
Land Use and Recreation	Eli Davidian
Traffic and Transportation	Jack Hutchison
Air Quality, GHGs, and Energy	Matt Fagundes
Noise and Vibration	Chris Sanchez
Public Services and Utilities	Hilary Finck
Aesthetics	Eli Davidian
Cultural Resources	Heidi Koenig, Candace Ehringer, Brad Brewster
Agriculture and Forestry	Hilary Finck
Minerals	Hilary Finck
Population and Housing	Christine Mueller
Socioeconomics/Environmental Justice	Hunter Connell, Alexandra Thompson
Cumulative Effects	Alexandra Thompson
Alternatives Analysis	Erick Cooke, Michael Manka, Christine Mueller, Anna Shimko
Growth Inducement	Christine Mueller
Graphics	Wes McCullough, Perry Jung, Ron Teitel
Word Processing Extraordinaire	Lisa Bautista
Production	Logan Sakai, Anthony Padilla

Applied Marine Sciences (Marine Biological Resources)

911 Center Street, Suite A
Santa Cruz, CA 9506

- Dane Hardin
- Jay Johnson

Burke, Williams and Sorensen, LLP (Legal Review)
101 Howard Street, Suite 400
San Francisco, CA 94105

- Anna Shimko
- Deborah Kartiganer
- Steven Velyvis

Catalyst (Public Coordination and Outreach)
25 Brushwood Lane
San Rafael, CA 94901

- Charles Gardiner

Vicki Hill (NEPA Review)
3028 Warm Springs Road
Glen Ellen, CA 95442

HydroFocus (Hydrogeology/Groundwater Modeling)
2827 Spafford Street, Suite A
Davis, CA 95618

- John Fio
- Steve Deveral

Lawrence Berkeley National Laboratory (Groundwater Model Per Review)
Energy Geosciences Division 74-316C
Berkeley, CA 94720

- Curtis M. Oldenburg
- Preston D. Jordan
- Christine Doughty

Phoenix 1 (Printing)
1155C Arnold Dr. #413
Martinez CA 94553

Dr. Philip Roberts (Fluid Hydrodynamics/Brine Plume Modeling)
270 17th Street NW, Unit 1613
Atlanta, GA 30363

SutroScience (Surface Water and Groundwater)
9 Kenrick Avenue
San Anselmo, CA 94960

- Peter Hudson
- Justin Taplin

This page intentionally left blank

CHAPTER 8
Index