CHAPTER 7
Alternatives

7.1 Introduction and Overview

This chapter describes and evaluates alternatives to the Monterey Peninsula Water Supply Project (MPWSP or proposed project). This chapter describes the methodology used to identify and screen alternatives, compares the environmental merits of the various alternatives against the proposed project and the MPWSP Variant, and identifies the environmentally superior alternative.

- ***Section 7.2*** describes the guidelines for alternatives analysis under the California Environmental Quality Act (CEQA) and the process by which the alternatives presented in this EIR will be carried forward and presented to the California Public Utilities Commission (CPUC), and the choices the CPUC will have in acting upon a final project.

- ***Section 7.3*** restates the project objectives, and discusses their relevance in the alternatives comparison process. It also restates significant impacts associated with implementation of the MPWSP, and discusses the relevance of these significant impacts in the alternatives comparison process.

- ***Section 7.4*** provides a brief project history and presents alternatives that were considered and may have informed the formulation of the alternatives analyzed in this EIR, but were not carried forward for detailed evaluation in this EIR. These alternatives include the New Los Padres Dam and Carmel River Dam projects, the Plan B project, the Coastal Water Project (CWP) or the Regional Project, the Interlake Tunnel, either of the proposed desalination projects at Moss Landing (although their component parts are evaluated in this alternatives analysis) or the Pure Water Monterey Groundwater Replenishment Project (which is one component of the proposed project studied in Chapter 6, MPWSP Variant).

- ***Section 7.5*** describes the alternatives analysis and development process, including the process of screening of component options, evaluating component options and pipelines, and the development and evaluation of CEQA alternatives.

- ***Section 7.6*** presents the component screening process including an overview of the options, the regulatory considerations, and descriptions of the intake, outfall and desalination plant options carried forward. Descriptions of the component options not carried forward and the reason(s) for their dismissal are presented in **Appendix I**.

- ***Section 7.7*** presents the evaluation of component options that were carried forward from the screening process (described in Section 7.6). The analysis in this section compares the impacts of those intake, outfall and desalination site options against the impacts of the respective components of the proposed project for each CEQA topical area discussed in Chapter 4, Environmental Setting, Impacts, and Mitigation Measures.

- ***Section 7.8*** presents the conclusions of the component evaluation process (Section 7.7) and presents the component options that were carried forward into the development of CEQA alternatives.

- ***Section 7.9*** presents a set of alternative pipelines that are compared against the proposed project pipelines. The alignments for individual pipelines segments are described and evaluated, and the individual pipeline segments are grouped into alternative pipeline configurations that could be used in lieu of the proposed project pipeline configuration.

- ***Section 7.10*** presents options for returning to the SVGB, the portion of the source water that is drawn from the SVGB. CalAm proposes to utilize the CSIP pond for distribution of the Salinas Valley Return Water for use by irrigators in lieu of pumping an equal amount of groundwater. This section compares three options for returning the flows to the SVGB against the proposed action.

- ***Section 7.11*** describes two No Action Alternatives, discusses their feasibility and their ability to meet project objectives, and characterizes potential environmental effects of their implementation. This section also presents and describes two Action Alternatives and two Project Variant alternatives, and compares them against the proposed project and the project variant.

- ***Section 7.12*** identifies the environmentally superior alternative(s).

- ***Section 7.13*** presents an environmental analysis of installing a test slant well at Potrero Road and operating a pilot program for up to 24 months.

7.2 Alternatives Analysis – CEQA and the CPUC Alternatives Decision-Making Process

This section describes the guidelines for alternatives analysis under CEQA and the process by which the alternatives presented in this EIR will be carried forward and presented to the CPUC, and the choices the CPUC will have in acting upon a final project.

7.2.1 CEQA Requirements

The CEQA Guidelines Section 15126.6(a) states that an EIR must describe and evaluate a reasonable range of alternatives to the project, or to the location of a project, that would feasibly attain most of the basic project objectives but would avoid or substantially lessen any identified significant effects of the project. Specifically, the CEQA Guidelines (Section 15126.6) set forth the following criteria for selecting and evaluating alternatives:

- ***Identifying Alternatives.*** The selection of alternatives is limited to those that would avoid or substantially lessen any of the significant effects of the project, are feasible, and would attain most of the basic objectives 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.

- ***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.

- ***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 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.

7.2.2 CPUC Alternatives Decision Making Process

On April 23, 2012, CalAm submitted to the CPUC an application for a Certificate of Public Convenience and Necessity (CPCN) to build, own, and operate the MPWSP. The submittal of the application triggered the need for CEQA environmental review of the MPWSP, with the CPUC as the CEQA Lead Agency.

Following circulation of the MPWSP Draft EIR and incorporation of public comments and responses to comments, a Final EIR will be published by the CPUC and submitted into the formal record of the Commission's CPCN proceeding for CalAm, A.12-04-019. The Final EIR will then be reviewed by the Commissioners and a 2-step approval process follows.

The Commissioners are asked first to consider whether or not to certify[1] the Final EIR, and the Commission will act on certification by vote at a scheduled Commission meeting. Either with the decision certifying the EIR, or separately, the Commissioners will consider whether to grant the CPCN, based on testimony and briefs from parties who have formally intervened in A.12-04-019, as well as any other issues that have been established in the formal proceeding record, including but not limited to economic issues, social impacts, specific routing and alignments, and the need for the project. The Commission will then be asked to act by vote at a scheduled Commission meeting on a Proposed Decision drafted by an Administrative Law Judge assigned to the proceeding, or any Alternate Proposed Decision prepared by one or more of the five Commissioners. Should the Commission decide in favor of the MPWSP as proposed, or as modified by the Commission, the Commission will make findings on each significant environmental impact, among other findings.

7.3 Project Objectives and Significant Impacts

In accordance with the CEQA Guidelines, appropriate alternatives for EIR analysis are those that meet most of the basic project objectives and avoid or substantially lessen any of the significant environmental effects of the proposed project. Consequently, this section reviews the project objectives that were identified for the MPWSP.

[1] Prior to approving a project, the lead agency shall certify that: (1) The final EIR has been completed in compliance with CEQA; (2) The final EIR was presented to the decision-making body of the lead agency, and that the decision-making body reviewed and considered the information contained in the final EIR prior to approving the project; and (3) he final EIR reflects the lead agency's independent judgment and analysis. (CEQA Section 15090).

7.3.1 MPWSP Objectives

Project alternatives were evaluated for their ability to meet the basic objectives of the proposed project, consistent with CEQA. The MPWSP objectives (presented in Chapter 3, Project Description, Section 3.3.2) are repeated here for ease of reference. The objectives of the MPWSP are to:

- 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 acre-feet per year (afy), in accordance with State Water Resources Control Board (SWRCB) Order 95-10
- Develop water supplies to enable CalAm to reduce pumping from the Seaside Groundwater Basin from approximately 4,000 to 1,474 afy, in accordance with the adjudication of the groundwater basin and consistent with natural yield
- 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
- Develop a reliable water supply for the CalAm's Monterey District service area, accounting for the peak month demand of existing customers
- Develop a reliable water supply that meets fire flow requirements for public safety
- Provide sufficient water supplies to serve existing legal lots of record
- Accommodate tourism demand under recovered economic conditions
- Provide sufficient conveyance capacity to accommodate supplemental water supplies that may be developed at some point in the future to meet buildout demand, in accordance with adopted General Plans
- Minimize energy requirements and greenhouse gas emissions per unit of water delivered
- Minimize project costs and associated water rate increases
- Locate key project facilities in areas that are protected against predicted future sea-level rise.

7.3.2 Significant Environmental Impacts

Alternatives to be considered under CEQA are 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 judged to be less than significant. Other adverse impacts were judged to be significant but could be reduced to a less-than-significant level through the implementation of mitigation measures. Still other impacts, few in number, were judged to be significant and unavoidable even with the implementation of mitigation measures.

Based on the analysis presented in Chapter 4, significant impacts may occur to geology, soils, and seismicity, surface water hydrology and water quality, groundwater resources, marine resources,

terrestrial biological resources, hazards and hazardous materials, land use, land use planning and recreation, traffic and transportation, air quality, greenhouse gases, noise and vibration, utilities, aesthetics, cultural and paleontological resources, agricultural resources, and energy resources. All impacts would be reduced to less-than-significant levels through the implementation of mitigation measures, with the exception of impacts relative to construction noise and vibration, operational greenhouse gas emissions and indirect impacts from growth. Further, the proposed project may result in cumulative impacts when viewed in combination with other past, present, and reasonably foreseeable future projects. The Draft EIR identifies that, with mitigation, the proposed project would not have a cumulatively considerable contribution to cumulative impacts, with the exception of cumulative impacts relative to transportation and traffic, and noise and vibration (during construction), and GHG (during operations).

7.4 Alternatives Considered and Dismissed

This section provides a brief project history and presents alternatives that were considered and may have informed the formulation of the alternatives analyzed in this EIR, but were not carried forward for detailed evaluation. Many of the alternatives presented below were considered in earlier environmental review documents; others are concepts that were determined to be too speculative or unlikely to be feasible and capable of meeting most of the basic project objectives as currently defined. While the following discussion may have informed the formulation of the alternatives analyzed in this document, this EIR does not recommend any of the following alternatives in and of themselves.

7.4.1 Overview

The MPWSP is the result of a multi-year planning effort during which many alternatives have been considered in the context of several previously proposed projects and related environmental review documents. Since 1989, various proponents 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. As part of the 2009 CWP 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 provides a summary of the previous proposals/projects and the environmental documentation prepared for them (as relevant), presents more recent alternative opportunities such as other Moss Landing desalination projects, the Interlake Tunnel and Pure Water Monterey Groundwater Replenishment projects, and discusses why each of these alternatives are not addressed in detail in this EIR.

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

The New Los Padres (NLP) Dam and Reservoir project was originally proposed by the Monterey Peninsula Water Management District (MPWMD) in 1989 and 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 was proposed to have a production limit of 21,000 afy, which assumed 3,381 af would have been available to accommodate growth (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 failed to pass a measure authorizing funding for the project (CPUC, 2009).

In 1996, CalAm proposed to construct a "no growth" dam and reservoir as a means to comply with Order 95-10. That proposal was called the Carmel River Dam and Reservoir Project (CRDRP) and it was physically the same as the NLP Dam and Reservoir project. It would have been operated to serve only existing community needs (estimated at 17,641 afy rather than the 21,000 afy envisioned in the NLP Dam and Reservoir project. CalAm submitted an application for a CPCN to the CPUC to construct and operate the project (A.97-03-052) in 1997, the MPWMD acted as Lead Agency and prepared a draft supplemental environmental impact report (SEIR) in 1998 based on the NLP Dam and Reservoir EIR. Completion of the final environmental documents was deferred because of state legislation passed in 1998, (Assembly Bill 1182) that mandated the CPUC identify an alternative or alternatives to the dam (CPUC, 2009).

After considering public opposition to dams on live streams, National Marine Fisheries Service (NMFS) opposition to the CRDRP, the results of the evaluation of Plan B (see Section 7.4.3) and other factors, CalAm concluded that the CRDRP was not feasible. The NLP Dam and Reservoir Project, and the CRDRP are still not feasible due to legal, social and economic factors that continue to preclude their implementation.

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

In response to Assembly Bill 1182, the CPUC in 1999 began evaluating alternatives to the CRDRP to meet the requirements of SWRCB Order 95-10. In 2002 the CPUC, working with CalAm and others, completed a water supply contingency plan (also known as Plan B) for the Monterey Peninsula. The evaluation conducted for Plan B ultimately concluded that a combination of desalination and aquifer storage and recovery (ASR) could produce 10,730 afy[2]. The desalination component of the project would be located adjacent to the Moss Landing Power Plant and would produce 9,430 afy. Treated water would be transported to the CalAm service area through a new

[2] 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, found 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 proposed project, therefore, consisted of a Seaside Groundwater Basin ASR and a desalination plant at Moss Landing.

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 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 7-1**.

TABLE 7-1
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 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	

NOTE: The “green projects” have been implemented since the Plan B Report was issued

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

Three of the Plan B components were identified to “carry 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 CWP EIR and is re-evaluated in this EIR.

The other Plan B components were placed in a "hold" category: Water Purchase from the Central Valley (CVP) and from Humboldt Bay are both currently infeasible since they relied on the construction of the Import Pipeline by the Pajaro Valley Water Management Agency and that Agency has decided not to pursue the Import Pipeline project; Table 13 Water Rights and Local Stormwater Reclamation Projects have been or are currently being implemented; an expansion of the Seaside Basin ASR, Desalination at Marina and the Reclamation components are evaluated and discussed in this EIR.

In the final phase of the Plan B process, a Final Plan B Project Report was prepared documenting the refinement of the most viable components selected during the screening project. Following completion of the Plan B Project Report, additional engineering design and environmental analysis was conducted to refine, modify, and focus the results presented in the Plan B Project Report and thereby reduce anticipated significant impacts, improve community support, and increase the feasibility of the project components. Plan B provided the technical foundation and point of departure for the analysis of the CWP.

In 2003, the CPUC issued a decision that dismissed CalAm's CRDRP application without prejudice, ordered CalAm to file a new application for the CWP, and determined that the CPUC should be the Lead Agency for the CWP EIR. CalAm responded to the CPUC's decision by filing an application for a CPCN (A.04-09-019) and proposing the CWP.

7.4.4 Coastal Water Project

In 2004, CalAm filed Application A.04-09-019 seeking a CPCN from the CPUC for the CWP. The CWP (also referred to as the Moss Landing Project) was sized 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 CWP, as well as the environmental impacts of two project alternatives—the North Marina Project[3] and the Regional Project.[4] 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 implementation of the Regional Project alternative.

Subsequent to approval of the Regional Project, CalAm withdrew its support for the Regional Project in January 2012, and in April 2012, CalAm submitted Application A.12-04-019 (CalAm, 2012) seeking a CPCN from the CPUC for the MPWSP to construct, own, and operate a desalination facility for water supply. The CPUC closed the CWP proceeding in July 12, 2012, with Decision D.12-07-008. The Regional Project is no longer feasible for economic, social and

[3] The North Marina Project alternative included most of the same facilities as the previously proposed CWP and, like the previously proposed CWP, would only provide replacement supplies to meet existing demand. The key differences between this alternative and the previously proposed CWP 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).

[4] 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.

legal reasons. However, certain elements of the three projects evaluated in the CWP EIR have been carried into the alternatives analysis presented herein.

7.4.5 MCWRA Interlake Tunnel Project

Since the early 1990s, the Monterey County Water Resources Agency (MCWRA) has focused its groundwater management efforts on completion of the Salinas Valley Water Project (Salinas River Diversion Facility and modification to the Nacimiento Dam Spillway). The current drought has created a renewed interest in the Interlake Tunnel concept.

The Interlake Tunnel Project is currently 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, therefore, 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 MCWRA has contracted with a Program and Construction Manager, and with a legal firm to perform the water rights analysis. On August 25, 2014, the Board of the MCWRA held a public workshop to provide background information about the Interlake Tunnel and to provide an update on project activities and accomplishments. On November 19, 2014, the Board of the MCWRA held a 2nd public workshop to report on project status. MCWRA held a 3rd public meeting on February 26, 2015. Construction of the Interlake Tunnel Project could proceed in the second half of 2017.

The Interlake Tunnel project is intended to provide additional reliability to the existing users and beneficiaries of the MCWRA's Zone 2C. Zone 2C was approved on January 14, 2003, in Resolution No. 03-017, by the Board of Supervisors of the MCWRA, to create a zone of benefit to fund the Salinas Valley Water Project and associated reservoir operations, and to levy new assessments within the Zone 2C. The benefits of the Interlake Tunnel Project will also be legally and economically limited to Zone 2C, and since CalAm's Monterey County Service District (Monterey District) is not included in Zone 2C, this is not a feasible alternative from an economic and legal perspective. Therefore, the Interlake Tunnel project would not be able to meet demand in CalAm's Monterey District.

7.4.6 Other Desalination Proposals at Moss Landing

In developing the alternatives to be evaluated in this EIR, the CPUC sought and received input from various stakeholders to ascertain whether currently-proposed desalination water supply projects could be alternatives to the MPWSP. CPUC staff participated in meetings that included presentations from other commercial desalination proponents not regulated by the CPUC. While the Peoples' Moss Landing Project (proposed by Moss Landing Commercial Business Park, LLC) and the Monterey Bay Regional Water Project (proposed by Deep Water Desal, LLC) are not in and of themselves considered as complete alternatives to the MPWSP for the reasons

discussed below, each of their primary components (intake, plant location, and outfall) were considered in the component screening and evaluation process. In this way, if the individual aspects of these projects would minimize environmental effects of the MPWSP and would be feasible to implement, they could be considered by the CPUC for inclusion in a project to be approved and implemented by CalAm. Indeed, if the results of the analysis in this chapter were to show that the intake, plant location and outfall elements of either of these proposed desalination projects would, in combination, reduce environmental effects of the MPWSP and would be feasible, then the entirety of such desalination proposal could be a viable alternative for consideration by the CPUC. These two desalination projects are summarized below.

7.4.6.1 The Monterey Bay Regional Water Project

The Monterey Bay Regional Water Project, proposed by DeepWater Desal, LLC, would provide up to 25,000 afy of potable water supply to serve participating communities in the Monterey Bay region, potentially including the Monterey Peninsula, Castroville, Salinas, and parts of Santa Cruz County. The project would withdraw up to 48.7 million gallons per day (mgd) of seawater and produce up to 22.3 mgd of potable supply[5]. Core facilities consisting of a reverse osmosis desalination plant, open water intake, and brine discharge pipeline would be located in Moss Landing and Monterey Bay offshore from Moss Landing. Product water pipelines extending to areas that would be served are not part of the project currently proposed and would be evaluated as separate projects. As currently described, the Monterey Bay Regional Water Project would ultimately be owned by a joint powers authority consisting of the communities and water districts served by it.

The Monterey Bay Regional Water Project would include a screened open-water intake located on the upper north slope of the Monterey submarine canyon, approximately 0.5 mile offshore and at least 100 feet below the surface of Monterey Bay, or potentially at another location also under consideration about 1 mile offshore of the north rim of the submarine canyon. The screened intake would consist of a series of six passive, low-velocity, wedge-wire screens. Raw seawater would be conveyed via subsurface pipelines to an onshore wet well and pump station located at one of two alternative sites – a parcel located east of Highway 1 and north of the Dynegy Moss Landing Power Plant (MLPP) near the south shore of Elkhorn Slough, or another site immediately west of Highway 1 across from the MLPP. The raw seawater would be conveyed from the intake wet well and pump station to a proposed data center (described below) and desalination plant located at the Moss Landing Power Plant East Parcel, about 1,500 feet east of the Moss Landing Power Plant on Dolan Road. The parcel is owned by Dynegy Moss Landing, LLC.

Brine discharge outfall options under consideration involve either construction of a new outfall pipeline large enough to accommodate the entire discharge volume or construction of a somewhat smaller new pipeline to be used in conjunction with an existing former fuel oil pipeline that would be repurposed for brine discharge. For options involving the two pipelines, at the western

[5] The MPWSP, as proposed, would withdraw up to 24.1 mgd of feedwater and produce up to 9.5 mgd of potable supply.

end of the existing fuel oil pipeline the two pipes would connect (using a "Y" connection) to a single 36-inch pipeline that would extend to the discharge point. Under any of the options the outfall pipeline would extend to one of two discharge points – a "deep" discharge site about 8,000 feet offshore or, if that site proved infeasible, to an "intermediate" site about 5,700 feet offshore. At the discharge point, a high velocity five-jet linear diffuser would be attached to the end of the outfall pipeline.

In addition to the desalination project, the Monterey Bay Regional Water Project proposes to include the development of a data center that would be located at the Moss Landing Power Plant East Parcel site. The data center would use raw seawater delivered from the intake wet well for cooling water and the warmed and spent cooling water would then be used as source water at the desalination plant.

The California State Lands Commission has agreed to be the CEQA Lead Agency (a Notice of Preparation for an EIR and has not yet been issued) and the Monterey Bay National Marine Sanctuary has agreed to be the NEPA Lead Agency (a Notice of Intent to prepare a NEPA document has not yet been issued). Relevant studies completed to date include:

Denise Duffy & Associates, Final Biological Resources Report: Dynegy Moss Landing, LLC, Property Assessment, June 2013.

Jenkins, Scott A., Ph.D., and Joseph Wasyl, 2014. *Brine Dilution Analysis for DeepWater Desal, LLC, Monterey Bay Regional Water Project at Moss Landing CA*, Submitted to DeepWater Desal, LLC, Third Revision, June 23, 2014.

Longitude 123 Inc., 2011. *Pipeline Span Non-Destructive Inspection Report: Dynegy Moss Landing Power Plant*, Revision A, Prepared for Padre Associates, Inc. July 19, 2011.

Makai Ocean Engineering, Inc., 2014. *A Conceptual Design of Seawater Pipelines for the Deep Water Desal Project*, Prepared for Deep Water Desal, LLC, May 29, 2014.

PE International, *DeepWater Desal, LLC Comparative GHG Emissions Analysis: Quantifying the Benefits of Combining Desalination with a Data Center*, April 9, 2014.

Tenera Environmental, 2012. *DeepWater Desal: Preliminary Modeling of Potential Impacts from Operation of a Desalination Facility Ocean Intake*, August 22, 2012.

Tenera Environmental, 2014. *DeepWater Desal: Draft Moss Landing Desalination Plant Intake Impact Assessment: Larval Entrainment*, May 2014.

This desalination proposal has not been carried forward as an alternative to the MPWSP because the CPUC has no jurisdiction, the applicant has not yet engaged in any formal environmental review processes, project effects cannot be reasonably ascertained and the timing of its implementation remains uncertain. This EIR does evaluate the proposed intake, desalination plant site and outfall as potential component options for the MPWSP.

7.4.6.2 The Peoples' Moss Landing Water Desalination Project

The Peoples' Moss Landing Water Desalination Project (Peoples' Moss Landing Project), proposed by Moss Landing Commercial Business Park, LLC, would provide 13,404 afy (11.97 mgd) of potable water supply to serve North Monterey County and the Monterey Peninsula. The Peoples' Moss Landing Project would deliver 3,652 afy to customers in the North Monterey County area and 9,752 afy to the Monterey Peninsula[6]. Core facilities consisting of a reverse osmosis desalination plant, open water intake, and brine discharge pipeline would be located in Moss Landing and Monterey Bay offshore from Moss Landing. Product water would be conveyed to the Monterey Peninsula via a 17.5-mile, 24-inch water main and 10 million gallon terminal storage tank[7]. Product water would be conveyed to North County areas via 30 miles of water main pipeline ranging in size from 8 to 12 inches and three terminal water tanks (Watek Engineering Corporation, 2015).

The preferred intake site is an abandoned intake pump structure on the shore of Monterey Bay near an old pier and Moss Landing Marine Laboratories. The intake structure would be rehabilitated and a new pump house built on top of it. A new 30-inch intake pipeline fitted with passive, low-velocity, wedge-wire screens would extend west from the pump structure roughly 50 feet into Monterey Bay. An existing 36-inch intake pipeline that extends from the pump structure to the Moss Landing Commercial Park (the former National Refractories site) would be sliplined[8] with a new 30-36-inch pipeline to convey raw seawater to the desalination plant and related facilities located at the Moss Landing Commercial Park. Where the old pipeline cannot be sliplined, the new pipeline would be installed using horizontal directional drilling (HDD) to avoid sensitive areas (Watek Engineering Corporation, 2015). The desalination plant would occupy approximately 16 acres of the 186-acre site.

A new 30-inch outfall pipeline would be sliplined into the site's existing 51-inch outfall. Dispersion and mixing models are planned to confirm the assumption that brine concentrate from the desalination plant will not adversely impact intake water quality. Both the outfall and intake would be expected to be built within existing rights-of-way, with only limited temporary access and construction easements needed. An extension to an existing easement where a pipeline between the Moss Landing Commercial Park and Monterey Bay crosses Harbor District property is currently being negotiated.

The Moss Landing Harbor District has agreed to be the CEQA Lead Agency (a Notice of Preparation of an EIR has not yet been issued) and the NEPA Lead Agency has not yet been determined (a Notice of Intent to prepare a NEPA document has not yet been issued). Studies completed to date include:

6 The MPWSP as proposed would produce 10,627afy of supply (9.5 mgd) to meet service area demand of 9,752 afy and approximately 875 afy to return to the Salinas Valley Groundwater Basin.

7 The MPWSP, as proposed, would convey product water to Pacific Grove from the proposed desalination plant in North Marina via 17.5 miles of 36-inch pipeline. A "terminal reservoir" consisting of two (2), 3-million gallon storage tanks would be located east of General Jim Moore Blvd in Seaside.

8 A 30-36-inch pipeline would be "slipped" inside the existing 36-inch pipeline.

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

Mickley, Mike, P.E., Ph.D., 2012. Independent Consultant Review: The People's Moss Landing Water Desal Project Proposal, March 8, 2012.

Miller, John A., S.E., JAMSE Engineering Inc., 2012. Structural Evaluation Intake and Outfall Pipelines, Intake Pump Station and Water Storage Reservoirs, The People's Moss Landing Water Desalination Project, Moss Landing Green Business Park, Moss Landing, CA, August 14, 2012.

Watek Engineering Corporation, *The People's Moss Landing Water Desal Project Draft Process Design Report*, February 2015.

This desalination proposal has not been carried forward as an alternative to the MPWSP because the CPUC has no jurisdiction, the applicant has not yet engaged in any formal environmental review processes, project effects cannot be reasonably ascertained and the timing of its implementation remains uncertain. This EIR does evaluate the proposed intake, desalination plant site and outfall as potential component options for the MPWSP.

7.4.7 Pure Water Monterey Groundwater Replenishment Project -Only

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

The CPUC does not have jurisdiction over construction or operation of the GWR Project. However, in order for the GWR Project to supply water to CalAm customers as envisioned, the CPUC would need to approve a water purchase agreement between CalAm and the proponents of the GWR Project. The GWR Project is not considered in this EIR as a stand-alone alternative to the MPWSP because it would not meet the basic project objectives of the MPWSP with regard to the amount of water that is needed for replacement water supply for CalAm customers (i.e., it would be about 6,252 afy short). Though the GWR Project is not evaluated as an alternative to the entire MPWSP, it is fully evaluated in Chapter 6 of this EIR, as an element of the Project Variant (See Chapter 6, MPWSP Variant). The GWR Project sponsors are preparing a separate EIR on the GWR Project; the Draft EIR for the GWR Project was published on April 22, 2015. Although the GWR Project is not an alternative to the MPWSP and is indeed part of the Project Variant of the MPWSP proposed by CalAm, the GWR Project could conceivably be considered on its own as one way to secure some of the replacement water for CalAm's customers. If the

CPUC decides to approve only a Water Purchase Agreement between CalAm and the proponents of the GWR Project, the CPUC will also need to approve CalAm's implementation of pipelines to move the water from the Seaside Basin to CalAm's Monterey District service area. That option is discussed further in Chapter 7, Alternatives.

7.5 Alternatives Analysis and Development Process

In general, desalination projects include three basic components: a seawater intake system, a desalination plant, and a brine discharge mechanism. In addition, pipelines are required to move the feedwater from the intakes to the desalination plant, to move brine from the desalination plant to the outfall, and to move product water from the desalination plant to the customers.

This alternatives analysis begins with a screening and evaluation of the individual components: a range of intake options, desalination plant sites options and outfall options are defined, screened for fatal flaws, and evaluated against each other and against the same component of the proposed project, to determine which options reduce or avoid potential environmental impacts of the proposed project components. Similarly, options for each segment of pipeline are defined and evaluated (compared to the pipeline segments of the proposed project), and then grouped into pipeline configurations that are compared against each other to identify the configuration that minimizes potential environmental impacts. Finally, the intakes, plant sites and outfall options are combined with the preferred pipeline configuration, to identify a range of "whole" alternatives. The whole alternatives are evaluated against two No Project Alternatives, the proposed project and the project variant, to identify the environmentally superior alternative.

The Commission has the discretion to select whatever alternative or combination of project components it deems most appropriate, provided that the environmental impacts of the proposed project can be mitigated, or to the extent that they cannot, provided that the Commission adopts a Statement of Overriding Considerations, discussed in Section 1.4.4 of this EIR. This EIR and the alternatives analysis supports the Commission's need to make an informed decision, and provides it with a variety of options to select from in case any particular component proves to be infeasible or is undesirable for environmental or other policy reasons.

7.5.1 Component Screening Process

In order to maximize the range of alternatives considered and provide flexibility during project approval, this EIR first evaluated alternative components of a desalination project including 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.

In defining the range of options to be evaluated, the screening process considered whether an option was capable of providing a sufficient and reliable source of seawater (for intake options) or reliable method of discharge (for outfall options). Other factors that were taken into account when assessing the feasibility of the preliminary intake, outfall and desalination plant site options

included site conditions, the availability of the site and/or existing infrastructure, subsurface conditions derived from borehole data (for subsurface intakes), and input from resource agencies.

Regulatory policies that would clearly deem a desalination component to be fatally flawed were also considered. For example, as a result of SWRCB policy on once-through-cooling systems at coastal power plants, adopted in May 2010 (SWRCB, 2014a), the continued operation of the Moss Landing Power Plant beyond 2020 is uncertain. Therefore, intake and outfall options that rely on the continuation of the once-through cooling system at the Moss Landing Power Plant were deemed unreliable and infeasible, and therefore, were not carried forward for full evaluation. However, the SWRCB policy was not considered a basis for ruling out options that would use existing infrastructure at the Moss Landing Power Plant if those options did not rely on the continuation of once-through cooling.

7.5.2 Component Evaluation Process

The environmental impacts of the intake, brine discharge, and desalination plant site options that are carried forward from the Component Screening process are then compared against the impacts of the components of the proposed project. The potential impacts of each component option are compared against the potential impacts of the component of the proposed project for each environmental topic presented in Chapter 4. A significance determination is made about each option for each topical area, and a basis for that determination is provided. The determination used the following criteria:

- **No Impact** – the significance criteria do not apply or no impact would result
- **Similar** – impacts would be identical or would be of the same general magnitude as the MPWSP proposed component and the significance determination would be the same
- **Increased** – impacts would be notably greater than the proposed MPWSP component and the significance determination would therefore be greater
- **Decreased** – impacts would be notably less than the proposed MPWSP component and the significance determination would therefore be reduced

As a result of this evaluation, several of the components are then carried forward into the development of CEQA Alternatives.

7.5.3 Alternative Pipelines Evaluation Process

The MPWSP as proposed includes pipelines to convey the feedwater, the brine and the product water to the desalination plant, the outfall and the customers, respectively. This EIR evaluates the potential environmental impacts of those pipelines, and all other proposed project facilities, in Chapter 4. Alternatives pipeline segments, and alternative pipeline configurations, are defined and evaluated in Section 7.9. The alternative pipeline configuration with the fewest environmental impacts was carried forward into the development and analysis of the "whole" CEQA alternatives.

7.5.4 Alternatives Development and Evaluation Process

Based on the relative merits of each intake, desalination plant site, outfall option and pipeline configuration, "whole" alternatives are compiled in accordance with CEQA Guidelines Section 15126.6(a). For purposes of this analysis, it is assumed that any desalination alternative would include the storage facilities and ASR improvements located south of Reservation Road as proposed by CalAm as part of the MPWSP. Therefore, these facilities were not included in the initial screening of desalination options, but they are included in the consideration of each complete alternative.

The environmental impacts of the CEQA Alternatives (including two No Action alternatives) are analyzed, and compared with those of the proposed project and the project variant, and the Environmentally Superior alternative(s) is identified. In addition, the ability of each of the CEQA Alternatives to meet the project objectives is discussed.

7.6 Screening of Component Options

This section screens and presents intake options, outfall options and desalination plant site options worthy of further evaluation. The component options presented below were derived 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, May 30, 2014, downloaded from the DeepWater Desal website, www.deepwaterdesal.com/reports-and-publications.htm. Website accessed June 30, 2014.

- *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.

7.6.1 Seawater Intakes

There are two general types of desalination plant intake systems: open-water and subsurface. Open-water intakes collect seawater directly from the open ocean using a screened inlet structure and intake pipeline to convey the water from the offshore inlet structure to an inland location. Subsurface intakes draw water from beneath the ocean floor. Subsurface intakes generally result in the least harm to marine and estuarine ecosystems; however, in places where subsurface intakes are not feasible due to geologic or hydrogeologic conditions, open-water intakes may be the only option. These two intake technologies have different site requirements, design features and construction techniques, as described below.

7.6.1.1 Open-Water Intakes

Open-water intakes can be installed in a variety of locations and built in a range of sizes. In the United States, open-water intakes are often used by coastal power plants that require large quantities of ocean water for cooling. Sometimes, power plant intakes provide opportunities for the conversion of existing infrastructure to, or co-location with, desalination plant intakes.

The chief environmental concern associated with open-water intakes is entrainment and impingement of marine organisms.[9] Where subsurface intakes are infeasible, proposals for open-water intakes must include entrainment and impingement studies to determine impacts to marine resources. To be considered adequate, an entrainment and impingement study must be prepared in accordance with default protocols under Clean Water Act Section 316(b) (CCC, 2004).[10] Apart from the impacts of the intake process itself, the impacts to marine resources associated with the offshore portion of the intake pipeline must also be evaluated, particularly if the pipeline would be supported on the ocean floor or in the water column.

Consistent with the findings of an expert review panel convened by the SWRCB, *Desalination Plant Entrainment Impacts and Mitigation* (finalized October 9, 2013), and SWRCB's 2014 proposed Desalination Amendment to the California Ocean Plan (SWRCB, 2014b), this EIR assumes that all open-water intake options would be equipped with a passive, cylindrical wedge-wire screen at the western terminus of the intake pipeline with slot openings sized to meet regulatory and/or permitting requirements[11] and would have a design velocity of 0.5 feet per second unless otherwise noted.

9 In this context, entrainment refers to marine organisms entering the desalination plant intake, being drawn into the intake system, and passing through to the treatment facilities. Impingement would occur if organisms were sufficiently large to avoid going through the intake screens but were trapped against them by the force of the flowing water.

10 In some cases, different study parameters may be proposed, and in some cases, a recently completed 316(b) study for a nearby site may be used if applicable to the proposed desalination intake site (CCC, 2004).

11 The SWRCB is considering an amendment to the 2012 Ocean Plan to address issues associated with desalination facilities. According to the 2014 proposed Desalination Amendment to the California Ocean Plan (Section L(2)(d)(1)(c)(ii)), the SWCRB intends to select a single slot size but is soliciting comments on whether 0.5 millimeter (0.02 inch), 0.75 millimeter (0.03 inch), 1.0 millimeter (0.04 inch), or some other slot size is most appropriate to minimize intake and mortality of marine life.

Construction of Open-Water Intakes

There are several possible construction methods for installing open-water intakes beneath the ocean floor. All of the new open water intakes described below would be constructed using either horizontal directional drilling (i.e., drilling a boring between two pits and either using a barge to pull the pipe through the boring or deploying the pipe on the ocean floor and pulling it through the boring from the onshore pit) or microtunneling (i.e., pushing the pipe behind a microtunnel boring machine). Both of these methods require the use of drilling fluids. Under both methods, the intake pipe would be fused in advance of drilling/tunneling and laid out in a linear manner near the entry pit. The boring for the intake pipeline would tunnel under the beach/onshore portion and ocean floor to the point it "daylights" (emerges) on the ocean floor, where the screened intake structure (attached to the end of the intake pipe) would be mounted on a riser approximately 3 feet off the ocean floor. This analysis assumes approximately 0.25 acre of land disturbance on the ocean floor for construction of the screened riser. The permanent footprint of a screened riser on the ocean floor is approximately 20 square feet. Unless otherwise specified, it is assumed that the construction methodology for all new open-water intakes would be generally consistent with these techniques.

Operations and Maintenance Considerations for Open-Water Intakes

As noted, the primary environmental impact associated with open-water intakes is entrainment and impingement. The SWRCB, California Coastal Commission, and Monterey Bay National Marine Sanctuary require proponents of open-water intakes to include entrainment and impingement studies in the corresponding permit applications, and to implement (or fund through fee-based mitigation) compensatory mitigation for operation of the intakes. The mitigation fees would be used for habitat creation, restoration projects that replace the lost production, or other projects viewed equivalent by the SWRCB (SWRCB, 2014b). Additionally, the funding could be used to create marine-protected areas or to clean up or abate environmental contaminants. The fee would be based on a broad range of organisms impacted at the intakes.

Maintenance of open-water intake screens would occur every 3 to 5 years. Maintenance activities include mechanical cleaning, air blasting and hand-scraping the intake screens to remove organic matter and debris.

7.6.1.2 Subsurface Intakes

Subsurface intakes -- which include vertical wells, infiltration galleries, horizontal wells, slant wells, and Ranney collectors -- can avoid or minimize some of the environmental effects associated with open-water intakes. Specifically, subsurface intakes can avoid or minimize direct impacts to the ocean floor and benthic[12] organisms during construction, and impingement and entrainment during operations. Subsurface intakes can avoid impingement because they collect source water through the ocean bottom and coastal aquifer sediments. Subsurface intakes are generally considered a low-impact technology with respect to impingement and entrainment. However, the magnitude of potential entrainment of marine species into the bottom sediments

[12] Relating to the bottom of an ocean, sea or lake, or to the organisms that live there.

caused by continuous subsurface intake operations has not been systematically and scientifically studied to date (WateReuse, 2011).

Subsurface intakes generally have the following advantages compared to open water intakes: (1) the potential to reduce or eliminate the impingement or entrainment of marine organisms; (2) natural water filtration and pretreatment provided by ocean floor sediments, which in some cases can reduce the need for some treatment chemicals during the desalination process; and (3) minimal growth of marine organisms that occurs inside the intake pipeline (Kennedy/Jenks, 2011). In general, source water derived from subsurface intakes requires significantly less filtration when compared to raw seawater (SGD, 1992). However, if not appropriately sited, subsurface intakes can adversely affect coastal aquifers and increase the risk of saltwater intrusion in freshwater aquifers (CCC, 2004).

Key factors that determine whether a subsurface intake is technically feasible and practical include: the transmissivity/productivity of the geologic formation/aquifer; the thickness of the production aquifer deposits; and the existence of nearby freshwater source aquifers.

The following subsections describe each subsurface intake type, including typical suitable locations, examples of existing technology, general construction methodology, operation and maintenance, and capabilities and limitations of each technology.

Vertical Wells

Vertical wells are shallow intake wells that make use of beach sand or other geologic mediums to filter water. A vertical beach well consists of a casing, well screen, and vertical turbine pump. The suitability of a site for vertical wells is determined by drilling test wells and conducting a detailed hydrogeologic investigation to ascertain the formation transmissivity and substrate characteristics. Source water yield from a vertical well can range between 0.1 and 1.5 mgd (Hunt, 2008). It is preferable to locate beach wells as close to the coastline as possible to minimize impacts on inland aquifers. Four vertical beach wells (two active, twostandby) are used to draw brackish source water for the 300-afy Sand City Coastal Desalination Plant (Water Technology, 2012). Vertical wells are typically constructed with a track-mounted drill rig and require an area of approximately 100 feet by 100 feet at each well location (SGD, 1992). Like subsurface slant wells, vertical wells require dewatering during well development, and the effluent produced during well development is discharged either directly to the ocean or to temporary onsite settling basins (SGD, 1992; Feeney, 2002). This analysis assumes that the wellhead and associated electrical box for a vertical well would be buried below grade, and that submersible pumps would be used. Each wellhead would result in approximately 400 square feet of permanent disturbance and a permanent easement would be required for maintenance access (SGD, 1992). Vertical wells are typically spaced approximately 300 feet apart from each other to reduce well interference (SGD, 1992). Maintenance of vertical wells is limited to replacing the submersible pumps; however, the small-diameter pumps used in vertical wells have a shorter service life and must be replaced more frequently than other types of well pumps. Since the wells would be buried, pump replacement would require excavation around the wellhead to allow service access.

To provide the 24 mgd of source water needed for the 9.6-mgd desalination plant proposed under the proposed project, a large number of vertical wells spaced over a wide area of beach would be required. Although the total number of vertical wells needed would depend on the underlying hydrogeologic characteristics of the intake site, based on a best-case scenario in which each well has 1.0 mgd of capacity, at least 24 vertical wells would be needed over a linear distance of at least one mile. This analysis assumes that other alternative subsurface intake technologies would have a smaller construction footprint and permanent footprint because other subsurface intakes would require fewer wells to generate the same volume of source water. The sheer number of vertical wells that would be needed to provide a reliable source water flow to the desalination plant is considered infeasible, both from a construction and operational perspective and in terms of economic, legal (permitting) and environmental factors. Therefore, vertical wells are not considered further.

Infiltration Galleries

Infiltration galleries consist of a series of submerged slow sand media filtration beds located beneath the ocean floor. Multiple collector screens and intake pipes within the filtration beds draw seawater to a single intake well located onshore. Water is pumped through onshore intake pumps. Infiltration galleries are most appropriately implemented in locations where geologic conditions are relatively impermeable or of insufficient thickness and depth to support groundwater extraction (Pankratz, 2008).

Infiltration galleries require construction on the beach as well as on the ocean floor. The design surface loading rate of the sand filter media is typically between 0.05 to 0.10 gallons per minute (gpm) per square foot. Using a 42 percent recovery rate, an infiltration gallery for a 9.6-mgd desalination plant would need to draw at least 24 mgd (16,650 gpm) of source water. Based on a loading rate of 0.075 gpm per square foot, approximately 222,000 square feet (or 5 acres) of the seabed in Monterey Bay would need to be excavated at a depth of 6 to 8 feet to install an active infiltration bed for the MPWSP Desalination Plant. Once constructed, periodic removal or replacement of the surface layer of the filtration beds is needed to maintain intake capacity (WateReuse, 2011). Based on the extent of temporary and permanent disturbance that an infiltration gallery would have on the sand dunes and sensitive marine habitat in the Monterey Bay National Marine Sanctuary, this technology is considered infeasible based upon environmental, social and legal factors and is not discussed further.

Horizontal Wells

Horizontal wells, which are installed using HDD technology, draw seawater from shallow offshore aquifers. Horizontal wells would be constructed in clusters of three or four wells, each well equipped with a well pump and extending horizontally approximately 2,400 feet and at a depth of roughly 180 feet below sea level. Approximately 10 to 12 horizontal wells would be needed to provide sufficient source water for the 9.6-mgd MPWSP Desalination Plant. The source water collected by each horizontal well cluster would be pumped from each well to a common caisson and then from the caisson to the MPWSP Desalination Plant.

Horizontal wells are not evaluated further for the following reasons: (1) the amount of pipeline that would be pushed under the sea floor (upwards of 2,500 feet) would be challenging in terms of construction time, physical limitations and the disposal of drilling sludge (and consequently much more expensive than other options); (2) installing artificial filter packs to stabilize unconsolidated formations like those found in the project area has yet to be demonstrated successfully and on a consistent basis, and; (3) HDD would not avoid or minimize any of the impacts associated with the proposed action.

Ranney Wells

A Ranney well is a radial well 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 are extended (SGD, 1992). The use of multiple horizontal laterals means that production of each radial well is greater than a single vertical well (Feeney, 2002). A single Ranney well can yield between 0.1 to 25 mgd, which is five to ten times the yield of a vertical well (Hunt, 2008). Examples of Ranney wells in marine environments include three Ranney wells at the Salina Cruz Power Plant in Mexico that draw between 9 and 14 mgd of seawater, and one at the Steinhart Aquarium at the California Academy of Sciences in San Francisco (Hunt, 2008; Feeney, 2013).

Construction of Ranney wells involves excavating a large shaft for the central caisson, then installing the horizontal laterals outward from the vertical shaft. The central caisson may range from 8 to 20 feet in diameter (SGD, 1992). The laterals are advanced by either jacking outward (seaward) from the vertical shaft under hydraulic pressure, or by jetting them into place (Geoscience, 2008). This analysis assumes that the central caisson would be approximately 16 feet in diameter, be buried at a depth of approximately between 90 to 260 feet, and have a permanent aboveground electrical control building to house pumps and other associated headworks (SGD, 1992).

Ranney wells must be spaced approximately 350 to 500 feet apart to reduce interference between adjacent Ranney wells. Although the final footprint for a Ranney well intake system can be relatively small compared to other types of wells (e.g., vertical), the construction area can be larger (Geoscience, 2008). Construction of a large caisson on the beach, even though the caisson would ultimately be buried, would require a large footprint for construction activities and dewatering operations. This analysis assumes each Ranney well would result in 1 acre of temporary construction disturbance. Conventional construction equipment, including a 60-ton crane, concrete trucks, and assorted support vehicles, would be used for excavation, forming, pouring and setting of the vertical concrete caisson, dewatering of the caisson, advancement of the laterals, development, and test pumping. During dewatering, lateral advancement development, and test pumping, water would need to be discharged to a portable holding tank to settle out suspended solids and the decanted effluent subsequently percolated into the ground in the beach area (SGD, 1992; Feeney, 2002). With the exception of electrical controls, this analysis assumes Ranney wells would be buried below grade. Each Ranney well would be constructed over approximately 6 to 9 months and could involve 24-hour construction (Geoscience, 2008).

Ranney well maintenance includes periodic cleaning of the screened laterals to prevent clogging, and repairs and/or replacement of the submersible pumps. Assuming Ranney wells would be buried in the beach, the sand around the pumps would need to be excavated to allow maintenance staff to access the caisson and screened laterals. Ranney well laterals are mechanically cleaned using a high-pressure rotating water jet blaster; a mechanical packer/surge-block device that surges water or air in isolated sections of the laterals; and/or a bore blast where a small quantity of nitrogen is used to create a pressure pulse down the length of the laterals. This analysis assumes that Ranney well laterals would require cleaning every 5 to 10 years; however, ongoing monitoring of Ranney well performance would be conducted to determine the frequency of cleaning and maintenance.

The submersible pumps for Ranney wells would be housed in the central caisson, which means that large pumps, even turbines, could be used. Larger infrastructure has larger electrical windings and typically requires less maintenance. The submersible pumps would be repaired or replaced approximately every 10 years (SGD, 1992; Feeney, 2002).

The restricted lateral lengths of Ranney wells, as well as issues related to construction in a beach environment, could place limitations on the use of this technology to provide desalination plant feed water supply. The length of the laterals is currently limited to approximately 127 to 240 feet for the traditional Ranney-type collector well, and 350 to 375 feet for collector wells using the Sonoma method[13] of construction (Geoscience, 2008). When used for water supply, the maximum length of the horizontal laterals is typically limited to 150 feet. There may also be limitations on the depth of installation (for example, the maximum depth of the caisson is dependent on the geologic substrate), in which case the laterals would need to be installed and operated within the shallow Dune Sands Aquifer. Ranney wells would occupy roughly the same physical area as slant wells (approximately 10 acres), and Ranney wells are further evaluated as an intake option in this EIR.

Slant Wells

Slant wells are installed at an angle below the sea floor using vertical well drilling technology. The yield from a slant well depends on the underlying geology. When compared to vertical wells and Ranney wells, slant wells can be screened at greater distances offshore and can result in fewer impacts on coastal groundwater aquifers. Slant wells can be drilled from behind sand dunes or from the active beach area (i.e., between the toe of the dunes and the open ocean). The wellheads can be buried beneath the sand or installed flush with the ground surface. Multiple slants wells can be grouped into clusters to extend from a single "pod." Consistent with the slant wells proposed as part of the MPWSP, it is assumed that construction of each slant well pod (consisting of up to 4 wells) would result in 1 acre of temporary disturbance.

Slant wells would require maintenance every 5 years. During maintenance, the wellheads are excavated and exposed, and mechanical brushes are lowered into the wells to mechanically clean the screens. Ground disturbance associated with periodic maintenance is assumed to be similar in extent to construction disturbance (i.e., approximately 1 acre of disturbance for each well pod).

[13] The Sonoma method is a different configuration of a Ranney well that has been implemented on the Russian River in Sonoma County, California.

Slant well construction and maintenance requirements are described in greater detail in Chapter 3, Project Description. Any intake options that include slant well technology are assumed to be consistent with the slant wells proposed as part of the MPWSP, although the location and number of wells could vary.

7.6.1.3 Regulatory Considerations

Regulatory approvals that could be required for seawater intakes include, but would not be limited to, the following:

- United States Fish and Wildlife Service (USFWS)/National Oceanic and Atmospheric Administration (NOAA) Fisheries federal Endangered Species Act Section 7 Consultation/Biological Opinion
- NOAA Fisheries Monterey Bay National Marine Sanctuaries (MBNMS) authorization
- State Historic Preservation Office (SHPO) National Historic Preservation Act (NHPA) Section 106 consultation
- United States Army Corps of Engineers (USACE) Clean Water Act Section 404 Nationwide Permit No. 7, Outfall Structures and Associated Intake Structures, and Section 10 Rivers and Harbors Act permit (33 USC 403)
- California State Lands Commission (CSLC) Land Use Lease (Public Resources Code Section 1900)
- California Department of Fish and Wildlife (CDFW) Incidental Take Permit (California Endangered Species Act Title 14, Section 783.2)
- SWRCB Clean Water Act Section 316(b)
- California Coastal Commission (CCC) Coastal Development Permit (Public Resources Code Section 30000 et seq.)
- Monterey County Health Department Well Construction Permit
- Monterey County Planning and Building Inspection Department Grading and Excavation Permit

Regulators require the design and operation of open-water intakes and outfalls to avoid or minimize adverse environmental effects or impacts. Construction activities that would result in direct disturbance of or alterations to the ocean floor present additional environmental and regulatory challenges, including potential conflicts with the NOAA Fisheries policy guidelines for the Monterey Bay National Marine Sanctuary, the SWRCB's policies contained in the *California Ocean Plan*, and CCC policies.

State Water Resources Control Board Clean Water Act Section 316(b) 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 (RWQCB) 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 [WDRs]) that regulate discharges to state waters under the California Water Code.

The SWRCB is responsible for implementation of Section 316(b) of the federal Clean Water Act, which requires "that the location, design, construction, and capacity of cooling water intake structures reflect the best technology available for minimizing adverse environmental impact." Although intake systems for desalination plants are not subject to Section 316(b) requirements (which apply to facilities that draw water for cooling), the California Water Code[14] currently requires new or expanded coastal industrial facilities (which would include desalination plants) to use the "best available site, design, technology, and mitigation measures feasible" to minimize the intake and mortality of marine life.

In addition, while the Section 316(b) requirements apply to cooling water intakes, the intent to protect marine species reflected in Section 316(b) is recognized to also be broadly applicable to desalination plants (SWRCB, 2012). Prior to permitting coastal desalination facilities, California agencies have typically required studies comparable to those required under Section 316(b) for ocean intakes, including studies to collect data on the concentrations of fish eggs, fish larvae, and target shellfish larvae in the source water at the proposed intake. The number of organisms collected and the volume of seawater sampled must be used to calculate sample concentrations of fish eggs, fish larvae, and shellfish larvae.

Currently permit applicants for open-water intakes must first consider the feasibility of subsurface intake methods (i.e., vertical wells, slant wells) and demonstrate that subsurface intake alternatives are not feasible or would result in greater environmental effects before the SWRCB and RWQCBs will consider issuing permits for open-water intakes. Absent federal or state standards expressly governing desalination plants, the coastal RWQCBs permit new or expanded desalination facilities using best professional judgment on a case by case basis and, as noted, typically include requirements similar to regulations developed pursuant to Clean Water Act Section 316(b). Brine discharges are regulated through NPDES permits that contain conditions protective of aquatic life, although the Ocean Plan does not currently have a water quality objectives for elevated salinity levels in the ocean.

The SWRCB is currently developing an amendment to the Ocean Plan that would address issues associated with desalination facilities. The proposed desalination amendment is intended to provide statewide consistency to the permitting process; guidance for RWQCBs evaluating new or expanded facilities; and specific implementation, monitoring and reporting objectives and requirements (SWRCB, 2014c). The proposed amendment to the Ocean Plan is described in, Section 4.3Surface Water Hydrology and Water Quality

[14] California Water Code Section 13142.5.

California Coastal Commission Guidance and Policies

The CCC is involved in nearly all coastal desalination proposals through planning, permitting, permit appeals, or other reviews. The CCC report entitled *Seawater 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. Key findings from this report include:

- Proposed desalination facilities will require review on a case-by-case basis.
- The Coastal Act polices do not suggest overall support of, or opposition to, desalination.
- There may be differences in applying the Coastal Act policies to public or private desalination facilities.
- The most significant potential direct adverse impact of seawater desalination is likely to be on marine organisms.
- The most significant potential indirect impacts are likely to be those associated with growth inducement.
- Desalination facilities proposed to be co-located with coastal power plants raise unique issues and would need to be reviewed differently than facilities proposed to be located independently.

Chapter 5 of the *Seawater Desalination and the California Coastal Act* report (CCC, 2004) outlines Coastal Act environmental polices related to desalination facilities and processes, focusing in particular on marine biology and water quality policies.[15] Applicable coastal polices include the need to protect and enhance marine resources and to protect the biological productivity of coastal waters.

The report identifies the 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. There are several alternative designs and mitigation measures that could completely avoid or substantially reduce this impact. The use of subsurface intakes have the advantage of eliminating or minimizing impingement and entrainment impacts and the CCC encourages applicants to implement subsurface intakes whenever feasible in situations where 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 and/or compensatory measures. 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, it must first be demonstrated that a subsurface intake is infeasible. For those projects proposing open-water intakes, up-to-date

[15] 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.

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 caps (limits), and screens. The CCC requires a 1-year feasibility study to evaluate the potential entrainment impacts expected from open-water intake operations (CCC, 2004).

MBNMS Guidelines for Desalination Plants in Monterey Bay National Marine Sanctuary

NOAA's Monterey Bay National Marine Sanctuary and National Marine Fisheries Service also established guidelines for discretionary approvals for new intake structures stating that subsurface intakes should be used where feasible and beneficial. Open-water intakes may be considered if subsurface wells would cause saltwater intrusion to aquifers, adversely affect coastal wetlands that may be connected to the same aquifer being used by the intake, or would be at risk of causing increased coastal erosion in the future (NOAA, 2010). NOAA, in collaboration with the CCC and the Central Coast RWQCB, developed the document entitled *Guidelines for Desalination Plants in the Monterey Bay National Marine Sanctuary*, which establishes non-regulatory guidelines to ensure that future desalination plants in the sanctuary are properly sited, designed, and operated in a manner that results in minimal impacts on the marine environment. The guidelines address several issues associated with desalination, including site selection, construction and operations impacts, plant discharges, and intake systems. A few of the guidelines include:

- All desalination plants in the Monterey Bay National Marine Sanctuary 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.

Water Desalination Task Force Findings and Recommendations

As directed by Assembly Bill 2717, the California Department of Water Resources (DWR) assembled a Water Desalination Task Force. The Task Force, comprised of 27 organizations, has provided input on important issues and opportunities for use of desalination in California. The Task Force co-chairs are the SWRCB, the California Energy Commission, the California Department of Health Services, and the CCC.

In the report entitled *Water Desalination Findings and Recommendations* (DWR, 2003), the Task Force identified 41 key findings related to desalination that provide a context for evaluating desalination. One of the primary findings was that economically and environmentally acceptable desalination should be considered as part of a balanced water portfolio to help meet California's existing and future water supply and environmental needs. The Task Force found that various technologies exist that may avoid, reduce, or minimize the impacts of feedwater intakes. The report concluded that:

- Drawing feedwater from beach wells can avoid the ecological impacts of entrainment and impingement associated with open-water intakes; and

- Low-velocity intake systems, marine fish screens, sub-floor intakes, and appropriate intake pipe design and location may reduce or minimize the impacts of entrainment and impingement associated with open-water intakes.

Water Desalination Findings and Recommendations states that new or existing open-water intakes would require current assessment of entrainment and impingement impacts (DWR, 2003). An open-water intake project applicant would also need to identify and investigate potential mitigation approaches, necessitating 7 years of investigation and negotiation (Helm, 2013).

In 2008, the DWR published the *Ocean Desalination Planning Handbook* (DWR, 2008), which builds on the 2003 *Water Desalination Findings and Recommendations*. While not regulatory in nature, the *Desalination Planning Handbook* contains guiding principles for permitting ocean desalination projects, including a description of the roles of various state agencies. The Desalination Planning Handbook states that subsurface wells may reduce potential environmental impacts associated with open-water intakes, and that subsurface seawater intakes may be easier to permit than open-water intakes (DWR, 2008).

Association of Monterey Bay Area Governments Desalination Feasibility Study for Monterey Region

The Association of Monterey Bay Area Governments (AMBAG) and its advisory committee—comprised of members from the CCC, the Central Coast RWQCB, Moss Landing Harbor District, NOAA Fisheries, Marina Coast Water District, Monterey County Water Resources Agency, Monterey Peninsula Water Management District, Pajaro Sunny Mesa Community Services

District, Santa Cruz Water Department, CalAm, Moss Landing Marine Laboratories, and the University of California at Santa Cruz—developed the *Desalination Feasibility Study for the Monterey Region* (AMBAG, 2006). The purpose of the Feasibility Study was to investigate the environmental, economic, and social impacts of seawater desalination project implementation in the context of the Monterey Bay region. The Feasibility Study includes a baseline assessment of existing habitats in the Monterey Bay region that could be affected by desalination plants; an overview of the existing water supply situation in the Monterey Bay region; an analysis of the environmental and socioeconomic costs and benefits related to desalination plant construction and operation; an analysis of potential scenarios for the use of desalination in the Monterey Bay area, including costs and benefits; and an overview of the existing regulatory environment associated with desalination in the AMBAG region.

The observations and recommendations presented in the Feasibility Study relative to physical environmental effects were similar to those previously discussed, including:

- Subsurface intakes should be used where they are found to be feasible and beneficial. Subsurface intakes have the potential to minimize or eliminate impingement and entrainment impacts and improve the performance and efficiency of a desalination project. 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, or be subject to the threat of coastal erosion in the future.

- The use of appropriately sited, existing pipelines of acceptable structural integrity should be investigated to minimize impacts on the seafloor. If a new pipeline is necessary, sub-seafloor placement should be evaluated to minimize disturbances to biological resources. If such intakes are approved, they should include the mitigation measures necessary to minimize their impacts on the marine ecosystem (AMBAG, 2006).

7.6.2 Intake Options Screening Results

Thirteen intake options were identified and evaluated for fatal flaws, and are summarized in **Table 7-2**. Six of the thirteen were not carried forward for further analysis, and they are described in **Appendix I**, along with an explanation of the bases for their elimination. Options that were retained are described in this section, and they are compared against the proposed slant wells at the CEMEX active mining area (i.e., the proposed project) in Section 7.6. **Figures 7-1** and **7-2** show the locations of each intake option.

7.6.2.1 Intake Option 1 – Subsurface Slant Wells at North CEMEX

This intake option was not carried forward in the alternatives analysis. See **Appendix I**.

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

This intake option is presented in the *Memorandum: Contingency Planning for the MPWSP* (RBF Consulting, 2013) (referred to below as the "MPWSP Contingency Plan") as Intake Contingency Option #2. This option would locate a new open-water intake at the northern end of the CEMEX mining facility about 0.8 mile north of the CEMEX active mining area (the same general location

TABLE 7-2
PRELIMINARY INTAKE OPTIONS

Figure ID	Name	Feedwater Source	Description	Notes	Screening Results
Intake-1	Subsurface Slant Wells at North CEMEX (new construction)	Predominantly seawater with some portion coming from the Salinas Valley Groundwater Basin[a]	• 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.	Presented in CalAm's January 2013 Supplemental Testimony as the MPWSP[b]	*Not carried forward based on input from resource agencies regarding impacts to sensitive biological resources*[c]
Intake-2	Open-Water Intake at North CEMEX (new construction)	Open Ocean	• This option would be located approximately 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-ft. vertical riser at the western terminus 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.	CalAm Intake Contingency Option #2	*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[a]	• 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.	CalAm Intake Contingency Option #3	*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-ft vertical riser at the western terminus of the intake pipeline approximately 40 feet below the water surface. • A new pump station would be located at the eastern terminus of the intake pipeline in the beach parking lot.	CalAm Intake Contingency Option #8	*Retained for further analysis.*

NOTES:

[a] Subsurface intakes will extract mostly seawater for feedwater, but a portion of the feedwater may originate from inland sources.
[b] After January 2013, the seawater intake system for the proposed project was relocated to the CEMEX active mining area in response to input from resource agencies regarding impacts on snowy plover habitat.
[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 7-2
PRELIMINARY INTAKE OPTIONS

Figure ID	Name	Feedwater Source	Description	Notes	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.	People's Moss Landing Desalination Project proposed intake	*Not carried forward because of the unsuitable hydrogeologic conditions.*[d]
Intake-6	Open-Water Intake at the former National Refractories site (modify existing outfall)	Open ocean	• This option is located in Monterey Bay near Moss Landing Harbor and the former National Refractories site. • This option would modify an existing outfall for use as an intake. • The existing 2,750-foot-long, 54-inch outside diameter concrete outfall for the former National Refractories facility in Moss Landing terminates approximately 620 feet offshore at a depth of 43 feet in Monterey Bay. Modifications to the existing outfall would include: removing the diffuser; repairing minor cracks along the 54-inch-diameter pipeline; installing and securing a smaller pipeline in the interior of the existing pipeline as the new intake; and installing a passive wedge-wire screen to the end of the new intake pipeline. • A new pump station would be constructed on shore near the eastern terminus of the existing pipeline, within the former National Refractories site, to pump the seawater to the desalination plant.	CalAm Intake Contingency Option #7	*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 MLPP in Moss Landing. • This option would divert seawater from the MLPP cooling system for use as source water for the MPWSP Desalination Plant. • Currently, the seawater used for this option is drawn through MLPP'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.	CalAm Intake Contingency Option #5	*Not carried forward because of the uncertainty about the long term availability of this source associated with SWRCB's 2010 policy on once-through-cooling systems at coastal power plants.*
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 utilize 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.	CalAm Intake Contingency Option #6	*Retained for further analysis.*

TABLE 7-2
PRELIMINARY INTAKE OPTIONS

Figure ID	Name	Feedwater Source	Description	Notes	Screening Results
Intake-8a and 8b (cont.)			• 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. • The pump station would deliver seawater through a new, 36-inch 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)	Open ocean (deep water, below the "euphotic zone")	• Two subsurface intake pipelines would be installed below the seafloor using HDD from the pipelines' eastern terminus near the Moss Landing Power Plant to the western terminus where they "daylight" on the upper slope of the Monterey submarine canyon. • Passive, low velocity, wedge-wire screens on 3-foot risers would be attached to the western terminus of the intake pipelines close to where they emerge from the subsurface and anchored to the seafloor. • The screened intakes would be located about 0.5 mile offshore and 100 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 pipelines to an onshore wet well and pump station. • The wet well and pump station would be located at one of two possible locations: a site north of the MLPP about 0.25 mile east of Highway 1 (preferred location) or at a site immediately west of Highway 1 across from the MLPP (alternative location). The subsurface wet well would be deep enough to allow gravity flow from the intake.	DeepWater Desal Monterey Bay Regional Water Project	*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.	DeepWater Desal Central Coast Regional Water Project proposed intake alternative	*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	Proposed by LandWatch (from MPWMD 95-10 Project) and revised to meet MPWSP intake needs	*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.*

TABLE 7-2
PRELIMINARY INTAKE OPTIONS

Figure ID	Name	Feedwater Source	Description	Notes	Screening Results
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.	Proposed by federal agencies at March 2013 meeting	*Not carried forward because this location would be in direct conflict with MCWD's existing (non-operating) desalination plant and/or any plans MCWD may have for building a desalination project in its service area.*
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 under the EIR 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 EIR proposed project.	CalAm Intake Contingency Option #1	*Retained for further analysis. – This design option could be used at any location where slant wells are being considered.*

as the well clusters in Intake Option 1). 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.

The site is located within unincorporated Monterey County. Construction of this intake option would temporarily disturb approximately 0.25 acres 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 avoid all disturbance to sensitive habitat in the active beach area. Section 7.5.1.1, above, 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.

7.6.2.3 Intake Option 3 – Subsurface Slant Wells at Potrero Road

This intake option is presented in the MPWSP Contingency Plan as Intake Contingency Option #3. This option would involve the installation of a total 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 7-2**).

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 (i.e., 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 constructed within Potrero Road. 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.

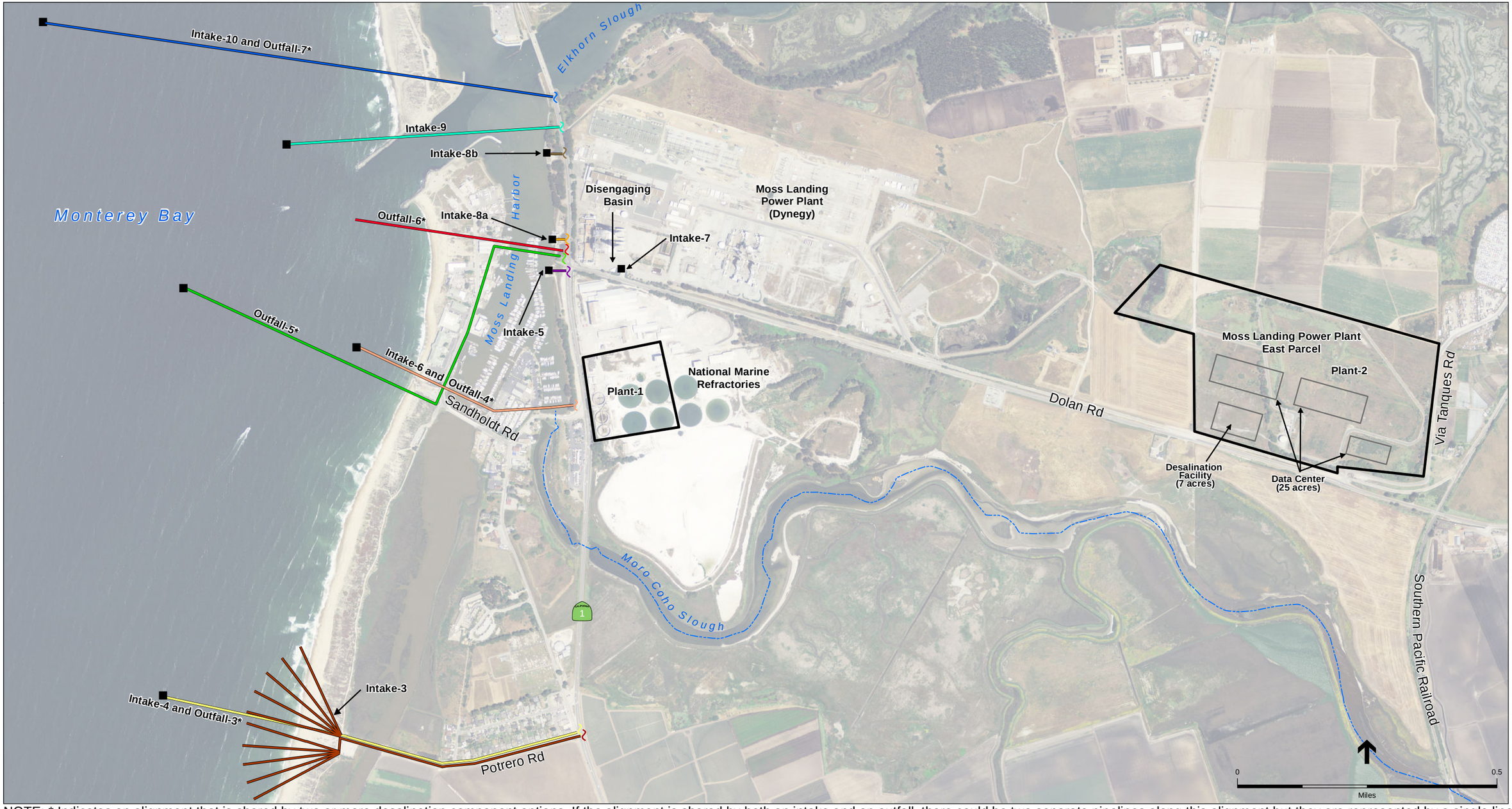
NOTE: * Indicates an alignment that is shared by two or more desalination component options. If the alignment is shared by both an intake and an outfall, there could be two separate pipelines along this alignment but they are represented by a single line. Similarly, if the same existing pipeline could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

SOURCE: ESA, 2015

205335.01 Monterey Peninsula Water Supply Project

Figure 7-1

Desalination 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, 2015

205335.01 Monterey Peninsula Water Supply Project

Figure 7-2

Desalination Component Options - Moss Landing

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).

Slant wells under Intake Option 3 would be constructed from the beach parking lot using the drilling technology described for construction of the proposed MPWSP slant wells (in Section 3.5.1 of Chapter 3, Project Description), and would not disturb the active beach area. Slant well construction at the Potrero Road site would occur year-round. 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. All other aspects of construction and maintenance of the slant wells under Intake Option 3 would generally be consistent with the construction methods and maintenance requirements for the slant wells under the proposed project (see Chapter 3, Project Description).

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

This intake option is presented as Intake Contingency Option #8 in the MPWSP Contingency Plan. This option would locate a new open-water intake pipeline at the beach parking lot at the west end of Potrero Road (see **Figure 7-2**). A 0.6-mile-long (3,100-linear-foot), 36-inch-diameter open-water intake pipeline would extend from the beach parking lot to approximately 2,400 feet offshore. 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 a vertical shaft connected to the western terminus 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 and suspended and colloidal solids as well as pathogens from the source water prior to conveying it through the reverse-osmosis system.

Construction of this intake option would temporarily disturb approximately 2,000 square feet on the ocean floor 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 above in Section 7.5.1.1. 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. No entrainment/impingement studies or pilot testing have been completed to determine the volume of organic marine material that would be affected by this intake option.

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

This intake option was not carried forward in the alternatives analysis. See **Appendix I**.

7.6.2.6 Intake Option 6 – Open-Water Intake at Moss Landing Harbor (Existing National Refractories Outfall)

This option is presented as Contingency Intake Option #7 in the MPWSP Contingency Plan. This option would rehabilitate and convert for use as an intake the existing 2,750-foot-long, 51-inch-diameter[16] concrete outfall at the former National Refractories site (now called Moss Landing Business Park or Moss Landing Commercial Park), shown in **Figure 7-2**.

This outfall pipeline extends underground from the National Refractories site to its terminus approximately 620 feet off shore in Monterey Bay, at a depth of about 43 feet beneath the water surface; it is buried at a depth of about 25 feet over most of its length and passes under the marina, the commercial harbor, and "Moss Landing Island,"[17] and out into the bay. The outfall pipeline was originally installed in the 1940s by Kaiser Industries (Landmark Realty, 2011). A video survey conducted in 2008 and the results of a structural evaluation conducted in 2012 indicate that the existing outfall and diffuser are in need of repair to address joint decoupling, clogged diffuser ports, and minor cracks found in an inspection of the pipeline interior (GEI/Bookman Edmonston, 2008; Miller, 2012; MLBP LLC, 2013b). In addition, although the original construction plans for the outfall indicate that the pipeline was constructed below grade to the diffuser section, portions of the pipeline appear to have been uncovered and one section lifted up, possibly during the Loma Prieta earthquake (SPI and Helm, 2013). The structural evaluation of the outfall concluded that, following repair, the pipe would be structurally adequate to function as an outfall. The same evaluation noted that with hydraulic modifications, the pipeline could also serve as an intake by inserting and stabilizing a new 24-inch-diameter steel pipe within the annular[18] space of the existing pipe (Miller, 2012).

In addition to installing such a pipe or otherwise sliplining the existing outfall with a smaller pipe to serve as the intake pipeline, modifications to the existing outfall for this option would include removing the existing diffuser and attaching a new passive, wedge-wire screen to the end of the new intake pipeline (RBF Consulting, 2013); a new pump station would be constructed onshore at or near the pipe's eastern terminus within the former National Refractories site, to pump the raw seawater to the desalination plant (RBF Consulting, 2013).

16 The reported diameter of this pipeline varies somewhat in different source documents. Mickley (2012) reports that 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 People's 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).

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

18 Pertaining to, or having the form of, a ring.

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. The intakes serve the Moss Landing Marine Labs (MLML) aquarium, Phil's Fish Market, sea lion facilities, and the Monterey Bay Aquarium Research Institute (MLBP LLC, 2013c; RWQCB, 2009). The People's Moss Landing Water Desal Project sponsors have indicated their interest in continuing to accommodate this use of the outfall pipeline in conjunction with modifications to also use the pipeline as an intake to serve a new desalination plant (MLBP, 2013c).

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.

The National Refractories site is designated as *Industrial-Coastal Dependent –Heavy* in the currently adopted Monterey County Land Use Plan: Moss Landing (1982) and Coastal Heavy Industry in the July 2014 Revised Draft Moss Landing Community Plan of the Monterey County General Plan; this designation is intended to accommodate and allow heavy industrial uses that are coastal dependent and/or coastal related. The site is within the HI (CZ) zoning district, according to the Monterey County Local Coastal Plan zoning maps. This district is intended to provide for "an environment conducive to the development and protection of modern industry, research institutions, and administrative facilities" according to Title 20, Zoning Ordinance for the County for Monterey (Monterey County Code Title 20).

This intake option would temporarily disturb approximately 2,000 square feet on the ocean floor during construction; while there would be no new disturbance related to constructing a new subsurface pipeline tunnel, activities associated with removal of the existing diffuser, attachment of the intake screen, and anchoring the new screen to the ocean floor would entail disturbance to the ocean floor in the immediate vicinity of the pipeline terminus. Other than the new pump station and activities to remove the existing diffuser, install and secure the new interior pipe, and attach the new intake screen, no additional construction would be required. Specific information on facility maintenance has not been developed for this option, but is assumed to be similar to the maintenance required for other open-water intakes; refer to Section 7.5.1.1, above, for information regarding general construction methods and maintenance of open-water intakes.

Implementation of this option would require that CalAm coordinate and enter into appropriate agreements with Moss Landing Business Park, LLC,[19] which owns the former National Refractories site. Access would be from Dolan Road, through the former National Refractories site (with appropriate easement). (As noted below in Section 7.5.2.4, the National Refractories outfall is also considered as an option for brine discharge.) Entrainment/impingement studies and pilot testing have not been conducted.

[19] The current owner of the former National Refractories site is alternatively identified in some documents as the Moss Landing Commercial Park, LLC and some documents use both names.

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

This intake option was not carried forward in the alternatives analysis. See **Appendix I**.

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

This intake option is presented as Intake Contingency Option #6 in the MPWSP Contingency Plan. This option would use the existing MLPP cooling system intake screens to screen source water for the MPWSP Desalination Plant and would be independent of MLPP cooling system operations (RBF Consulting, 2013).

The MLPP has two cooling water intakes, both located along the eastern edge of Moss Landing Harbor (shown in **Figure 7-6**, below). The northern intake ("Intake 8b" in **Figure 7-2**) is used to draw cooling water for MLPP's power generating Units 1 and 2 and the southern intake ("Intake 8a" in **Figure 7-2**) is used to draw cooling water for power generating Units 6 and 7. The intakes utilize 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 may be activated automatically based on the pressure differential on the upstream and downstream faces of the screen, and 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;[20] 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 3.5-inch openings between the bars and the bar racks at the southern intake have 3 5/8-inch (3.625-inch) openings (Tenera, 2007; Dynegy, 2011). Nine pumps are currently used to operate the northern intake. The six pumps currently used to draw cooling water for Units 1 and 2 are located about 300 feet behind the intake; in addition, three pumps are used for the screen wash system. Seven pumps are currently used to operate the southern intake. The four pumps currently used to draw water for Units 6 and 7 are located immediately (about 30 feet) behind the intake. Like the northern intake, another three pumps are used for the screen wash system (Tenera, 2007).

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

Under this option, new diversion pumps and a pipeline to connect to a new source water pipeline would be installed behind the existing Moss Landing Power Plant 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 and suspended and colloidal solids as well as pathogens from the source water prior to 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. Impingement and entrainment studies have been completed for the Dynegy Moss Landing Power Plant operations. I Implementation of this intake option would require additional impingement and entrainment studies to evaluate the effects of desalination plant operations.

7.6.2.9 Intake Option 9 – Open Deepwater Intake at Moss Landing

This intake option is the intake included as part of the proposed Deep Water Desal Monterey Bay Regional Water Project (DeepWater Desal project) (formerly called the Deep Water Desal Central Coast Regional Water Project), proposed by Deepwater Desal, LLC (Deepwater Desal, 2014). This option preferred by Deep Water Desal consists of a screened open-water intake located on the upper north slope of the Monterey submarine canyon, approximately 0.5 mile offshore[21] and at least 100 feet below the surface of Monterey Bay (Deep Water Desal, 2014). Raw seawater would be conveyed to an onshore wet well and pump station through two subsurface 42-inch, high-density polyethylene (HDPE) pipelines. The intake pipelines would be installed beneath the seafloor using HDD technology from the onshore wet well location. During construction, each HDPE pipeline would be fused together in one long section, filled with air to create buoyancy, floated out to the point at which the HDD drilling emerges from the seafloor, submerged onto the ocean bottom in line with the drilled hole, and pulled back through the HDD tunnel from the land side (Makai, 2014). The screened open water intake would consist of a series of six passive, low-velocity, wedge-wire screens attached to the ocean end of each intake pipeline, starting near the point where the pipelines emerge from the ocean floor on the slope of the submarine canyon. The screens would be secured by reinforced concrete pads anchored to the ocean floor, and the screen sections would be removable for maintenance. The intake would have a design velocity of 0.5 feet per second or less.

The onshore wet well and pump station would be located at one of two alternative sites: the project proponent's preferred location is a privately owned parcel north of the MLPP near the south shore of Elkhorn Slough, about 0.25 mile east of Highway 1 (Deep Water Desal, 2014); the

[21] The May 2014 "Project Narrative" for the Deepwater Desal project (Deepwater Desal, 2014) also describes an alternative intake location that is under consideration, located about "1 mile off-shore of the north rim of the Monterey submarine canyon."

alternative location is just west of Highway 1 across from the MLPP. The length of the intake pipeline, from its terminus in Monterey Bay to the preferred wet well, would be about 5,400 feet (or about 1 mile). The length of the intake pipeline from Monterey Bay to the alternative wet well location would be about 4,200 feet (or about 0.75 mile). The depth of the wet well would be below sea level and the well would be filled by gravity (DeepWater Desal, 2014). 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.

The preferred wet well and pump station site is designated as *Agricultural Conservation* with an *Aquaculture Overlay* in the currently adopted Monterey County Land Use Plan: Moss Landing (1982) and July 2014 Revised Draft Moss Landing Community Plan of the Monterey County General Plan. The preferred site is within the AC (CZ) and RC (CZ) zoning district. The alternative location is designated as *Industrial - Coast Dependent - Heavy* in the currently adopted Monterey County Land Use Plan: Moss Landing (1982) and *Coastal Heavy Industry* in the July 2014 Revised Draft Moss Landing Community Plan of the Monterey County General Plan. The alternative location is within the HI (CZ) and RC (CZ) zoning district.

Physical space is available for this construction. Access to the preferred wet well site would be via an unnamed access road off of Highway 1 just south of Elkhorn Slough; access to the alternative wet well site would be via Highway 1. Access to the ocean portion of intake installation would be via barge. Implementation of this intake option would require coordination and likely a lease agreement with or land purchase from the owner(s) of the final wet well/pump station site.

From June 2012 to June 2013, Tenera Environmental LLC (Tenera), on behalf of Deep Water Desal, LLC, undertook marine biological sampling as part of a study to assess potential entrainment impacts of the proposed intake on fish and invertebrate marine life. (The study only addressed potential entrainment impacts because the proposed use of wedgewire screens and low intake velocities are expected to eliminate significant impingement-related effects [Tenera, 2014].) Over the course of the year, daytime and nighttime samples were collected at two depths (to 25 meters [82 feet] below the surface and to 40 meters [131 feet] below the surface]) at four sampling stations: two representative intake locations and two nearby source water stations. The study used the Empirical Transport Model to estimate the proportion of larvae lost due to entrainment; Empirical Transport Model is the primary method for assessing entrainment effects of ocean water intakes in California (Steinbeck et al., 2007 *in* Tenera, 2014)[22].

The specific objectives of the entrainment study were to assess (1) the potential impacts to fish and invertebrate marine life due to larval entrainment through the DeepWater Desal project's intake and (2) the potential benefits of a deep water design in relation to entrainment of fish and

[22] Before starting the entrainment study, Tenera conducted a preliminary assessment of potential entrainment effects using historical data from the MLPP and assessments of other major intakes in California. In addition to providing a preliminary indication of typical entrainment mortalities, the preliminary assessment helped inform the methods to be applied in the entrainment study and served as a feasibility study for the scope of the intake assessment (Tenera, 2014).

marine invertebrates [compared to shallower intakes commonly used]. The study assumed the DeepWater Desal project would have a maximum intake requirement of 63 mgd of seawater with an interim phase capacity of 25 mgd; the results reported for the entrainment analysis were based on the assumed intake volume of 63 mgd which is more than two-and-a-half times the 24.1 mgd intake volume required for the MPWSP.

Tenera prepared a "Draft Moss Landing Desalination Plant Intake Impact Assessment: Larval Entrainment" report (Tenera, 2014) and concluded, based on a combination of low flows of the proposed intake relative to a large source water volume and the abundances and life history characteristics of fish species susceptible to entrainment, and the siting characteristics of the intake in deeper water and at the head of the Monterey submarine canyon among other factors, that the DeepWater Desal project intake would not have a significant impact on the marine environment.

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

This intake option was not carried forward in the alternatives analysis. See **Appendix I**.

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

This intake option was not carried forward in the alternatives analysis. See **Appendix I**.

7.6.2.12 Intake Option 12 – Subsurface Slant Wells at Reservation Road

This intake option was not carried forward in the alternatives analysis. See **Appendix I**.

7.6.2.13 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, 2014a). 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 buried approximately 50 feet into the sand, with the top of the caisson flush with the beach surface. Each Ranney well would be equipped with five screened laterals (for a total of 20 screened laterals) that would draw groundwater from the shallow Dune Sands Aquifer. An approximately 1,475-foot-long, 42-inch-diameter pipeline 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 corresponding facilities under the EIR

proposed project (CalAm, 2014a). See Section 7.5.1.2, above, for a general discussion of construction and maintenance assumptions associated with Ranney Wells.

7.6.3 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 Sections 3.4.2.6 and 3.6.1 in Chapter 3, Project Description, for a description of brine discharges under the proposed project).

Use of the existing outfall at the MPWPCA (as proposed for the MPWSP) would require an amendment to the existing NPDES permit associated with current treated wastewater discharges, and from the MRWPCA as the outfall owner. Permits expected to be required to implement any new or modification to an existing outfall could include, but would not be limited to, the following:

- USFWS/NOAA Fisheries ESA Section 7 Consultation/Biological Opinion
- USFWS/NOAA Fisheries consultation under Fish and Wildlife Coordination Act
- NOAA Fisheries Monterey Bay National Marine Sanctuary authorization
- U.S. Coast Guard: Approval for construction and use of structures located in and above navigable waterways.
- USACE Clean Water Act Section 404, Nationwide Permit 7 (Outfall Structures and Associated Intake Structures) and Section 10 Rivers and Harbors Act
- SHPO NHPA Section 106 consultation
- CSLC Land Use Lease
- CCC Coastal Development Permit
- RWQCB Central Coast Region: Compliance with NPDES General Permit for Storm Water Discharges Associated with Construction Activity; compliance with NPDES permit in accordance with Clean Water Act 402
- Compliance with Waste Discharge Requirements in accordance with Porter-Cologne Water Quality Control Act; compliance with Water Quality Certification in accordance with Clean Water Act Section 401

This analysis considers several potential outfall options for brine discharge. The outfall options are summarized in **Table 7-3**. Those options that are not carried forward in the alternatives analysis are described in **Appendix I**, and options that are retained for further analysis are described in more detail below.

TABLE 7-3
PRELIMINARY OUTFALL OPTIONS

ID	Name	Description	Notes	Screening Results
Outfall-1	Modified MRWPCA Outfall and New Diffuser (modifications to existing outfall facility)	• This option would utilize the existing MRWPCA outfall pipeline, which terminates at a 1,100-foot-long diffuser. This gravity-driven facility is currently used to discharge 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 be connected to the existing outfall pipeline. • A new pump station would be constructed near the headworks to 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.	CalAm Discharge Contingency Option #1	*Retained for Further Analysis*
Outfall-2	New Outfall at North CEMEX Site (new construction)	• A 24-inch-diameter outfall pipeline would be constructed approximately 0.8 mile north of the CEMEX active mining area. • An outfall pipeline would extend approximately 2,500 feet offshore and terminate at a new diffuser designed to meet Ocean Plan requirements. • An outfall pipeline would be constructed under the dunes, beach, and ocean floor using tunneling technologies. • A pump station would be constructed at the desalination plant site to pump brine through the new outfall and diffusers.	CalAm Discharge Contingency Option #2	*Retained for Further Analysis*
Outfall-3	New Outfall at Potrero Road (new construction)	• A 24-inch-diameter outfall pipeline would be constructed east-to-west along Potrero Road. • From the western terminus of Potrero Road, the outfall pipeline would extend approximately 3,000 feet offshore and terminate 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.	CalAm Desalination Plant Site Contingency Option #6	*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 terminus approximately 620 feet offshore in the Monterey Bay at a depth of approximately 43 feet beneath the water surface. The last 130 feet of pipe consists of a diffuser section with 32 nozzles. • The existing outfall would be repaired (to address joint decoupling and minor cracks) and new diffusers would be attached.	CalAm Contingency Discharge Option #4 *Proposed by Peoples' Moss Landing Project*	*Retained for Further Analysis*

TABLE 7-3 (Continued)
PRELIMINARY OUTFALL OPTIONS

ID	Name	Description	Notes	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 and terminate at a new diffuser designed to meet Ocean Plan requirements.	CalAm Contingency Desalination Plant Site Option #8	*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 terminate 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 currently used as part of 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 be discharged to Monterey Bay via the two existing outfall pipelines.	CalAm Discharge Contingency Option #3 CalAm Contingency Desalination Plant Site Options #2, #3, #4, and #7	*Retained for Further Analysis*
Outfall-7	New Outfall or New Outfall plus Reuse of Former Fuel Pipeline (new construction or new construction and modifications to existing facilities)	• A new 36-inch-diameter outfall pipeline would be constructed from the vicinity of Moss Landing Power Plant to one of two possible discharge locations, 1 mile or 1.5-miles offshore. The pipeline would follow the easement for an existing 24-inch-diameter PG&E fuel oil pipeline that extends offshore from a former tank farm east of power plant (existing PG&E pipeline would be removed). This outfall pipeline alignment is similar to the Intake Option 8 (Intake-8) intake pipeline alignment. • Alternatively, the existing fuel line would be used in conjunction with a smaller (24-inch) new pipeline that would be attached to the existing pipeline or constructed under it, beneath the sea floor. Near the terminus of the existing line, the two pipelines would be joined with a Y pipe section and a single 36” pipeline would extend the remaining distance to a discharge point either 1 mile or 1.5 miles offshore. • Brine would be discharged below the euphotic zone[23] via diffusers.	Proposed by Deep Water Desal	*Retained for Further Analysis*

7.6.3.1 Outfall Option 1 – Modified MRWPCA Outfall and New Diffuser

This outfall option is presented in the MPWSP Contingency Plan as Outfall Option #1. 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 where it would exit the existing outfall pipe at the point where the existing outfall turns to the northwest, and constructing 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.

[23] The euphotic zone is the layer closer to the surface that receives enough light for photosynthesis to occur.

The MRWPCA currently operates its outfall and diffuser to discharge treated wastewater from the MRWPCA Regional Wastewater Treatment Plant. The 2.1-mile-long outfall pipeline (offshore portion) terminates at a 1,100-foot-long diffuser that rests approximately 3 feet above the ocean floor at approximately 90 to 110 feet below sea level. Discharges through the existing outfall and diffuser are gravity-driven. Under the proposed project, the brine stream from the MPWSP Desalination Plant would be blended with treated wastewater effluent from the MRWPCA Regional Wastewater Treatment Plant prior to discharge during certain periods of the year (i.e., the non-irrigation season); the brine stream could be discharged without dilution for extended periods. Outfall Option 1 would pressurize the brine discharge, thereby improving the dispersal of the brine stream in the event it was necessary to do so. However, meeting the Ocean Plan limits are achievable 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, approximately 2.6 miles of 20-inch-diameter pipe would be mechanically pushed inside the MRWPCA outfall pipe. The 20-inch-diameter pipe would extend to the first offshore bend in the outfall pipe. A new connection would be constructed as an exit structure at the bend of the existing pipe, and a separate 500-foot-long diffuser would be attached to the existing pipe and to the ocean floor for discharging and dispersing the brine. The 20-inch-diameter brine pipeline would be pushed through the existing MRWPCA outfall pipeline from several launch sites along the existing outfall alignment. The new connection would be constructed at the first offshore bend, and a barge would be used to transport, sink, attach, and secure the new diffuser to the ocean floor at this new connection with the outfall pipeline. 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 constructed 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 continued implementation of the following: annual integrity test, air tests to identify leaks, video surveillance, and periodic flushing of the outfall line to unclog the diffuser ports. The MRWPCA currently conducts these maintenance activities at regular intervals. Other maintenance activities could include hand scraping of the diffuser section of the outfall line.

7.6.3.2 Outfall Option 2 – New Outfall at North CEMEX Site

This outfall option is presented as Discharge Option #2 in the MPWSP Contingency Plan. This option would involve constructing a new ocean outfall pipeline and diffuser at the north CEMEX site (same location as Intake Options 1 and 2) and a brine discharge pump station at the desalination plant site (this would apply to all desalination plant site options).

As with the other outfall options, the total length of the outfall pipeline would vary depending on the location of the desalination plant (i.e., proposed Charles Benson Road site or one of the two site options presented in Section 7.5.3); as a result, this description primarily describes 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 terminus (as 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 be tunneled under the dunes and beach and would daylight on the ocean floor approximately 2,500 feet offshore. A 500-foot-long diffuser, designed to meet the 2012 Ocean Plan requirements, would be constructed on the ocean floor at the western pipe terminus.

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 with the exception that, as described for proposed project pipelines, jack and bore methods would be used for the segment crossing under Highway 1 and any drainages along the alignment (which would depend on the desalination plant site to which it connects). 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, 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.

7.6.3.3 Outfall Option 3 – New Outfall at Potrero Road

This outfall option is presented as Desalination Plant Site Contingency Option #6 in the MPWSP Contingency Plan. 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 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 pipe terminus (RBF Consulting, 2013) and anchored to the ocean floor. Construction activities and disturbance on 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 constructed using open-trench construction methods except for crossing major roads, such as Highway 1, or drainages, when jack and bore methods would be used. The brine discharge pump station would be located in the existing parking lot and would be used to pump the brine stream through the outfall and diffuser and disperse the discharge.

The description of Intake Option 3 in Section 7.5.1.4, 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.

7.6.3.4 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). This option is presented as Discharge Contingency Option #4 and Desalination Plant Site Options #1 and #5 in the MPWSP Contingency Plan and is also the proposed outfall for the People's Moss Landing Desal Project. It is also presented as Intake Option #6 in this EIR (and Contingency Intake Option #7 in the MPWSP Contingency Plan).

The existing outfall is a 2,750-foot-long, 51-inch-diameter[24] concrete pipe that terminates approximately 620 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 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,"[25] to the point that it emerges from the subsurface near its terminus in the bay (Landmark Realty, 2011). The last 130 feet of outfall pipe consists of a 32-nozzle diffuser section (MLBP LLC, 2013b; RWQCB, 2009). The diffuser is located in an area with "naturally high activity" near the head of a submarine canyon, which assists in rapidly dispersing the discharges (Coale, 2012).

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

[24] 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 People's 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).

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

are attached to the lines about 100 feet from the end of the diffuser and serve the MLML aquarium, Phil's Fish Market, sea lion facilities, and the Monterey Bay Aquarium Research Institute (MLBP LLC, 2013c, RWQCB, 2009). The People's Moss Landing Water Desal Project sponsors have indicated their interest in continuing to accommodate this use of the outfall pipeline in conjunction with modifications to also use the pipeline as an outfall to serve a new desalination plant (MLBP LLC, 2013c).

A video survey conducted in 2008 and the results of a structural evaluation conducted in 2012 indicate that the existing outfall and diffuser are in need of repair to address joint decoupling, clogged diffuser ports, and minor cracks found in an inspection of the pipeline interior (GEI/Bookman Edmonston, 2008; Miller, 2012; MLBP LLC, 2013b). In addition, although the original construction plans for the outfall indicate that the pipeline was constructed below grade to the diffuser section, portions of the pipeline appear to have been uncovered and one section lifted up, possibly during the Loma Prieta earthquake (SPI and Helm, 2013). The 2012 structural evaluation indicated that, following the repairs, the concrete pipe would be structurally adequate to function as an outfall (Miller, 2012). Additional modifications could be needed to ensure the outfall meets Ocean Plan requirements. The Peoples Moss Landing Water Desal Project currently proposes to equip the outfall with new diffusers (PML Desal, 2014) and this analysis assumes the installation of the new diffuser would be a construction-related activity.

A 2009 RWQCB/NPDES permit (Order No. R3-2009-0002; NPDES No. CA0007005), issued to Moss Landing Commercial Park, LLC, and Moss Landing Cement Company, LLC, permitted discharges via the existing outfall of up to 60 mgd of calcium- and magnesium-depleted seawater from the Moss Landing Cement Company, which at the time was starting up operations at the former National Refractories site. The permit indicates that although the diffuser sustained damage during the 1989 Loma Prieta earthquake, studies conducted following the earthquake indicated "low potential for significant environmental impact" because of the damage (RWQCB, 2009). The minimum initial dilution factor for the unrepaired outfall diffuser system, as determined for the 2009 RWQCB/NPDES permit, was 33 to 1 (seawater to effluent) (RWQCB, 2009). The 2009 permit only authorized the discharge of calcium- and magnesium- depleted seawater generated by the Moss Landing Cement Company; the permit explicitly did not authorize discharges by any other tenants of the Moss Landing Commercial Park nor any discharges associated with the MLML intake lines within the outfall pipeline (RWQCB, 2009). Therefore, use of this outfall option would require that CalAm obtain a new RWQCB/NPDES permit from the RWQCB for the discharge of brine. In addition, the Moss Landing Cement Company no longer operates at the former Refractories site and, according to the 2009 permit, it expired May 9, 2014. Approvals from the Moss Landing Harbor District may also be required.[26]

Given that the outfall was recently permitted to discharge up to 60 mgd of effluent, it appears that it would be capable of handling flows well in excess of the anticipated discharges of between 12 and 14 mgd of brine from the MPWSP Desalination Plant. Physical space is available to

[26] In September 2014 the Moss Landing Harbor District approved an agreement between the District and the People's Moss Landing Water Desal Project, agreeing to serve as the Lead Agency for that project's environmental review (Monterey Herald, 2014).

slipline (insert) a new pipe within the existing 51-inch pipe, above or adjacent to the two existing 8-inch intake lines used by MLML and others. Assuming the two intake lines remain in place, studies would likely be needed to determine the effects that the brine discharge would have on the quality of seawater drawn through the two intake lines; as noted above, the intake lines are located about 100 feet from the terminus of the existing diffuser. As an alternative to inserting a new pipeline, the brine could be discharged via the annular space of the existing outfall pipeline. This analysis assumes that further evaluation of the outfall to determine the extent of repairs that would be needed in either case, as well as other considerations, such as the need for and effects of adequate pressure to achieve adequate brine dispersion to meet regulatory standards, would influence which approach to using this outfall is selected.

The construction activities associated with the needed repairs to the existing outfall are not known. However, it is assumed that the offshore portion of the outfall would be accessed by barge. A new diffuser would replace the existing one, consistent with the People's Moss Landing Water Desal Project proposal to rehabilitate the outfall (PML Desal, 2014). 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. Moss Landing Business Park, LLC, owns the former National Refractories site. In addition to the discharge permits, implementation of this outfall option would require that CalAm coordinate and enter into appropriate agreements with Moss Landing Business Park, LCC, for use of and access to the outfall.

7.6.3.5 Outfall Option 5 – New Outfall at Sandholdt Road

This outfall option is presented under Desalination Plant Site Contingency Option # 8 in the MPWSP Contingency Plan. 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 (this would apply to all desalination plant site options).

Although the MPWSP Contingency Plan did not identify a specific site on Sandholdt Road for this option, for purposes of this analysis, the site for this outfall option is assumed to be on the west side of Sandholdt Road directly west of Sandholdt Bridge, where the road turns north. Several sites in this area were identified as having "development potential" in the July 2014 Revised Draft Moss Landing Community Plan 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 be tunneled beneath the seafloor and emerge from the subsurface 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, although this option would entail additional considerations for crossing the Moss Landing Harbor, directly east, to reach the outfall site (described below).

Depending on the desalination plant site location, the brine discharge pipeline from the desalination plant to this outfall site is assumed to either follow Moss Landing Road from the south to the Sandholdt bridge (assuming the desalination plant is located to the south, such as at the Charles Benson Road site) or follow Moss Landing Road from the north (i.e., from the road's northern junction with Highway 1) to the Sandholdt Bridge (assuming a desalination plant site is located to the east or north, such as on Dolan Road in Moss Landing). It is assumed that open trench construction would be used for the portion of the outfall pipeline located in Moss Landing Road and to the east (except for tunneling as needed to cross Highway 1 and any drainages). To cross the harbor to the outfall site, the discharge pipeline would either be attached to the bridge or constructed under the harbor using jack and bore construction. If attached to the bridge, open trench construction would be used for the short distance between the west side of the bridge and the outfall site. If jack and bore construction under the harbor were used, this underground section of the pipeline would extend to the outfall site, where the brine discharge pipeline would be connected, via a subsurface connection, to the section of the outfall pipeline that extends offshore. The brine discharge pump station located at the desalination plant site would be used to pump the brine stream through the outfall and diffuser and disperse the discharge.

The site and areas to the north along Sandholdt Road are designated Industrial-Coastal Dependent –Light in the currently adopted 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 approvals for 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. Approvals from the Moss Landing Harbor District might also be required.

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

This outfall option is presented in the MPWSP Contingency Plan as Discharge Contingency Option #3 and Desalination Plant Site Options #2, #3, #4, and #7, and was also evaluated in the CWP EIR as the Moss Landing Project alternative (CPUC, 2009). This outfall option would involve the construction of a new pipeline connection to the existing disengaging basin at the Moss Landing Power Plant for discharge 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 (Dynegy). The outfall facility consists of two 144-inch-diameter outfall pipelines that terminate 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.

As noted in Section 7.5.1, Component Screening Process, in 2010 the SWRCB adopted a new policy regulating coastal power plants that use once-through cooling (OTC) cooling systems (SWRCB 2014a), in response to federal Clean Water Act Section 316(b) requirements. Under the SWRCB OTC policy and implementation schedule, the Moss Landing Power Plant must reduce its intake of cooling water by 93 percent or reduce entrainment and impingement impacts commensurate with a 93 percent intake reduction by 2017. Dynegy 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. Compliance with the OTC policy would dramatically reduce the amount of cooling water discharged through the MLPP outfall, and the cooling water that was discharged is expected to have much higher concentrations of minerals (because the minerals in the original seawater would be concentrated due to evaporation during the retrofitted cooling process), compared to current discharges from the power plant. Therefore, once the power plant is in compliance with the OTC policy, the plant's cooling water system would provide little if any dilution of the desalination plant's brine discharge. In addition, Dynegy may ultimately opt to shut down, rather than retrofit, the power plant units, or fail to meet the compliance requirements, making continued operation of the power plant uncertain. If the MLPP ceased operations, under this outfall option, the brine stream would be discharged through the existing outfalls without dilution. If and when the power plant closed, CalAm would insert a smaller pipeline within one of the existing outfall pipelines and the existing riser and attach an appropriate diffuser. Similarly, a new inserted pipeline and new brine diffuser would be required if the power plant continued operation but discharged dramatically less cooling water as a result of OTC policy retrofits.

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. Upon compliance by the power plant with SWRCB OTC policy requirements (or closure of the power plant), construction associated with slip-lining one of the MLPP outfall pipelines would occur primarily from the MLPP site; in-water 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. Implementation of this outfall would require that CalAm coordinate and enter into appropriate agreements with Dynegy. Initially, this option would result in no new construction activities on the ocean floor, and relatively minor construction activities on land to insert the new pipeline into the existing outfall and connect to the brine discharge pipeline from the desalination plant, assuming a new sliplined pipeline and new diffuser were needed after the OTC policy compliance date (2020).

7.6.3.7 Outfall Option 7 – New Outfall or New Outfall Plus Modified Existing Pipeline at Moss Landing

This outfall option was proposed by DeepWater Desal, LLC, for brine discharge as part of its proposed Monterey Bay Regional Water Project; this option itself consists of several possible variations involving repurposing a former fuel oil pipeline for brine discharge and/or construction of a new pipeline along the fuel oil pipeline alignment to one of two possible discharge points. The alternative variations of this outfall option being considered by DeepWater Desal, LLC include new construction, for all or part of the alignment:

- Use of the former fuel oil pipeline plus construction of a new 24-inch HDPE pipeline secured to the top or directly adjacent to the fuel line, since the existing pipeline alone does not have enough capacity for the volume of brine discharge expected to be produced by the Monterey Bay Regional Water Project's proposed 25,000 afy desalination plant. At the western terminus of the two pipelines, they would be combined using a "Y" connection to a single 36-inch HDPE section of pipe that would extend to the diffuser.

- Use of the former fuel oil pipeline plus construction of a new subsurface 24-inch pipeline installed using HDD beneath the existing oil pipeline and emerging from the seafloor near the western end of the existing pipeline where, as described above, the two pipelines would be joined using a Y connection to a single 36-inch HDPE section of pipe that would extend to the diffuser.

- Construction of a new subsurface 36-inch HDPE pipeline, installed using HDD or similar trenchless technology. This pipeline would follow the easement of the former oil pipeline to the extent practical, and would progress further into the Monterey submarine canyon to the "intermediate" discharge point, one of two discharge points being considered and about 5,700 feet offshore. This site was selected due to the challenges of extending a 36-inch pipeline to the "deep" discharge point about 8,000 feet offshore. If the pipeline could continue on the seafloor using saddles, DeepWater Desal, Inc. indicates that the deeper water location would also be viable (DeepWater Desal, 2014).

  The analysis in this EIR assumes the construction of this new HDD-installed pipeline.

The discharge conveyance pipelines would use booster pumps located at the desalination plant site to ensure the required pressure at the discharge point for the high velocity diffusers to operate efficiently (DeepWater Desal, 2014). At the discharge point, the HDPE pipeline would be attached to a high velocity diffuser oriented at right angles to the shoreline. The diffuser would consist of five discharge risers emerging from a manifold attached to the discharge pipeline. Each riser would be fitted with a duckbill diffuser nozzle (DeepWater Desal, 2014; Jenkins and Wasyl, 2014).

Onshore sections of new pipeline would be constructed of fiberglass-reinforced plastic or similar non-metal material and HDPE would be used for the offshore sections. The eastern end of the outfall would terminate at the MLPP East Parcel site; access to this site would be via Dolan Road. There is sufficient physical space to accommodate this facility. Facility maintenance and operations activities (type, frequency, access) have not been defined, but are expected to be similar to those required for Outfall Option 1. Implementation of this outfall would require coordination and appropriate agreements with Dynegy Moss Landing, LLC and an easement from Caltrans.

7.6.4 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 7-4** below. Those options that are not carried forward in this analysis are described in **Appendix I**, while the options that were retained for further analysis are described below. The primary considerations for the desalination plant site options are site suitability and availability, and proximity to the possible locations of intake and outfall facilities. For this analysis, it is assumed that the desalination facilities described in Chapter 3, Project Description, 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.[27]

TABLE 7-4
PRELIMINARY SITE OPTIONS FOR DESALINATION PLANT

Figure ID	Site	Description	Notes	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 undeveloped and used for grazing. The desalination plant would be constructed on 10 acres.	*Regional Desalination Project site from 2009 CWP EIR*	*Not Carried Forward, because this site, while 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 site is the former Kaiser Refractories Moss Landing Magnesia Plant. The desalination plant would be constructed on 25 acres of the 183-acre site.	*Proposed by Peoples' Moss Landing Project*	*Retained for Further Analysis*
Plant-3	Moss Landing Power Plant East Parcel	This 110-acre site, owned by Dynegy Moss Landing, LLC, is located on Dolan Road, approximately 1,500 feet east of the Moss Landing Power Plant.	*Proposed by Deep Water Desal*	*Retained for Further Analysis*

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

This desalination plant option was not carried forward in the alternatives analysis. See **Appendix I**.

[27] 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.

7.6.4.2 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 (APN No. 133-172-013). The desalination plant would be constructed on approximately 25 acres of the 183-acre parcel.[28] This site option is also proposed by Moss Landing Business Park, LLC as the location of a desalination plant for the People's Moss Landing Desalination Project.

The National Refractories site is the site of the former Kaiser Refractories Moss Landing Magnesia Plant, which ceased production in February 1999. The function of the original facility was to extract magnesium from seawater (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. It is possible that some existing structures at the site could be incorporated into the desalination plant design, including buildings, access roads, and parking lots.

7.6.4.3 Desalination Plant Site Option 3 – Moss Landing Power Plant East Parcel

Site Option 3 would occupy 10 acres of the 110-acre Moss Landing Power Plant East Parcel, located approximately 1,500 feet east of the Moss Landing Power Plant on Dolan Road (APN No. 133-171-009). This site is also proposed by DeepWater Desal, LLC as the location of a desalination plant and 25-acre data center for the Central Coast Regional Water Project.

Dynegy Moss Landing, LLC owns the parcel. The site was historically used in association with the Moss Landing Power Plant as a tank farm to store fuel oil; the aboveground fuel storage tanks were removed in 2003. A portion of the site is occupied by the Marine Mammal Center, a marine mammal rescue and research facility. Existing structures on the site associated with the Marine Mammal Center include a 1-million-gallon water tank, a small building, and a parking lot (DeepWater LLC, 2013). Physical space is available to accommodate a desalination plant and associated facilities at this site. Site access would be via Dolan Road and new internal access roads.

The *Monterey County General Plan* designates the East Parcel for Heavy Industrial Coast Dependent use. Implementation of a desalination plant at this site would require that CalAm purchase or lease the land from Dynegy Moss Landing, LLC.

[28] 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.

7.7 Evaluation of Component Options

This section presents the evaluation of impacts of the component options (described in Section 7.5 above) that were carried forward from the screening process. The analysis compares the impacts of intake, outfall and desalination site options against the impacts of the respective components of the proposed project.

Table 7-5 compares the impacts of alternative intake options with those of the proposed project slant wells. For purposes of this comparison, the eastern-most endpoint of the intake components south of and including Potrero Road was Highway 1. In the Moss Landing area north of Potrero Road, most of the intake wet wells and pump stations are located east of Highway 1. Therefore in the Moss Landing area, the eastern-most endpoint of the intakes is east of Highway 1.

Table 7-6 compares the impacts of the alternative outfall options with those of the proposed MPWSP outfall. The analyses of MSPWP outfall impacts presented in Chapter 4 include the impacts of the brine discharge pipeline (roughly 1 mile long) connecting the desalination plant at Charles Benson Road to the headworks of the existing MPWRCA outfall. Outfall Option 1 has the identical alignment as the proposed project, and all of the other outfall options are well over a mile from the nearest desalination plant option. Therefore, for purposes of this comparison, the analysis of the outfall options does not include the discussion of impacts from a discharge pipeline, since the location of a discharge pipeline would depend on where the treatment plant is located. This approach allows for a comparison of the relative merits of the outfall options, while avoiding the need to consider every possible combination of preliminary outfall option and preliminary desalination plant site option (i.e., in order to include the full length of the discharge pipeline to the MPWSP Desalination Plant). The impact of the full length of a brine discharge pipeline that would connect a given desalination plant to a given outfall is taken into account in the consideration of complete desalination alternatives presented in Section 7.9 (as are the impacts of the full length of the Source Water Pipeline needed to connect a desalination plant site option to a given intake option).

Table 7-7 compares the impacts of the desalination plant site options with the proposed project's Charles Benson Road site.

The evaluation in **Tables 7-5, 7-6** and **7-7** compared each component option against the same component of the proposed MPWSP. The determinations used the following criteria:

- **No Impact** – the significance criteria do not apply or no impact would result
- **Similar** – impacts would be identical to or would have the same general magnitude as the MPWSP proposed component and the significance determination would be the same
- **Increased** – impacts would be notably greater than the proposed MPWSP component and the significance determination would, therefore, be greater
- **Decreased** – impacts would be notably less than the proposed MPWSP component and the significance determination would, therefore, be reduced.

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TABLE 7-5
COMPARISON OF ENVIRONMENTAL EFFECTS – PRELIMINARY INTAKE OPTIONS 2, 3, 4, 6, 8, 9 AND 13

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 National Refractories Site*** *(modifications to existing outfall)*	***Intake Option 8: Open Water Intakes at Moss Landing Power Plant*** *(new connections to existing intake screens)*	***Intake Option 9: Open Deepwater 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 of the subsurface slant wells and electrical control building would have a LSM impact related to potential increased soil and sand erosion.	**Similar.** The impact associated with construction of this intake option would be similar to those of the proposed project.	**Similar.** The impact associated with construction of this intake option would be similar to those of the proposed project.	**Similar.** The impact associated with construction of this intake option would be similar to those of the proposed project.	**Similar.** The impact associated with construction of this intake option would be similar to those of the proposed project.	**Similar.** The impact associated with construction of this intake option would be similar to those of the proposed project.	**Similar.** The impact associated with construction of this intake option would be similar to those of the proposed project.	**Similar.** The impact associated with construction of this intake option would be similar to those of the proposed project.
Operations and Facility Siting: Operation and siting of the subsurface slant wells would have no impact related to exposure of people or structures to landslides, fault rupture, land subsidence, expansive soils, or related to exposure of structures to corrosive soils. Operation and siting of the subsurface slant wells would have a LS impact related to exposure of people or structures to seismically-induced ground-shaking, or liquefaction and lateral spreading. Operation of the slant wells would have would have a LSM impact related to exposure of people or structures to substantial adverse effects related to coastal erosion and bluff retreat caused by sea level rise. This impact would be mitigated to less than significant with implementation of the identified mitigation.	**Decreased.** The impact associated with operation and siting of the Option 2 open water intake at North CEMEX would be decreased compared to that of the proposed slant wells because there would be no impact associated with coastal retreat caused by sea level rise. All other impacts associated with operation and siting would be similar to those of the proposed project.	**Decreased.** The impact associated with operation and siting of the Option 3 subsurface slant wells at Potrero Road would be decreased compared to that of the proposed slant wells because there would be no impact associated with coastal retreat caused by sea level rise. All the other impacts associated with operation and siting would be similar to those of the proposed project.	**Decreased.** The impact associated with operation and siting of the Option 4 open water intake at Potrero Road would be decreased compared to that of the proposed slant wells because there would be no impact associated with coastal retreat caused by sea level rise. All other impacts associated with operation and siting would be similar to those of the proposed project.	**Decreased.** The impact associated with operation and siting of the Option 6 open water intake at the former National Refractories site would be decreased compared to that of the proposed slant wells because there would be no impact associated with coastal retreat caused by sea level rise. All other impacts associated with operation and siting would be similar to those of the proposed project.	**Decreased.** The impact associated with operation and siting of the Option 8 open water intake at the Moss Landing Power Plant intake would be decreased compared to that of the proposed slant wells because there would be no impact associated with coastal retreat caused by sea level rise. All the other impacts associated with operation and siting would be similar to those of the proposed project.	**Decreased.** The impact associated with operation and siting of the Option 9 open water intake at Moss Landing Power Plant intake would be decreased compared to that of the proposed slant wells because there would be no impact associated with coastal retreat caused by sea level rise. All other impacts associated with operation and siting would be similar to those of the proposed project.	**Similar.** The impacts associated operation of the Option 13 Ranney wells would be similar to those of the proposed project.
4.3 SURFACE WATER HYDROLOGY AND WATER QUALITY							
Construction Activities Construction of the subsurface slant wells and associated intake facilities would have a LS impact related to potential degradation of water quality caused by increased soil erosion or releases of toxic chemicals and the discharge of water produced during slant well drilling and development. Slant well construction would have no impact related to degradation of water quality from discharges of treated water and disinfectant, however, the construction of the Source Water Pipeline would have LSM impacts related to the degradation of water quality from discharges of treated water and disinfectant.	**Similar.** The impact associated with construction of this intake option would be similar to those of the proposed project.	**Similar.** The impact associated with construction of this intake option would be similar to those of the proposed project.	**Similar.** The impact associated with construction of this intake option would be similar to those of the proposed project.	**Similar.** The impact associated with construction of this intake option would be similar to those of the proposed project.	**Similar.** The impact associated with construction of this intake option would be similar to those of the proposed project.	**Similar.** The impact associated with construction of this intake option would be similar to those of the proposed project.	**Similar.** The impacts associated with construction of the Option 13 Ranney wells would be similar to those of the proposed project.
Operations and Facility Siting: Operation and siting of the subsurface slant wells would not adversely affect water quality as a result of brine discharges and would not alter drainage patterns such that on- or offsite flooding would increase or the capacity of the stormwater drainage system would be exceeded. Operation and siting of the proposed slant wells would have a LS impact related to water quality degradation due to slant well maintenance; increased erosion siltation or 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 significant risk of loss, injury or death from flooding due to tsunamis or sea level rise.	**Similar.** The impact associated with operation of this intake option would be similar to those of the proposed project.	**Increased.** The impact associated with flooding risk due to upstream dam failure would be increased compared to that of the proposed project (a LS impact compared to no impact for the proposed project). All other impacts associated with operation of the Intake Option 3 intake would be similar to that of the proposed slant wells.	**Increased.** The impact associated with flooding risk due to upstream dam failure would be increased compared to that of the proposed project (a LS impact compared to no impact for the proposed project). All other impacts associated with operation and siting of this intake would be similar to that of the proposed slant wells.	**Increased.** The impact of the Option 6 intake associated with flooding risk due to upstream dam failure would be increased compared to that of the proposed project (a LS impact compared to no impact for the proposed project). All other impacts associated with operation of Intake Option 6 intake would be similar to that of the proposed slant wells.	**Similar.** The impact associated with operation of this intake option would be similar to those of the proposed project.	**Decreased.** There would be no impacts associated with siting facilities in a 100-year flood hazard area because the preferred and alternative locations of the above-ground facilities would be outside the 100-year flood hazard area (no impact compared to a LS impact for the proposed project). Impacts associated with flooding due to tsunamis and flooding due to sea level rise would be similar to but somewhat less than that of the proposed project because although the preferred site of the above ground facilities is outside the respective flood area the alternative wet well and pump	**Similar.** The impact associated with operation of this intake option would be similar to those of the proposed project.

TABLE 7-5 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS – PRELIMINARY INTAKE OPTIONS 2, 3, 4, 6, 8, 9 AND 13

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 National Refractories Site*** *(modifications to existing outfall)*	***Intake Option 8: Open Water Intakes at Moss Landing Power Plant*** *(new connections to existing intake screens)*	***Intake Option 9: Open Deepwater Intake at Moss Landing*** *(new construction)*	**Intake Option 13: Ranney Wells at CEMEX Active Mining Area** (new construction)
4.3 SURFACE WATER HYDROLOGY AND WATER QUALITY (cont.)							
						station site appears to be within or partly within the flood area. All other impacts would be similar to those of the proposed slant wells.	
4.4 GROUNDWATER RESOURCES							
Construction Activities: Construction of the subsurface slant wells would have a LS impact related to substantial interference with groundwater recharge or violation of any water quality standard or degradation of groundwater quality.	**Decreased.** The impact associated with construction and operation of the Option 2 open water intake would be decreased compared to the proposed slant wells because this intake option would have no impact related to interference of groundwater recharge or depletion of groundwater supplies during construction and operation.	**Increased.** The impacts associated with construction and operation of the Option 3 subsurface slant wells would be similar to those of the proposed project. However, the Dune Sands/Perched A aquifer and the underlying 180-foot aquifer are separated by a clay layer at this location that is non-existent at CEMEX. Therefore, the percentage of feedwater that may be inland water may be greater than the proposed project although the Dune Sands Aquifer is not utilized for irrigation. The APMM identified under the proposed project would also be applied for this option.	**Decreased.** The impact associated with construction and operation of the Option 4 open water intake would be decreased compared to the proposed slant wells because this intake option would have no impact related to interference of groundwater recharge or depletion of groundwater supplies during construction and operation.	**Decreased.** The impact associated with construction and operation of the Option 6 open water intake would be decreased compared to the proposed slant wells because this intake option would have no impact related to interference of groundwater recharge or depletion of groundwater supplies during construction and operation.	**Decreased.** The impact associated with construction and operation of the Option 8 open water intake would be decreased compared to the proposed slant wells because this intake option would have no impact related to interference of groundwater recharge or depletion of groundwater supplies during construction and operation.	**Decreased.** The impact associated with construction and operation of the Option 9 open water intake would be decreased compared to the proposed slant wells because this intake option would have no impact related to interference of groundwater recharge or depletion of groundwater supplies during construction and operation.	**Similar.** The impacts associated with construction and operation of the Option 13 Ranney wells 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: Operation and siting of the subsurface slant wells would have a LSM impact related to depletion of groundwater supplies or substantial interference with groundwater recharge since and a LSM impact related to violating water quality standards.	**Increased.** The impacts associated with potential violation of water quality standards or degradation of groundwater quality during construction and operation would be increased compared to the slant wells because the open water intakes would not migrate the seawater / freshwater interface back toward the ocean.		**Increased**. The impacts associated with potential violation of water quality standards or degradation of groundwater quality during construction and operation would be increased compared to the slant wells because the open water intakes would not migrate the seawater / freshwater interface back toward the ocean.	**Increased**. The impacts associated with potential violation of water quality standards or degradation of groundwater quality during construction and operation would be increased compared to the slant wells because the open water intakes would not migrate the seawater / freshwater interface back toward the ocean.	**Increased**. The impacts associated with potential violation of water quality standards or degradation of groundwater quality during construction and operation would be increased compared to the slant wells because the open water intakes would not migrate the seawater / freshwater interface back toward the ocean.	**Increased**. The impacts associated with potential violation of water quality standards or degradation of groundwater quality during construction and operation would be increased compared to the slant wells because the open water intakes would not migrate the seawater / freshwater interface back toward the ocean.	
4.5 MARINE RESOURCES							
Construction Activities: Construction of the subsurface slant wells would have a LS impact related to adverse effects on candidate, sensitive, or special status species; and would have no impact related to interference with the movement of native resident or migratory fish or wildlife species. *Operations and Facility Siting:* Operation of the subsurface slant wells would have LS impacts related to substantial adverse effects on candidate, sensitive, or special status species; potential conflict with provisions of an adopted habitat conservation plan (or similar plan); and substantial interference with the movement of any native resident or migratory fish or wildlife species.	**Increased.** All impacts associated with construction and operation of the Option 2 open water intake would be increased compared to those of the proposed slant wells. Except for the impact on the movement of fish or wildlife species during construction (which, although increased, would be LSM), new mitigation measures would be required to reduce the impacts resulting	**Similar.** The impacts associated with construction and operation of the Option 3 subsurface slant wells would be similar to and potentially less than those of the proposed project because of the slant wells' location farther back from the high tide line.	**Increased.** All impacts associated with construction and operation of the Option 4 open water intake would be increased compared to those of the proposed slant wells. Except for the impact on the movement of fish or wildlife species during construction which, although increased, would be LS, new mitigation measures would be required to reduce the impacts resulting	**Increased.** All impacts associated with construction and operation of the Option 6 open water intake would be increased compared to those of the proposed slant wells. Except for the impact on the movement of fish or wildlife species during construction which, although increased, would be LS, new mitigation measures would be required to reduce the impacts resulting	**Increased.** All impacts associated with construction and operation of the Option 8 open water intake would be increased compared to those of the proposed slant wells. Except for the impact on the movement of fish or wildlife species during construction which, although increased, would be LS, new mitigation measures would be required to reduce the impacts resulting	**Increased.** All impacts associated with construction and operation of the Option 9 open water intake would be increased compared to those of the proposed slant wells. Except for the impact on the movement of fish or wildlife species during construction which, although increased, would be LS, new mitigation measures would be required to reduce the impacts resulting	**Similar.** The impacts associated with construction and operation of the Option 13 Ranney wells would be similar to those of the proposed project.

TABLE 7-5 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS – PRELIMINARY INTAKE OPTIONS 2, 3, 4, 6, 8, 9 AND 13

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 National Refractories Site*** *(modifications to existing outfall)*	***Intake Option 8: Open Water Intakes at Moss Landing Power Plant*** *(new connections to existing intake screens)*	***Intake Option 9: Open Deepwater Intake at Moss Landing*** *(new construction)*	**Intake Option 13: Ranney Wells at CEMEX Active Mining Area** (new construction)
4.5 MARINE RESOURCES (cont.)							
	from entrainment and impingement to less than significant. Operational impacts associated with impingement and entrainment could remain SU if feasible mitigation were not available.		from entrainment and impingement to less than significant. Operational impacts associated with impingement and entrainment could remain SU if feasible mitigation were not available.	from entrainment and impingement to less than significant. Operational impacts associated with impingement and entrainment could remain SU if feasible mitigation were not available.	from entrainment and impingement to less than significant. Operational impacts associated with impingement and entrainment could remain SU if feasible mitigation were not available.	from entrainment and impingement to less than significant. Operational impacts associated with impingement and entrainment could remain SU if feasible mitigation were not available. However, studies conducted by Deep Water Desal suggest that the abundance of marine species is reduced at this deep water location when compared to the other open water intakes. Therefore, this alternative could have less severe impacts than the other open water intakes considered here.	
4.6 TERRESTRIAL BIOLOGICAL RESOURCES							
Construction Activities: Project-related construction activities would have LSM 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. 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 have NI to these resources. The intake would have similar LSM impacts to candidate, sensitive, or special-status species. Similar to the proposed MPWSP, the intake would not conflict with local tree ordinances as there are no trees within the impact area, therefore NI.	**Similar.** The impact of 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 immediately adjacent to the work area and could be impacted during construction. Similar to the proposed MPWSP, this intake would have LSM 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. Similar to the proposed MPWSP, the intake would not conflict with local tree ordinances as there are no trees within the impact area, therefore NI.	**Decreased.** The impact of 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 immediately adjacent to the work area and could be impacted during construction. Similar to the proposed MPWSP, this intake would have LSM 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. Similar to the proposed MPWSP, the intake would not conflict with local tree ordinances as there are no trees within the impact area, therefore NI.	**Decreased.** Construction/modification of this intake includes construction of a new pump station onshore. The new pump station would likely be constructed in ruderal or non-native grassland areas. This area could support special-status species and therefore, similar to the proposed MPWSP project, this impact would have LSM 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. Therefore, similar to the proposed MPWSP project, this intake would have LSM impact to 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, so there would be NI to these resources, which is a decrease from the proposed MPWSP. There are trees located at the pump station site. Impacts to these trees could conflict with	**Decreased.** Construction/modification of this intake includes construction of a new pump station onshore. The new pump station would likely be constructed in currently developed or ruderal areas with non-native trees. This area could support special-status species and therefore, similar to the proposed MPWSP project, this impact would have LSM 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. Therefore, similar to the proposed MPWSP project, this intake would have LSM impact to 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, so there would be NI to these resources, which is a decrease from the proposed MPWSP. There are trees located at the pump station site. Impacts to these trees	**Decreased.** Construction of the intake construction 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. Similar to the proposed MPWSP, this intake would have LSM 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 to these trees could conflict with local tree ordinances and the impact would be LSM, which is an increase from the proposed MPWSP.	**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. Similar to the proposed project construction of this intake would have LSM 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.

TABLE 7-5 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS – PRELIMINARY INTAKE OPTIONS 2, 3, 4, 6, 8, 9 AND 13

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 National Refractories Site*** *(modifications to existing outfall)*	***Intake Option 8: Open Water Intakes at Moss Landing Power Plant*** *(new connections to existing intake screens)*	***Intake Option 9: Open Deepwater Intake at Moss Landing*** *(new construction)*	**Intake Option 13: Ranney Wells at CEMEX Active Mining Area** (new construction)
4.6 TERRESTRIAL BIOLOGICAL RESOURCES (cont.)							
				local tree ordinances and the impact would be LSM, which is an increase from the proposed MPWSP.	could conflict with local tree ordinances and the impact would be LSM, which is an increase from the proposed MPWSP.		
Operations and Facility Siting: Operation of the MPWSP subsurface slant well would have LSM 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. Operation of the MPWSP 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, therefore NI.	**Decreased.** Operational impacts would also be reduced since operational activities would have NI on federal wetlands, federal other waters, and /or waters of the State, riparian areas, critical habitat, or sensitive natural communities. Similar to the proposed MPWSP, 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, therefore NI.	**Similar.** Operational impacts would be similar since periodic maintenance cleaning would occur in parking lot adjacent to sensitive biological resources and would have LSM 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, operation of 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, therefore NI.	**Decreased.** Operational impacts would be reduced since operation and maintenance activities would not occur on land and would have NI 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, operation of 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, therefore NI.	**Decreased.** Operational impacts would be reduced since operation and maintenance activities would not occur on land and would have NI 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, operation of 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, therefore NI.	**Decreased.** Operational impacts would be reduced since operation and maintenance activities would not occur on land and would have NI 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, operation of 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, therefore NI.	**Similar.** Operational impacts would be similar since the Ranney wells would require similar maintenance as the proposed project. Similar to the proposed project, operation of this intake would have LSM 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. Additionally, similar to the proposed project, operation of this impact 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, therefore NI.
4.7 HAZARDS AND HAZARDOUS MATERIALS							
Construction Activities: Construction of the subsurface slant wells would have LS impacts related to the routine transport, use and disposal of hazardous materials and the risk of fire during construction; a LSM impact related to the potential release of hazardous materials to the environment; and NI associated with siting the slant wells on a known hazardous materials site or associated with hazardous materials handling or emissions within 0.25 mile of a school.	**Similar.** The impacts associated with construction of Option 2 open water intake at North CEMEX would be similar to those of the proposed project, although the impacts associated with the transport of hazardous materials and with the potential accidental release of hazardous materials to the environment during construction would be somewhat less because overall less construction would be involved.	**Similar.** The impacts associated with construction Option 3 slant wells at Potrero Road would be similar to those of the proposed slant wells.	**Similar.** The impacts associated with construction and Option 4 open water intake at Potrero Road would be similar to those of the proposed project although the impacts associated with the transport of hazardous materials and with the potential accidental release of hazardous materials to the environment during construction would be somewhat less because overall less construction would be involved.	**Similar.** The impacts associated with construction and Option 6 open water intake at the National Refractories site would be similar to those of the proposed project, although the impacts associated with the transport of hazardous materials and with the potential accidental release of hazardous materials to the environment during construction would be somewhat less because overall less construction would be involved.	**Similar.** The impacts associated with construction and Option 8 open water intake at the MLPP intake screens would be similar to those of the proposed project, although the impacts associated with the transport of hazardous materials and with the potential accidental release of hazardous materials to the environment during construction would be somewhat less because overall less construction would be involved.	**Similar.** The impacts associated with construction and Option 9 open deep-water intake at Moss Landing would be similar to those of the proposed project, although the impacts associated with the transport of hazardous materials and with the potential accidental release of hazardous materials to the environment during construction would be somewhat less because overall less construction would be involved.	**Similar.** The impacts associated with construction of the Option 13 Ranney wells would be similar to those of the proposed project.
Operations and Facility Siting: Operation of the subsurface slant-wells would have a 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.** The impact associated with operation of this intake option would be similar to those of the proposed project.	**Similar.** The impact associated with operation of this intake option would be similar to those of the proposed project.	**Similar.** The impact associated with operation of this intake option would be similar to those of the proposed project.	**Similar.** The impact associated with operation of this intake option would be similar to those of the proposed project.	**Similar.** The impact associated with operation of this intake option would be similar to those of the proposed project.	**Similar.** The impact associated with operation of this intake option would be similar to those of the proposed project.	**Similar.** The impact associated with operation of this intake option would be similar to those of the proposed project.

TABLE 7-5 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS – PRELIMINARY INTAKE OPTIONS 2, 3, 4, 6, 8, 9 AND 13

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 National Refractories Site*** *(modifications to existing outfall)*	***Intake Option 8: Open Water Intakes at Moss Landing Power Plant*** *(new connections to existing intake screens)*	***Intake Option 9: Open Deepwater 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							
Construction, Operations, and/or Facility Siting Operation of the proposed slant wells would have LS impacts related to consistency with applicable land use plans, policies, and regulations.	**Similar.** The impacts associated with construction and operation of the Option 2 intake would be similar to those of the proposed slant wells.	**Increased.** The impacts associated with construction and operation of the Option 3 slant wells at Potrero Road would be increased compared to those of the proposed project because construction would have a LSM 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, and operations would have a LSM impact related to land use compatibility due to the periodic closure (every 5 years) of the parking lot that is assumed would be required for slant well maintenance. The impacts associated with the parking lot closures would be mitigated with implementation of MM 4.9-1 (Traffic Control Plan) adapted to address these impacts. In addition, this intake option would displace a small area of beach parking for the electrical control building although that alone would not increase the level of significance compared to that of the proposed project, because only a small area along the edge of parking lot would be affected. The impact associated with consistency with land use plans, policies, and regulations would be similar to that of the proposed project.	**Increased.** The impacts associated with construction and operation of the Option 4 open water intake at Potrero Road would be increased compared to those of the proposed project because construction would have a LSM 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 to LSM 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. Closure of the parking lot during construction would be mitigated with implementation of MM 4.9-1 (Traffic Control Plan) adapted to address this impact; and as noted below in Section 4.12, MM 4.12-4 would apply and would reduce the impact on ambient noise levels to less than significant. The impact associated with consistency with land use plans, policies, and regulations would be similar to that of the proposed project.	**Similar.** The impacts associated with construction and operation of the Option 6 open water intake would be similar to those of the proposed project.	**Increased.** The impact of construction of Option 8 intake facilities would be increased compared to that of the proposed project because in-water work at the intakes screens would be a LSM impact on recreational uses at the harbor. This temporary impact would be mitigated with implementation of a variation of MM 4.9-1 (Traffic Control Plan) to control and direct harbor vessel traffic near the construction area. The impacts associated with operation of the Option 8 open water intake would be similar to those of the proposed project.	**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 associated with consistency with land use plans, policies, and regulations and with land use compatibility would be LSM, 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. The impacts of operation of the alternative intake site would be LS, similar to the proposed project.	**Similar.** The impacts associated with construction and operation of the Option 13 Ranney wells would be similar to those of the proposed project.
4.9 TRAFFIC AND TRANSPORTATION							
Construction Activities: Construction of the Source Water Pipeline from the subsurface slant wells would have LSM impacts associated with an 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; impair emergency access and the potential to impede vehicular, bicycle, or pedestrian traffic flow or disrupt public transportation. The proposed intake would have LS impacts related to; temporary increase in traffic and parking conditions in public areas.	**Similar.** The impacts associated with construction and operation of the Option 2 intake would be similar to those of the proposed project due to location and the nature of construction.	**Increased.** The impacts associated with construction of the Option 3 slant wells would be increased compared to those of the proposed project slant wells because the impact related to parking conditions would be LSM due to partial or complete closure of the parking lot during construction. Implementation of the MM identified for the proposed project would reduce the impact to LS.	**Increased.** The impacts associated with construction of the Option 4 open water intake would be increased compared to those of the proposed project slant wells because the impact related to parking conditions would be LSM due to partial or complete closure of the parking lot during construction. Implementation of the MM identified for the proposed project would reduce the impact to LS.	**Similar.** The impacts associated with construction and operation of the Option 6 intake would be similar to those of the proposed project. The 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 impacts associated with construction and operation of the Option 8 intake would be similar to those of the proposed project. The 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 impacts associated with construction and operation of the Option 9 intake would be similar to those of the proposed project. The 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 impacts associated with construction and operation of the Option 13 intake would be similar to those of the proposed project.

TABLE 7-5 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS – PRELIMINARY INTAKE OPTIONS 2, 3, 4, 6, 8, 9 AND 13

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 National Refractories Site*** *(modifications to existing outfall)*	***Intake Option 8: Open Water Intakes at Moss Landing Power Plant*** *(new connections to existing intake screens)*	***Intake Option 9: Open Deepwater Intake at Moss Landing*** *(new construction)*	**Intake Option 13: Ranney Wells at CEMEX Active Mining Area** (new construction)
4.9 TRAFFIC AND TRANSPORTATION (cont.)							
		All other impacts associated with construction and operation of the Option 3 intake would be similar to those of the proposed project.	All other impacts associated with construction and operation of the Option 4 intake 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: Construction of the subsurface slant wells and associated facilities west of Highway 1 would, in conjunction with other project components, have a LSM impact related to the generation of criteria air pollutants that could contribute to a violation of an ambient air quality standard. Construction of the slant wells would have a LS impact related to the exposure of sensitive receptors to pollutant concentrations and objectionable odors.	**Similar.** The impacts associated with construction of the Option 2 open water intake, including the section of the source water pipeline west of Highway 1, would be similar to those of the proposed slant wells. Although daily construction-related emissions would be similar to the proposed slant well construction emissions, emissions over the duration of the construction period would be somewhat less because the single intake pipeline would entail less construction. The applicable MMs identified for the proposed project would apply.	**Similar.** The impacts associated with construction of the Option 3 slant wells, including the section of the source water pipeline west of Highway 1, would be similar to those of the proposed slant wells. Daily and total construction-related emissions would be similar to the proposed slant well construction emissions. The applicable MMs identified for the proposed project would apply. Exposure of sensitive receptors to construction-related pollutant concentrations would be somewhat greater because of the closer proximity of the slant well drill sites (within 1,000 feet) and the Source Water Pipeline (within 50 feet) to a residential area. However, given the short-term nature of construction activities, the impact classification would be the same, LS.	**Similar.** The impacts associated with construction of the Option 4 open water intake, including the section of the source water pipeline west of Highway 1, would be similar to those of the proposed slant wells. Although daily construction-related emissions would be similar to the proposed slant well construction emissions, emissions over the duration of the construction period would be somewhat less because the single intake pipeline would entail less construction. The applicable MMs identified for the proposed project would apply. Exposure of sensitive receptors to construction-related pollutant concentrations would be somewhat greater because of the closer proximity of the Intake Pipeline drill site (within 1,000 feet) and the Source Water Pipeline (within 50 feet) to a residential area. However, given the short-term nature of construction activities, the impact classification would be the same, LS.	**Similar.** The impacts associated with construction of the Option 6 intake, considering intake facilities to and including the intake pump station at the former National Refractories site, would be similar compared to those of the proposed slant wells. The daily and total construction-related emissions would be less because the intake would entail less construction required and no drilling. The applicable MMs identified for the proposed project would apply. 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. The impact classification would be the same, LS.	**Similar.** The impacts associated with construction of the Option 8 open water intake, including the new pump station and the section of the pipeline connecting to the source water pipeline at the junction of Dolan Road and Highway 1, would be similar compared to those of the proposed slant wells. The daily and total construction-related emissions would be less because there would be less construction required and no drilling. The applicable MMs identified for the proposed project would apply. 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.	**Similar.** The impacts associated with construction of the Option 9 open, deep-water intake, including the intake pump station and wet well, would be similar to those of the proposed slant wells. Although daily construction-related emissions would be similar to the proposed slant well construction emissions, emissions over the duration of the construction period would be somewhat less because the single intake pipeline would entail less construction. The applicable MMs identified for the proposed project would apply.	**Similar.** The impacts associated with construction of the Option 13 Ranney wells would be similar to those of the proposed slant wells. The MM identified for the proposed project, adapted as appropriate for this option, would apply. The applicable MMs identified for the proposed project would apply.
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.** The impact associated with operation of this intake option would be similar to those of the proposed project.	**Similar.** The impact associated with operation of this intake option would be similar to those of the proposed project.	**Similar.** The impact associated with operation of this intake option would be similar to those of the proposed project.	**Similar.** The impact associated with operation of this intake option would be similar to those of the proposed project.	**Similar.** The impact associated with operation of this intake option would be similar to those of the proposed project.	**Similar.** The impact associated with operation of this intake option would be similar to those of the proposed project.	**Similar.** The impact associated with operation of this intake option would be similar to those of the proposed project.

TABLE 7-5 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS – PRELIMINARY INTAKE OPTIONS 2, 3, 4, 6, 8, 9 AND 13

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 National Refractories Site*** *(modifications to existing outfall)*	***Intake Option 8: Open Water Intakes at Moss Landing Power Plant*** *(new connections to existing intake screens)*	***Intake Option 9: Open Deepwater Intake at Moss Landing*** *(new construction)*	**Intake Option 13: Ranney Wells at CEMEX Active Mining Area** (new construction)
4.11 GREENHOUSE GASES							
Construction and Operations: Construction of the subsurface slant wells and associated facilities west of Highway 1, in conjunction with other project components and amortized over 40 years, plus the total net operational emissions per year, would have SUM impacts related to the contribution of GHG emissions and potential conflicts with Executive Order S-3-05 and AB 32.	**Similar.** The impacts associated with construction and operation of the Option 2 open water intake, including the section of the source water pipeline west of Highway 1, in conjunction with other project components, would be similar to those of the proposed slant wells. The MM identified for the proposed project would apply; however the impact would remain SUM in conjunction with all other project components.	**Similar.** The impacts associated with construction and operation of the Option 3 slant wells, including the section of the source water pipeline west of Highway 1, in conjunction with other project components, would be similar to those of the proposed project. The MM identified for the proposed project would apply; however the impact would remain SUM in conjunction with all other project components.	**Similar.** The impacts associated with construction and operation of the Option 4 open water intake, including the section of the source water pipeline west of Highway 1, in conjunction with other project components, would be similar to those of the proposed project. The MM identified for the proposed project would apply; however the impact would remain SUM in conjunction with all other project components.	**Similar.** The impacts associated with construction and operation of the Option 6 intake, considering intake facilities to and including the intake pump station at the former National Refractories site, in conjunction with other project components, would be similar to those of the proposed project. The MM identified for the proposed project would apply; however the impact would remain SUM in conjunction with all other project components.	**Similar.** The impacts associated with construction and operation of the Option 8 open water intake, including pump station and the section of the pipeline connecting to the source water pipeline at the junction of Dolan Road and Highway 1, in conjunction with other project components, would be similar to those of the proposed project. The MM identified for the proposed project would apply; however the impact would remain SUM in conjunction with all other project components.	**Similar.** The impacts associated with construction and operation of the Option 9 open, deep-water intake, including the intake pump station and wet well, in conjunction with other project components, would be similar to those of the proposed project. The MM identified for the proposed project would apply; however the impact would remain SUM in conjunction with all other project components.	**Similar.** The impacts associated with construction and operation of the Option 13 Ranney wells would be similar to those of the proposed slant wells. The MM identified for the proposed project would apply; however the impact would remain SUM in conjunction with all other project components.
4.12 NOISE AND VIBRATION							
Construction Activities: Construction of the subsurface slant wells would have a LS impact related to a substantial or periodic increase in ambient noise levels; the exposure of people to, or generation of, noise levels in excess of established standards; and the exposure of people to, or generation of, excessive groundborne vibration. However, construction of the Source Water Pipeline would have a LSM impact related to excessive groundborne vibration. Construction of the subsurface slant wells and Source Water Pipeline would conflict with construction time limits of the City of Marina. *Operations and Facility Siting:* Operation of the subsurface slant wells would have a LS impact related to a substantial permanent increase in ambient noise levels and exposure of people to, or generation of, operational noise levels in excess of established standards.	**Similar.** The impacts associated with construction and operation of the Option 2 intake would be similar. The impact associated with exposure of people to, or generation of, operational noise levels in excess of established standards would be marginally greater because the intake pump station would be a permanent, new, albeit LS, noise source.	**Increased.** The impact of construction of the Option 3 slant wells would have a LSM impact because nighttime construction would exceed the significance threshold for sleep interference due to increased proximity of sensitive receptors. MMs 4.12-1a, 4.12-1b, 4.12-1c and 4.12-1e would apply and would reduce the impact to less than significant. Option 3 would occur 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 Source Water Pipeline west of Highway 1 is within 100 feet from the nearest receptors, construction activities would be inconsistent with this policy and mitigation would be required to reduce this impact to less than significant. Vibration impacts would be LS under Option 3 because slant well and source water pipeline construction would not occur adjacent to historic structures.	**Increased.** The impact of construction of the Option 4 intake would be increased compared to the proposed project because nighttime construction would exceed the significance threshold for sleep interference due to increased proximity of sensitive receptors, a LSM impact, and because operation of the intake pump station, could increase the ambient noise level by 5 or more dBA, a LSM impact. MMs 4.12-1a, 4.12-1b, 4.12-1c and 4.12-1e and MM 4.12-4, respectively, would apply and would reduce these impacts to less than significant. Option 4 would occur 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 Source Water Pipeline west of Highway 1 is within 100 feet from the nearest receptors, construction activities would be inconsistent with this policy and mitigation would be required to reduce this impact to less than significant.	**Decreased.** The impact of constructing the Option 6 intake would be decreased compared to the proposed project because repurposing the existing outfall as an intake would require substantially less construction activity and such activity would be distant from sensitive land uses. Vibration impacts would be LS under Option 6 because modifications to the existing outfall and source water pipeline construction would not occur adjacent to historic structures. The impact associated with exposure of people to, or generation of, operational noise levels in excess of established standards would be somewhat greater because the intake pump station would be a permanent, new, albeit LS, noise source distant from receptors.	**Decreased.** The impact of constructing the Option 8 intake would be decreased compared to the proposed project because use of the existing intakes would require substantially less construction activity and such activity would be distant from sensitive land uses. Vibration impacts would be LS under Option 8 because modifications to the existing intake structure and source water pipeline construction would not occur adjacent to historic structures. The impact associated with exposure of people to, or generation of, operational noise levels in excess of established standards would be somewhat greater because the diversion pump station would be a permanent, new, albeit LS, noise source distant from receptors.	**Decreased.** Vibration impacts would be LS under Option 9 because drilling activities and source water pipeline construction would not occur adjacent to historic structures; and the impact associated with exposure of people to, or generation of, operational noise levels in excess of established standards would be somewhat greater because the intake pump station would be a permanent, new, albeit LS, noise source. All other impacts associated with construction noise would be similar.	**Similar.** The impacts associated with construction and operation of the Option 13 Ranney wells would be similar to those of the proposed slant wells.

TABLE 7-5 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS – PRELIMINARY INTAKE OPTIONS 2, 3, 4, 6, 8, 9 AND 13

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 National Refractories Site*** *(modifications to existing outfall)*	***Intake Option 8: Open Water Intakes at Moss Landing Power Plant*** *(new connections to existing intake screens)*	***Intake Option 9: Open Deepwater Intake at Moss Landing*** *(new construction)*	**Intake Option 13: Ranney Wells at CEMEX Active Mining Area** (new construction)
4.12 NOISE AND VIBRATION (cont.)							
		All other noise impacts associated with construction and operation of the Option 3 slant wells would be similar to the proposed project.	Vibration impacts would be LS under Option 4 because slant well and source water pipeline construction would not occur adjacent to historic structures. All other noise impacts associated with construction and operation of the Option 4 intake would be similar to the proposed project.				
4.13 PUBLIC SERVICES AND UTILITIES							
<u>*Construction Activities:*</u> Construction of the proposed slant wells and associated facilities, including the section of the source water pipeline west of Highway 1, would have a LSM impact related to the potential to disrupt or relocated existing subsurface utilities. Slant well construction would not adversely impact landfill capacity but could have a LSM impact on state or local recycling goals and waste diversion rates.	**Similar.** The impacts associated with construction of the Option 2 intake would be similar to those of the proposed project.	**Similar.** The impacts associated with construction of the Option 3 intake would be similar to those of the proposed project.	**Similar.** The impacts associated with construction of the Option 4 intake would be similar to those of the proposed project.	**Decreased.** The impact associated with construction of the Option 6 intake related to potential disruption or relocation of existing subsurface utilities would be decreased compared to the proposed slant wells, a LS impact [because the intake pipeline would be located within an existing pipeline that is already in place]. All other constructions impacts would be similar to those of the proposed project.	**Similar.** The impacts associated with construction of the Option 8 intake would be similar to those of the proposed project, although the impact related to potential disruption or relocation of existing subsurface utilities would be somewhat greater than that of the proposed project due to the intensity of development and industrial facilities in the area; however the impact determination would remain the same as the proposed project.	**Similar.** The impacts associated with construction of the Option 9 intake would be similar to those of the proposed project, although the impact related to potential disruption or relocation of existing subsurface utilities would be somewhat greater than that of the proposed project due to the distance of subsurface excavation that would be entailed in an area with existing intakes and outfalls and potentially other buried infrastructure, given the density of industrial development in the area; however the impact determination would remain the same as the proposed project.	**Similar.** The impacts associated with construction of the Option 13 Ranney wells would be similar to those of the proposed project.
<u>*Operations and Facility Siting:*</u> Slant well operation would have a LS impact on landfill capacity and state or local recycling goals and no impact related to the need for additional wastewater treatment or conveyance capacity.	**Similar.** The impact associated with operation of this intake option would be similar to those of the proposed project.	**Similar.** The impact associated with operation of this intake option would be similar to those of the proposed project.	**Similar.** The impact associated with operation of this intake option would be similar to those of the proposed project.	**Similar.** The impact associated with operation of this intake option would be similar to those of the proposed project.	**Similar.** The impact associated with operation of this intake option would be similar to those of the proposed project.	**Similar.** The impact associated with operation of this intake option would be similar to those of the proposed project.	**Similar.** The impact associated with operation of this intake option would be similar to those of the proposed project.
4.14 AESTHETICS							
<u>*Construction Activities:*</u> Construction of the slant wells and associated facilities would have a LS impact related to scenic resources or the visual character of the area; and a LSM impact due to light and glare during nighttime construction.	**Similar.** The impact associated with construction of the Option 2 open water intake at North CEMEX would be similar to those of the proposed project. Although the LS impacts related to effects on scenic resources and visual character during construction and operations would be somewhat greater; the impact determination would remain the same as the proposed project.	**Similar.** The impacts associated with construction and of the Option 3 slant wells at Potrero Road would be similar to those of the proposed project.	**Similar.** The impacts associated with construction and of the Option 4 intake at Potrero Road would be similar to those of the proposed project.	**Decreased.** The impact associated with the Option 6 open water intake would be decreased compared to the proposed slant wells because this option would have no impact related to effects on scenic resources or the visual character of the area during construction. All other impacts would be similar to the proposed project.	**Similar.** The impacts associated with construction of the Option 8 open water intake would be similar to those of the proposed project. Although the impact of this intake option on scenic resources and visual character would be somewhat less than the proposed project; the impact determination would remain the same as the proposed project.	**Similar.** The impact associated with construction the Option 9 open deep-water intake at Moss Landing would be similar compared to the proposed project.	**Similar.** The impacts associated with construction of the Option 13 Ranney wells would be similar to those of the proposed project.

TABLE 7-5 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS – PRELIMINARY INTAKE OPTIONS 2, 3, 4, 6, 8, 9 AND 13

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 National Refractories Site*** *(modifications to existing outfall)*	***Intake Option 8: Open Water Intakes at Moss Landing Power Plant*** *(new connections to existing intake screens)*	***Intake Option 9: Open Deepwater Intake at Moss Landing*** *(new construction)*	**Intake Option 13: Ranney Wells at CEMEX Active Mining Area** (new construction)
4.14 AESTHETICS (cont.)							
Operations and Facility Siting: Operation and siting of the slant wells would have an LS impact on scenic resources or visual character and no impact related to the effects of permanent new sources of light and glare.	**Similar.** The impact associated with operation of this intake option would be similar to those of the proposed project.	**Similar.** The impact associated with operation of this intake option would be similar to those of the proposed project.	**Similar.** The impact associated with operation of this intake option would be similar to those of the proposed project.	**Similar.** The impact associated with operation of this intake option would be similar to those of the proposed project.	**Similar.** The impact associated with operation of this intake option would be similar to those of the proposed project.	**Similar.** The impact associated with operation of this intake option would be similar to those of the proposed project.	**Similar.** The impact associated with operation of this intake option would be similar to those of the proposed project.
4.15 CULTURAL RESOURCES							
Construction Activities: Construction of the subsurface slant wells and associated intake facilities, including the portion of the Source Water Pipeline west of Highway 1, would have a 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 a LS impact related to the destruction of a unique paleontological resource.	**Decreased.** The construction impact associated with Intake Option 2 and related to historic resources would be decreased compared to the proposed slant wells, to LS, because there would be no impact to historical resources or historic properties. The impact associated with Intake Option 2 would be similar for archaeological resources, paleontological resources, and human remains.	**Decreased.** The construction impact associated with Intake Option 3 related to historic resources would be decreased compared to the proposed slant wells, to LS, because there would be no impact to historical resources or historic properties. The impact associated with Impacts from Intake Option 3 would be similar for archaeological resources, paleontological resources, and human remains.	**Decreased.** The construction impact associated with Intake Option 4 related to historic resources would be decreased compared to the proposed slant wells, to LS, because there would be no impact to historical resources or historic properties. The impact associated with Option 4 would be similar for archaeological resources, paleontological resources, and human remains.	**Decreased.** The construction impact associated with Intake Option 6 related to historic resources would be decreased compared to the proposed slant wells, to LS, because there would be no impact to historical resources. The impact associated with Intake Option 6 would be similar for archaeological resources, paleontological resources, and human remains.	**Decreased.** The construction impact associated with Intake Option 8 related to historic resources would be decreased compared to the proposed slant wells, to LS, because there would be no impact to historical resources. The impact associated with Intake Option 8 would be similar for archaeological resources, paleontological resources, and human remains.	**Decreased.** The construction impact associated with Intake Option 9 related to historic resources would be decreased compared to the proposed slant wells, to LS, because there would be no impact to historical resources. The impact associated with Intake Option 9 would be similar for archaeological resources, paleontological resources and human remains.	**Similar.** The impact associated with Intake Option 13 would be similar for historical resources, archaeological resources, paleontological resources, and human remains.
4.16 AGRICULTURE AND FOREST RESOURCES							
Construction, Operations, and Facility Siting: Construction and operation of the subsurface slant wells would have no impact 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 related to otherwise resulting in the conversion of farmland to non-agricultural use. However, those impacts for the Source Water Pipeline would be LSM.	**Similar.** The impacts associated with Option 2 intake and source water pipeline would be similar to the proposed project.	**Similar.** The impacts associated with Option 3 slant wells and source water pipeline would be similar to the proposed project.	**Similar.** The impacts associated with Option 4 intake and source water pipeline would be similar to the proposed project.	**Similar.** The impacts associated with the Option 6 open water intake would be similar to the proposed project.	**Similar.** The impacts associated with the Option 8 open water intake would be similar to the proposed project.	**Increased.** The impact of construction of the Option 9 intake would be increased compared to that of the proposed slant wells because, assuming the intake pump station and wet well were located at the preferred site, it 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 to reduce the impacts to less than significant. 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.** The impacts associated with construction and operation of the Option 13 Ranney wells would be similar to the proposed project.

TABLE 7-5 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS – PRELIMINARY INTAKE OPTIONS 2, 3, 4, 6, 8, 9 AND 13

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 National Refractories Site*** *(modifications to existing outfall)*	***Intake Option 8: Open Water Intakes at Moss Landing Power Plant*** *(new connections to existing intake screens)*	***Intake Option 9: Open Deepwater Intake at Moss Landing*** *(new construction)*	**Intake Option 13: Ranney Wells at CEMEX Active Mining Area** (new construction)
4.17 MINERAL RESOURCES							
Construction, Operations, and/or Facility Siting: The subsurface slant wells would not significantly affect the availability of known mineral resources for future recovery or substantially interfere with active mining operations at the CEMEX sand mining facility. The impact would be less than significant.	**Similar.** The impacts associated with the Option 2 open water intake would be similar but slightly less than the proposed project because this intake option would not interfere with active mining operations at the CEMEX sand mining facility; however the impact determination would remain the same as the proposed project.	**Similar.** The impacts associated with the Option 3 slant wells would be similar but slightly less than the proposed project because this intake option would not interfere with active mining operations at the CEMEX sand mining facility; however the impact determination would remain the same as the proposed project.	**Similar.** The impacts associated with the Option 4 open water intake would be similar but slightly less than the proposed project because this intake option would not interfere with active mining operations at the CEMEX sand mining facility; however the impact determination would remain the same as the proposed project.	**Similar.** The impacts associated with the Option 6 open water intake would be similar but slightly less than the proposed project because this intake option would not interfere with active mining operations at the CEMEX sand mining facility; however the impact determination would remain the same as the proposed project.	**Similar.** The impacts associated with the Option 8 open water intake would be similar but slightly less than the proposed project because this intake option would not interfere with active mining operations at the CEMEX sand mining facility; however the impact determination would remain the same as the proposed project.	**Similar.** The impacts associated with the Option 9 open water intake would be similar but slightly less than the proposed project because this intake option would not interfere with active mining operations at the CEMEX sand mining facility; however the impact determination would remain the same as the proposed project.	**Similar.** The impacts associated with the Option 13 Ranney wells would be similar to the proposed project.
4.18 ENERGY RESOURCES							
Construction Activities: Construction of the subsurface slant wells would have a LSM impact associated with the potential wasteful or inefficient use of energy.	**Similar.** The impacts associated with construction of the Option 2 open water intake would be similar to the proposed project.	**Similar.** The impacts associated with construction of the Option 3 slant wells would be similar to the proposed project.	**Similar.** The impacts associated with construction of the Option 4 open water intake would be similar to the proposed project.	**Similar.** The impacts associated with construction of the Option 6 open water intake would be similar to the proposed project.	**Similar.** The impacts associated with construction of the Option 8 open water intake would be similar to the proposed project.	**Similar.** The impacts associated with construction of the Option 9 open water intake would be similar to the proposed project.	**Similar.** The impacts associated construction of with the Option 13 Ranney wells would be similar to the proposed project.
Operations and Facility Siting: Operation of the proposed slant wells would have LS impacts associated with the use of electricity or fuel in an unnecessary, wasteful or inefficient manner and with the potential to impact [in conjunction with other project components] local or regional energy supplies.	**Similar.** The impact associated with operation of this intake option would be similar to those of the proposed project.	**Similar.** The impact associated with operation of this intake option would be similar to those of the proposed project.	**Similar.** The impact associated with operation of this intake option would be similar to those of the proposed project.	**Similar.** The impact associated with operation of this intake option would be similar to those of the proposed project.	**Similar.** The impact associated with operation of this intake option would be similar to those of the proposed project.	**Similar.** The impact associated with operation of this intake option would be similar to those of the proposed project.	**Similar.** The impact associated with operation of this intake option would be similar to those of the proposed project.
4.19 POPULATION AND HOUSING							
Construction, Operations, and Facility Siting: Construction and operation of the subsurface slant wells and associated intake facilities would have a LS impact related to direct growth inducement.	**Similar.** The impact associated with the Option 2 open water intake would be similar to the proposed project.	**Similar.** The impact associated with the Option 3 slant wells would be similar to the proposed project.	**Similar.** The impact associated with the Option 4 open water intake would be similar to the proposed project.	**Similar.** The impact associated with the Option 6 open water intake would be similar to the proposed project.	**Similar.** The impact associated with the Option 8 open water intake would be similar to the proposed project.	**Similar.** The impact associated with the Option 9 open water intake would be similar to the proposed project.	**Similar.** The impact associated with the Option 13 Ranney wells would be similar to the proposed project.

TABLE 7-6
COMPARISON OF ENVIRONMENTAL EFFECTS – PRELIMINARY OUTFALL OPTIONS 1, 2, 3, 4, 5, 6, AND 7

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)*
4.2 GEOLOGY, SOILS, AND SEISMICITY							
Construction Activities: The proposed project outfall would have no construction- related impacts on geology, soils, and seismicity.	**Similar.** The impacts associated with modification to Outfall Option 1 would be similar to those of the proposed project because this is option would modify an existing facility.	**Increased.** The impacts associated with construction of Outfall Option 2 would be increased to LSM because there would be the potential for soil erosion or loss of topsoil during construction.	**Increased**. The impacts associated with construction of Outfall Option 3 would be increased to LSM because there would be the potential for soil erosion or loss of topsoil during construction.	**Similar.** The impacts associated with modification to Outfall Option 4 would be similar to those of the proposed project because this is an existing facility.	**Increased**. The impacts associated with construction of Outfall Option 5 would be increased to LSM because there would be the potential for soil erosion or loss of topsoil during construction.	**Similar.** The impacts associated with modification to Outfall Option 6 would be similar to those of the proposed project because this is an existing facility.	**Increased.** The impacts associated with construction of Outfall Option 7 would be increased to LSM because there would be the potential for soil erosion or loss of topsoil during construction.
Operations and Facility Siting: Operation of the proposed project outfall would have no impacts related to geology, soils or seismicity.	**Similar.** The impacts associated with operation and facility siting for Outfall Option 1 would be similar to the proposed project as this option would modify the existing facility.	**Increased.** The impacts associated with operation and facility siting for Outfall Option 2 would be increased to a LS impact because there would be a greater potential for liquefaction. All other impacts also would be similar to those of the proposed project.	**Increased.** The impacts associated with operation and facility siting for Outfall Option 2 would be increased to a LS impact because there would be a greater potential for liquefaction. All other impacts also would be similar to those of the proposed project.	**Increased.** There would be a greater potential for liquefaction, a LS impact. 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 is 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, both would be a LS impact. There would also be a greater potential for liquefaction, a LS impact. All other impacts would be similar to those of the proposed project outfall.	**Increased.** There would be a greater potential for liquefaction, a LS impact. All other impacts also would be similar to those of the proposed project outfall.	**Increased.** There would be potential for the new pipeline to encounter corrosive soils, a LS impact (rather than no impact). There would also be a greater potential for liquefaction, a LS impact. All other impacts would be similar to those of the proposed project outfall.
4.3 SURFACE WATER HYDROLOGY AND WATER QUALITY							
Construction Activities: The proposed project outfall would have no construction- related impacts on surface water hydrology and water quality.	**Increased.** This option would have a LSM impact on water quality related to discharges of dewatering effluent, as well as a LS impact related to the degradation of water quality associated with increased soil erosion and inadvertent releases of toxic chemicals and discharges of treated water and disinfectant from existing and newly installed pipelines.	**Increased**. This option would have a LSM impact on water quality related to discharges of dewatering effluent, as well as a LS impact related to the degradation of water quality associated with increased soil erosion and inadvertent releases of toxic chemicals and discharges of treated water and disinfectant from existing and newly installed pipelines.	**Increased.** This option would have a LSM impact on water quality related to discharges of dewatering effluent, and a LS impact related to the degradation of water quality associated with increased soil erosion and inadvertent releases of toxic chemicals and discharges of treated water and disinfectant from existing and newly installed pipelines.	**Increased.** This option would have a LSM impact on water quality related to discharges of dewatering effluent, and a LS impact related to the degradation of water quality associated with increased soil erosion and inadvertent releases of toxic chemicals and discharges of treated water and disinfectant from existing and newly installed pipelines.	**Increased.** This option would have a LSM impact on water quality related to discharges of dewatering effluent, and a LS impact related to the degradation of water quality associated with increased soil erosion and inadvertent releases of toxic chemicals and discharges of treated water and disinfectant from existing and newly installed pipelines.	**Similar.** The impact associated with modification to Outfall Option 6 would be similar to those of the proposed project because this is an existing facility.	**Increased.** This option would have a LSM impact on water quality related to discharges of dewatering effluent, and a LS impact related to the degradation of water quality associated with increased soil erosion and inadvertent releases of toxic chemicals and discharges of treated water and disinfectant from existing and newly installed pipelines.
Operations and Facility Siting: The proposed project outfall would have a LS impact related to violation of water quality standards or waste discharge requirements associated with brine discharge. Operation of the proposed project outfall would have no other impacts related to surface water hydrology or water quality.	**Similar.** The impacts associated with construction and operation of the Outfall Option 2 would be similar to the proposed project outfall.	**Increased.** The impact related to flooding risk would be increased compared to the proposed project outfall because the eastern terminus 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. These impacts are LS because, following construction, the outfall and connecting discharge pipeline would be underground in this area. All other impacts would be similar to those of the proposed project outfall.	**Increased.** The impact related to flooding risk would be increased compared to the proposed project outfall because the eastern terminus of the outfall (at the state beach parking lot) is in an identified tsunami inundation area, an area at risk of flooding due to sea level rise, and a dam inundation area. These impacts are LS because, following construction, the outfall and connecting discharge pipeline would be underground in this area. All other impacts would be similar to those of the proposed project outfall.	**Increased.** The impact related to flooding risk would be increased compared to the proposed project outfall because the assumed location of eastern terminus of the outfall at the former National Refractories site is in an area at risk of flooding due to sea level rise. This would be a LSM impact (rather than LS as it is 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 may involve tracking the progress of sea level rise (and taking appropriate actions to respond when sea level reaches a specified elevation) or relocating the terminus of the outfall and associated facilities to higher areas within the former National Refractories site, outside the identified flood zone. All other impacts would be similar to those of the proposed project outfall.	**Increased**. The impact related to flooding risk would be increase compared to the proposed project outfall 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. These impacts are LS because, following construction, 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. All other impacts would be similar to those of the proposed project outfall.	**Increased.** The impact associated with operation of Outfall Option 6 would be increased to a 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 outfall.	**Increased**. The impact associated with operation of Outfall Option 7 would be increased to a LS due to risk of flooding due to sea level rise, *assuming* 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 Deep Water 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). All other impacts would be similar to the proposed project outfall, assuming the eastern terminus of the outfall (which is not clearly identified in the Deep Water Desal project information) is east of Highway 1 and north of Dolan Road and therefore outside the tsunami inundation area.

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)*
4.4 GROUNDWATER RESOURCES							
Construction Activities: The proposed project outfall would have no construction- related impacts on groundwater resources.	**Similar.** The impacts associated with construction of the Outfall Option 1 would be similar to the proposed project outfall.	**Similar.** The impacts associated with construction of the Outfall Option 2 would be similar to the proposed project outfall.	**Similar.** The impacts associated with construction of the Outfall Option 3 would be similar to the proposed project outfall.	**Similar.** The impacts associated with construction of the Outfall Option 4 would be similar to the proposed project outfall.	**Similar.** The impacts associated with construction of the Outfall Option 5 would be similar to the proposed project outfall.	**Similar.** The impacts associated with construction of the Outfall Option 6 would be similar to the proposed project outfall.	**Similar.** The impacts associated with construction of the Outfall Option 7 would be similar to the proposed project outfall.
Operations and Facility Siting: The proposed project outfall would have no operations related impacts on groundwater resources.	**Similar.** The impacts associated with operation of the Outfall Option 1 would be similar to the proposed project outfall.	**Similar.** The impacts associated with operation of the Outfall Option 2 would be similar to the proposed project outfall.	**Similar.** The impacts associated with operation of the Outfall Option 3 would be similar to the proposed project outfall.	**Similar.** The impacts associated with operation of the Outfall Option 4 would be similar to the proposed project outfall.	**Similar.** The impacts associated with operation of the Outfall Option 5 would be similar to the proposed project outfall.	**Similar.** The impacts associated with operation of the Outfall Option 6 would be similar to the proposed project outfall.	**Similar.** The impacts associated with operation of the Outfall Option 7 would be similar to the proposed project outfall.
4.5 MARINE RESOURCES							
Construction Activities: The proposed project outfall would have no construction- related impacts on marine resources.	**Increased.** Construction-related impacts would be increased to LSM because attaching and anchoring the diffuser would involve in-water work and disturbance of the sea floor within the Monterey Bay National Marine Sanctuary. Impact to marine resources would be due to the physical disruption of the sediments and mortality of resident epifauna and infauna, as well as increased turbidity associated with sediment resuspension. Foraging by bottom-feeding fishes could be disrupted in the disturbed area until biological communities recover. New mitigation would be required to ensure appropriate procedures and/or timing to reduce potential impacts.	**Increased.** Construction-related impacts would be increased to LSM because the new outfall pipeline would be located in the Monterey Bay National Marine Sanctuary and entail disturbance of the seafloor and in-water work where the outfall pipeline emerges from subsurface and the diffuser was attached and anchored. Impact to marine resources would be due to the physical disruption of the sediments and mortality of resident epifauna and infauna, as well as increased turbidity associated with sediment resuspension. Foraging by bottom-feeding fishes could be disrupted in the disturbed area until biological communities recover. 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.** Construction-related impacts would be increased to LSM because the new outfall pipeline would be located in the Monterey Bay National Marine Sanctuary and entail disturbance of the seafloor and in-water work where the outfall pipeline emerges from subsurface and the diffuser was attached and anchored. Impact to marine resources would be due to the physical disruption of the sediments and mortality of resident epifauna and infauna, as well as increased turbidity associated with sediment resuspension. Foraging by bottom-feeding fishes could be disrupted in the disturbed area until biological communities recover. 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.** Construction-related impacts would be increased to LSM 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 Monterey Bay National Marine Sanctuary. Impact to marine resources would be due to the physical disruption of the sediments and mortality of resident epifauna and infauna, as well as increased turbidity associated with sediment resuspension. Foraging by bottom-feeding fishes could be disrupted in the disturbed area until biological communities recover. 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.** Construction-related impacts would be increased to LSM because the new outfall pipeline would be located in the Monterey Bay National Marine Sanctuary and entail disturbance of the seafloor and in-water work where the outfall pipeline emerges from subsurface and the diffuser was attached and anchored. Impact to marine resources would be due to the physical disruption of the sediments and mortality of resident epifauna and infauna, as well as increased turbidity associated with sediment resuspension. Foraging by bottom-feeding fishes could be disrupted in the disturbed area until biological communities recover. 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.** Construction related impacts would be increased to LSM because of in-water work and disturbance of the ocean floor associated with attaching and anchoring a new diffuser within the Monterey Bay National Marine Sanctuary. 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. Impact to 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.** Construction-related impacts would be increased to LSM because the new outfall pipeline would be located in the Monterey Bay National Marine Sanctuary and entail disturbance of the seafloor and in-water work where the outfall pipeline emerges from subsurface and the diffuser was attached and anchored. Impact to marine resources would be due to the physical disruption of the sediments and mortality of resident epifauna and infauna, as well as increased turbidity associated with sediment resuspension. Foraging by bottom-feeding fishes could be disrupted in the disturbed area until biological communities recover. New mitigation would be required to ensure appropriate procedures and/or timing to reduce potential impacts.
Operations and Facility Siting: Operation of the proposed project outfall 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.** The impact associated with operation of this outfall option would be similar to the impacts of the proposed project, assuming a diffuser and operational controls are adequate to meet Ocean Plan WQ Objectives.	**Similar.** The impact associated with operation of this outfall option would be similar to the impacts of the proposed project, assuming a diffuser and operational controls are adequate to meet Ocean Plan WQ Objectives.	**Similar.** The impact associated with operation of this outfall option would be similar to the impacts of the proposed project, assuming a diffuser and operational controls are adequate to meet Ocean Plan WQ Objectives.	**Similar.** The impact associated with operation of this outfall option would be similar to the impacts of the proposed project, assuming a diffuser and operational controls are adequate to meet Ocean Plan WQ Objectives.	**Similar.** The impact associated with operation of this outfall option would be similar to the impacts of the proposed project, assuming a diffuser and operational controls are adequate to meet Ocean Plan WQ Objectives.	**Similar.** The impact associated with operation of this outfall option would be similar to the impacts of the proposed project, assuming a diffuser and operational controls are adequate to meet Ocean Plan WQ Objectives.	**Similar.** The impact associated with operation of this outfall option would be similar to the impacts of the proposed project, assuming a diffuser and operational controls are adequate to meet Ocean Plan WQ Objectives.

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: Use of the existing outfall structure would not have impacts to terrestrial biological resources.	**Similar.** Modification of the existing outfall and operations/maintenance of the new outfall would occur in the marine environment and would not be expected to impact terrestrial biological resources, which is similar to the proposed project outfall.	**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 NI to these resources, which is similar to the proposed project. The intake would have LSM impacts to special-status species such as birds protected by the federal Migratory Bird Treaty Act. Similar to the proposed MPWSP, 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 a LSM 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 MPWSP, the intake would not conflict with local tree ordinances as there are no trees within the impact area, therefore NI.	**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 to 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 LSM 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. Similar to the proposed MPWSP, the intake would not conflict with local tree ordinances as there are no trees within the impact area, therefore NI.	**Increased.** Impacts from all construction activities would occur in previously disturbed areas away from wetlands and sensitive natural communities. Therefore, it is anticipated there would NI to 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 and the significance determination would be LSM. Similar to the proposed MPWSP, the intake would not conflict with local tree ordinances as there are no trees within the impact area, therefore NI.	**Increased.** Impacts from all construction activities would occur in previously disturbed areas away from wetlands and sensitive natural communities. Therefore, it is anticipated there would be NI to 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 and the significance determination would still be LSM. Similar to the proposed MPWSP, the intake would not conflict with local tree ordinances as there are no trees within the impact area, therefore NI.
Operations and Facility Siting: Use of the existing outfall structure would not have impacts to terrestrial biological resources.	**Similar.** The impacts associated with operation of the Outfall Option 1 would be similar to the proposed project outfall.	**Similar.** The impacts associated with operation of the Outfall Option 2 would be similar to the proposed project outfall.	**Similar.** The impacts associated with operation of the Outfall Option 3 would be similar to the proposed project outfall.	**Similar.** The impacts associated with operation of the Outfall Option 4 would be similar to the proposed project outfall.	**Similar.** The impacts associated with operation of the Outfall Option 5 would be similar to the proposed project outfall.	**Similar.** The impacts associated with operation of the Outfall Option 6 would be similar to the proposed project outfall.	**Similar.** The impacts associated with operation of the Outfall Option 7 would be similar to the proposed project outfall.
4.7 HAZARDS AND HAZARDOUS MATERIALS							
Construction Activities: The proposed project outfall would have no construction- related impacts on hazards or hazardous materials during construction.	**Increased.** The impact associated with modification to Outfall Option 1 would be increased to a LS level 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.** The impact associated with construction of Outfall Option 2 would be increased to a LS impact 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 a LSM. The risk of wildland fires would increase to LS. All other impacts would be similar to those of the proposed project outfall.	**Increased.** The impact associated with construction of Outfall Option 3 would be increased to a LS impact 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 a LSM. The risk of wildland fires would be increase to LS. All other impacts would be similar to those of the proposed project outfall.	**Increased.** The impacts associated with construction of Outfall Option 4 would be increased to a LS impact 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 LSM. The risk of wildland fires would be increase to LS. All other impacts would be similar to those of the proposed project outfall.	**Increased.** The impacts associated with construction of Outfall Option 4 would be increased to a LS impact because the construction could include the transport, use, and disposal of hazardous materials. The potential for the release of hazardous materials into the environment would be LSM. The risk of wildland fires would be increase to LS. All other impacts would be similar to those of the proposed project outfall.	**Increased.** The impacts associated with construction of Outfall Option 6 would be increased to a LS impact because the construction could include the transport, use, and disposal of hazardous materials. The potential for the release of hazardous materials into the environment would be LSM. The risk of wildland fires would be increase to LS. All other impacts would be similar to those of the proposed project outfall.	**Increase.** The impacts associated with construction of Outfall Option 7 would be increased to a LS impact because the construction could include the transport, use, and disposal of hazardous materials. The potential for the release of hazardous materials into the environment would be LSM. The risk of wildland fires would be increase to LS. All other impacts would be similar to those of the proposed project outfall.
Operations and Facility Siting: The proposed project outfall would have a 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.** The impacts associated with operation of the Outfall Option 1 would be similar to the proposed project outfall.	**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, therefor no impact would occur.	**Decreased**. This option would not be located in an airport land use plan area, therefor no impact would occur.
4.8 LAND USE, LAND USE PLANNING, AND RECREATION							
Construction Activities: The proposed project outfall would have no construction- related impacts on land use, land use planning, and recreation.	**Similar.** The impacts associated with construction of the Outfall Option 1 would be similar to the proposed project outfall.	**Similar.** The impacts associated with construction of the Outfall Option 2 would be similar to the proposed project outfall.	**Increased.**, The impacts associated with construction of Outfall Option 3 would be increased to a LSM because construction would require temporary closure of the beach parking lot, requiring mitigation measures to reduce the impact to a LS level.	**Similar.** The impacts associated with construction of the Outfall Option 4 would be similar to the proposed project outfall.	**Increased.** The impacts associated with construction of Outfall Option 5 would be increased to a LS due to potential disruption at the State Beach which borders or is close to the southern border of the site.	**Similar.** The impacts associated with construction of the Outfall Option 6 would be similar to the proposed project outfall.	**Similar.** The impacts associated with construction of the Outfall Option 7 would be similar to the proposed project outfall.

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4.8 LAND USE, LAND USE PLANNING, AND RECREATION (cont.)							
Operations and Facility Siting: Operation of the proposed project outfall would have no impact related to consistency with applicable land use plans, policies, and regulations and compatibility with adjacent land uses.	**Similar.** The impacts associated with operation of the Outfall Option 1 would be similar to the proposed project outfall.	**Similar.** The impacts associated with operation of the Outfall Option 2 would be similar to the proposed project outfall.	**Increased**. The impact associated with construction of Outfall Option 3 would be increased to a LS impact because periodic maintenance could require access to the outfall from the construction area, which would temporarily displace some beach parking.	**Similar.** The impacts associated with operation of the Outfall Option 4 would be similar to the proposed project outfall.	**Similar.** The impacts associated with operation of the Outfall Option 5 would be similar to the proposed project outfall.	**Similar.** The impacts associated with operation of the Outfall Option 6 would be similar to the proposed project outfall.	**Similar.** The impacts associated with operation of the Outfall Option 7 would be similar to the proposed project outfall.
4.9 TRAFFIC AND TRANSPORTATION							
Construction Activities: The proposed project outfall would have no construction- related impacts on traffic and transportation.	**Increased**. The impacts associated with construction of Outfall Option 1 would be increased to an LS level since this option would involve some construction; therefore, there would be an increase in construction related vehicles. 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.	**Increased.** The impacts associated with construction of Outfall Option 2 would be increased compared to those of the proposed project outfall since this option would involve new construction. The impacts associated with construction of Outfall Option 2 would be increased to an LS level due to the increase in construction related vehicles, the increase of construction related vehicles could increase traffic delays; and impaired emergency access. The impacts associated with construction of Outfall Option 2 would be increased to an LSM because construction would cause hazards or disruptions to vehicles, bicyclists or pedestrians and increase wear-and-tear on roadways. Implementation of the mitigation identified for the proposed project would reduce the impact to less than significant.	**Increased.** This option would have an Increased (LSM) impact due to partial or complete closure of the parking lot during construction. 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.	**Increased.** The impacts associated with construction of Outfall Option 4 would be increased compared to those of the proposed project outfall since this option would involve new construction. The impacts associated with construction of Outfall Option 4 would be increased to an LS level due to the increase in construction related vehicles, the increase of construction related vehicles could increase traffic delays and impaired emergency access. The impacts associated with construction of Outfall Option 4 would be increased to an LSM because construction would cause hazards or disruptions to vehicles, bicyclists or pedestrians and increase wear-and-tear on roadways. Implementation of the mitigation identified for the proposed project would reduce the impact to LS.	**Increased.** The impacts associated with construction of Outfall Option 5 would be increased compared to those of the proposed project outfall since this option would involve new construction. The impacts associated with construction of Outfall Option 5 would be increased to an LS level due to the increase in construction related vehicles, the increase of construction related vehicles could increase traffic delays and impaired emergency access. The impacts associated with construction of Outfall Option 5 would be increased to an LSM because construction would cause hazards or disruptions to vehicles, bicyclists or pedestrians and increase wear-and-tear on roadways. Implementation of the mitigation identified for the proposed project would reduce the impact to LS.	**Increased.** The impacts associated with construction of Outfall Option 6 would be increased compared to those of the proposed project outfall since this option would involve new construction. The impacts associated with construction of Outfall Option 6 would be increased to an LS level due to the increase in construction related vehicles, the increase of construction related vehicles could increase traffic delays and impaired emergency access. The impacts associated with construction of Outfall Option 6 would be increased to an LSM because construction would cause hazards or disruptions to vehicles, bicyclists or pedestrians and increase wear-and-tear on roadways. Implementation of the mitigation identified for the proposed project would reduce the impact to LS.	**Increased.** The impacts associated with construction of Outfall Option 7 would be increased compared to those of the proposed project outfall since this option would involve new construction. The impacts associated with construction of Outfall Option 7 would be increased to an LS level due to the increase in construction related vehicles, the increase of construction related vehicles could increase traffic delays and impaired emergency access. The impacts associated with construction of Outfall Option 7 would be increased to an LSM because construction would cause hazards or disruptions to vehicles, bicyclists or pedestrians and increase wear-and-tear on roadways. Implementation of the mitigation identified for the proposed project would reduce the impact to LS.
Operations and Facility Siting: Operation and maintenance of the proposed project outfall would have a LS impact related to long-term traffic increases on regional and local roadways.	**Similar.** The impacts associated with operation of the Outfall Option 1 would be similar to the proposed project outfall.	**Similar.** The impacts associated with operation of the Outfall Option 2 would be similar to the proposed project outfall.	**Similar.** The impacts associated with operation of the Outfall Option 3 would be similar to the proposed project outfall.	**Similar.** The impacts associated with operation of the Outfall Option 4 would be similar to the proposed project outfall.	**Similar.** The impacts associated with operation of the Outfall Option 5 would be similar to the proposed project outfall.	**Similar.** The impacts associated with operation of the Outfall Option 6 would be similar to the proposed project outfall.	**Similar.** The impacts associated with operation of the Outfall Option 7 would be similar to the proposed project outfall.
4.10 AIR QUALITY							
Construction Activities: The proposed project outfall would have no construction- related impacts on air quality.	**Increased**. The impact associated with construction of Outfall Option 1 would be increased to a LSM impact since construction would be involved and the impact associated with emissions of criteria air pollutants would be greater than the proposed project outfall. The impact related to the exposure of sensitive receptors to substantial pollutant concentrations or create objectionable odors would be LS.	**Increased**. The impact associated with construction of Outfall Option 2 would be increased to a LSM impact since construction would be involved and the impact associated with emissions of criteria air pollutants would be greater than the proposed project outfall. The impact related to the exposure of sensitive receptors to substantial pollutant concentrations or create objectionable odors would be LS.	**Increased**. The impact associated with construction of Outfall Option 3 would be increased to a LSM impact since construction would be involved and the impact associated with emissions of criteria air pollutants would be greater than the proposed project outfall. The impact related to the exposure of sensitive receptors to substantial pollutant concentrations or create objectionable odors would be LS.	**Increased**. The impact associated with construction of Outfall Option 4 would be increased to a LSM impact since construction would be involved and the impact associated with emissions of criteria air pollutants would be greater than the proposed project outfall. The impact related to the exposure of sensitive receptors to substantial pollutant concentrations or create objectionable odors would be LS.	**Increased**. The impact associated with construction of Outfall Option 5 would be increased to a LSM impact since construction would be involved and the impact associated with emissions of criteria air pollutants would be greater than the proposed project outfall. The impact related to the exposure of sensitive receptors to substantial pollutant concentrations or create objectionable odors would be LS.	**Increased**. The impact associated with construction of Outfall Option 6 would be increased to a LSM impact since construction would be involved and the impact associated with emissions of criteria air pollutants would be greater than the proposed project outfall. The impact related to the exposure of sensitive receptors to substantial pollutant concentrations or create objectionable odors would be LS.	**Increased**. The impact associated with construction of Outfall Option 7 would be increased to a LSM impact since construction would be involved and the impact associated with emissions of criteria air pollutants would be greater than the proposed project outfall. The impact related to the exposure of sensitive receptors to substantial pollutant concentrations or create objectionable odors would be LS.

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)*
Operations and Facility Siting: Operation of the proposed project outfall would have NI impacts related to increased emissions of criteria air pollutants and exposure of sensitive receptors to substantial pollutant concentrations.	**Similar.** The impacts associated with operation of the Outfall Option 1 would be similar to the proposed project outfall.	**Similar.** The impacts associated with operation of the Outfall Option 2 would be similar to the proposed project outfall.	**Similar.** The impacts associated with operation of the Outfall Option 3 would be similar to the proposed project outfall.	**Similar.** The impacts associated with operation of the Outfall Option 4 would be similar to the proposed project outfall.	**Similar.** The impacts associated with operation of the Outfall Option 5 would be similar to the proposed project outfall.	**Similar.** The impacts associated with operation of the Outfall Option 6 would be similar to the proposed project outfall.	**Similar.** The impacts associated with operation of the Outfall Option 7 would be similar to the proposed project outfall.
4.11 GREENHOUSE GASES							
Construction and Operations: The proposed project outfall would have no construction- related impacts on GHG emissions; however the proposed project as a whole would have SUM impacts.	**Similar.** The impacts associated with construction and operation of the Outfall Option 1 would be similar to the proposed project.	**Similar.** The impacts associated with construction and operation of the Outfall Option 2 would be similar to the proposed project.	**Similar.** The impacts associated with construction and operation of the Outfall Option 3 would be similar to the proposed project.	**Similar.** The impacts associated with construction and operation of the Outfall Option 4 would be similar to the proposed project.	**Similar.** The impacts associated with construction and operation of the Outfall Option 5 would be similar to the proposed project.	**Similar.** The impacts associated with construction and operation of the Outfall Option 6 would be similar to the proposed project.	**Similar.** The impacts associated with construction and operation of the Outfall Option 7 would be similar to the proposed project.
4.12 NOISE AND VIBRATION							
Construction Activities: The proposed project outfall would have no construction- related impacts related to noise and groundborne vibration.	**Increased.** The impacts associated with construction would have a LS impact due to the potential for construction to generate noise and groundborne vibration.	**Increased.** The impacts associated with construction would have a LS impact due to the potential for construction to generate noise and groundborne vibration.	**Increased**. The impacts associated with construction would have a LS impact due to the potential for construction to generate noise and groundborne vibration.	**Increased.** The impacts associated with construction would have a LS impact due to the potential for the repairs to generate noise or groundborne vibration.	**Increased**. The impacts associated with construction would have a LS impact due to the potential for construction to generate noise or groundborne vibration and due to the somewhat closer proximity of sensitive receptors.	**Increased.** The impacts associated with construction would have a LS impact due to the potential for the repairs to generate noise or groundborne vibration.	**Increased.** The impacts associated with construction would have a LS impact due to the potential for construction to generate noise and groundborne vibration.
Operations and Facility Siting: Operation of the proposed project outfall 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.** The impacts associated with operation of the Outfall Option 1 would be similar to the proposed project outfall.	**Similar.** The impacts associated with operation of the Outfall Option 2 would be similar to the proposed project outfall.	**Similar.** The impacts associated with operation of the Outfall Option 3 would be similar to the proposed project outfall.	**Similar.** The impacts associated with operation of the Outfall Option 4 would be similar to the proposed project outfall.	**Similar.** The impacts associated with operation of the Outfall Option 5 would be similar to the proposed project outfall.	**Similar.** The impacts associated with operation of the Outfall Option 6 would be similar to the proposed project outfall.	**Similar.** The impacts associated with operation of the Outfall Option 7 would be similar to the proposed project outfall.
4.13 PUBLIC SERVICES AND UTILITIES							
Construction Activities: The proposed project outfall would have no construction- related impacts related to disruption of or need to relocate local utilities during construction.	**Increased.** The impacts associated with construction of Outfall Option 1 would be increased to LSM because inserting the interior pipeline could disrupt use of the MRWPCA outfall. In addition to the mitigation measures identified for the MPWSP, a new mitigation measure would be added, requiring coordination with MRWPCA to complete construction during irrigation season when flows through the outfall are lowest.	**Increased.** The impacts associated with construction of Outfall Option 2 would be increased to LSM because construction could result in the disruption or relocation existing subsurface utilities. Outfall Option 2 could also adversely impact landfill capacity (LSM). Implementation of the mitigation identified for the proposed project would reduce these impacts to less than significant.	**Increased.** The impacts associated with construction of Outfall Option 3 would be increased to LSM because construction could result in the disruption or relocation existing subsurface utilities. Outfall Option 3 could also adversely impact landfill capacity (LSM). Implementation of the mitigation identified for the proposed project would reduce these impacts to less than significant.	**Increased.** The impacts associated with construction of Outfall Option 4 would be increased to LSM because construction could result in the disruption or relocation existing subsurface utilities. Outfall Option 4 could also adversely impact landfill capacity (LSM). Implementation of the mitigation identified for the proposed project would reduce these impacts to less than significant.	**Increased.** The impacts associated with construction of Outfall Option 5 would be increased to LSM because construction could result in the disruption or relocation existing subsurface utilities. Outfall Option 5 could also adversely impact landfill capacity (LSM). Implementation of the mitigation identified for the proposed project would reduce these impacts to less than significant.	**Increased.** The impacts associated with construction of Outfall Option 6 would be increased to LSM because construction could result in the disruption or relocation existing subsurface utilities. Outfall Option 6 could also adversely impact landfill capacity (LSM). Implementation of the mitigation identified for the proposed project would reduce these impacts to less than significant.	**Increased.** The impacts associated with construction of Outfall Option 7 would be increased to LSM because construction could result in the disruption or relocation existing subsurface utilities. Outfall Option 7 could also adversely impact landfill capacity (LSM). Implementation of the mitigation identified for the proposed project would reduce these impacts to less than significant.
Operations and Facility Siting: The proposed project outfall would have no impact 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 a LSM impact related to increased corrosion of the MRWPCA outfall and diffuser.	**Similar.** This option could have an LSM impact 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 use and therefore would have no effect on the MRWPCA outfall and diffuser. All other operational impacts would be similar to those of the proposed project outfall.	**Decreased.** This option would not use and therefore would have no effect on the MRWPCA outfall and diffuser. All other operational impacts would be similar to those of the proposed project outfall.	**Decreased.** This option would not use and therefore would have no effect on the MRWPCA outfall and diffuser. All other operational impacts would be similar to those of the proposed project outfall.	**Decreased.** This option would not use and therefore would have no effect on the MRWPCA outfall and diffuser. All other operational impacts would be similar to those of the proposed project outfall.	**Similar**. This option would not use and therefore would have no effect on the MRWPCA outfall and diffuser, but the brine could 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 use and therefore would have no effect on the MRWPCA outfall and diffuser. All other operational impacts would be similar to those of the proposed project outfall.

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)*
4.14 AESTHETICS							
Construction Activities: The proposed project outfall would have no construction- related impacts on aesthetics resources.	**Similar.** The impacts associated with construction of the Outfall Option 1 would be similar to the proposed project outfall.	**Increased.** The impact associated with construction of Outfall Option 2 would be a LS impact because construction of the outfall would result in greater impacts on scenic resources and temporary sources of light and glare.	**Increased.** The impact associated with construction of Outfall Option 3 would be a LS impact because construction of the outfall would result in greater impacts on scenic resources and temporary sources of light and glare.	**Similar.** The impacts associated with construction of the Outfall Option 4 would be similar to the proposed project outfall.	**Increased.** The impact associated with construction of Outfall Option 5 would be a LS impact because the construction of the outfall would result in greater impacts on scenic resources and temporary sources of light and glare.	**Increased.** The impact associated with construction of Outfall Option 6 would be a LS impact because the construction of the outfall would result in greater impacts on scenic resources and temporary sources of light and glare.	**Increased.** The impact associated with construction of Outfall Option 7 would be a LS impact because the construction of the outfall would result in greater impacts on scenic resources and temporary sources of light and glare.
Operations and Facility Siting: Operation of the proposed project outfall would have no impact on scenic resources.	**Similar.** The impacts associated with operation of the Outfall Option 1 would be similar to the proposed project outfall.	**Similar.** The impacts associated with operation of the Outfall Option 2 would be similar to the proposed project outfall.	**Similar.** The impacts associated with operation of the Outfall Option 3 would be similar to the proposed project outfall.	**Similar.** The impacts associated with operation of the Outfall Option 4 would be similar to the proposed project outfall.	**Similar.** The impacts associated with operation of the Outfall Option 5 would be similar to the proposed project outfall.	**Similar.** The impacts associated with operation of the Outfall Option 5 would be similar to the proposed project outfall.	**Similar.** The impacts associated with operation of the Outfall Option 7 would be similar to the proposed project outfall.
4.15 CULTURAL RESOURCES							
Construction Activities: Construction and operation of the proposed project outfall would have no impact on cultural resources.	**Similar.** The impacts associated with construction and operation of the Outfall Option 1 would be similar to the proposed project outfall.	**Increased.** The potential to adversely effects archaeological resources, and human remains would be a LSM impact requiring mitigation. The impacts related to paleontological resources would be LS. All other impacts would be the similar.	**Increased.** The potential to adversely effects archaeological resources, and human remains would be a LSM impact requiring mitigation. The impacts related to paleontological resources would be LS. All other impacts would be the similar.	**Increased.** The potential to adversely effects archaeological resources, and human remains would be a LSM impact requiring mitigation. The impacts related to paleontological resources would be LS. All other impacts would be the similar.	**Increased.** The potential to adversely effects archaeological resources, and human remains would be a LSM impact requiring mitigation. The impacts related to paleontological resources would be LS. All other impacts would be the similar.	**Increased.** The potential to adversely effects archaeological resources, and human remains would be a LSM impact requiring mitigation. The impacts related to paleontological resources would be LS. All other impacts would be the similar.	**Increased.** The potential to adversely effects archaeological resources, and human remains would be a LSM impact requiring mitigation. The impacts related to paleontological resources would be LS. All other impacts would be the similar.
4.16 AGRICULTURE AND FOREST RESOURCES							
Construction, Operations, and/or Facility Siting: Construction and operation of the proposed project outfall would have no impact on the agricultural and forest resources.	**Similar.** The impacts associated with construction and operation of the Outfall Option 1 would be similar to the proposed project outfall.	**Increased**. The impact associated with construction of Outfall Option 2 would be increased to a LSM impact since construction could temporarily disrupt and displace Farmland of Statewide Importance, and could conflict with existing zoning for agricultural uses or Williamson Act contracts.	**Increased.** The impact associated with construction of Outfall Option 3 would be increased to a LSM impact since construction could temporarily disrupt and displace Farmland of Statewide Importance, and could or conflict with existing zoning for agricultural uses.	**Similar.** The impacts associated with construction and operation of the Outfall Option 4 would be similar to the proposed project outfall.	**Similar.** The impacts associated with construction and operation of the Outfall Option 5 would be similar to the proposed project outfall.	**Similar.** The impacts associated with construction and operation of the Outfall Option 6 would be similar to the proposed project outfall.	**Similar.** The impacts associated with construction and operation of the Outfall Option 7 would be similar to the proposed project outfall.
4.17 MINERAL RESOURCES							
Construction, Operations, and/or Facility Siting: The proposed project outfall would have no construction- related or operational impacts to mineral resources.	**Similar.** The impacts associated with construction and operation of the Outfall Option 1 would be similar to the proposed project outfall.	**Increased.** While construction and operation of the Outfall Option 2 would not result in a significant reduction in the availability of mineral resources, the impact would be LS.	**Increased.** While construction and operation of the Outfall Option 3 would not result in a significant reduction in the availability of mineral resources, the impact would be LS.	**Increased.** While construction and operation of the Outfall Option 4 would not result in a significant reduction in the availability of mineral resources, the impact would be LS.	**Increased.** While construction and operation of the Outfall Option 5 would not result in a significant reduction in the availability of mineral resources, the impact would be LS.	**Increased.** While construction and operation of the Outfall Option 6 would not result in a significant reduction in the availability of mineral resources, the impact would be LS.	**Increased.** While construction and operation of the Outfall Option 7 would not result in a significant reduction in the availability of mineral resources, the impact would be LS.
4.18 ENERGY RESOURCES							
Construction Activities: The proposed project outfall would have no construction- related impacts on energy resources.	**Increased.** The impacts associated with construction of Outfall Option 1 would be increased to a LSM because construction would require the use of fuel or energy.	**Increased.** The impacts associated with construction of Outfall Option 2 would be increased to a LSM because construction would require the use of fuel or energy.	**Increased.** The impacts associated with construction of Outfall Option 3 would be increased to a LSM because construction would require the use of fuel or energy.	**Increased.** The impacts associated with construction of Outfall Option 4 would be increased to a LSM because construction would require the use of fuel or energy.	**Increased.** The impacts associated with construction of Outfall Option 5 would be increased to a LSM because construction would require the use of fuel or energy.	**Increased.** The impacts associated with construction of Outfall Option 6 would be increased to a LSM because construction would require the use of fuel or energy.	**Increased.** The impacts associated with construction of Outfall Option 7 would be increased to a LSM because construction would require the use of fuel or energy.
Operations and Facility Siting: Operation of the proposed project outfall 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.** The impacts associated with operation of the Outfall Option 1 would be similar to the proposed project outfall.	**Similar.** The impacts associated with operation of the Outfall Option 2 would be similar to the proposed project outfall.	**Similar.** The impacts associated with operation of the Outfall Option 3 would be similar to the proposed project outfall.	**Similar.** The impacts associated with operation of the Outfall Option 4 would be similar to the proposed project outfall.	**Similar.** The impacts associated with operation of the Outfall Option 5 would be similar to the proposed project outfall.	**Similar.** The impacts associated with operation of the Outfall Option 6 would be similar to the proposed project outfall.	**Similar.** The impacts associated with operation of the Outfall Option 7 would be similar to the proposed project outfall.

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)*
4.19 POPULATION AND HOUSING							
Construction, Operations, and/or Facility Siting: Construction and operation of the proposed project outfall would have a LS impact related to direct growth inducement.	**Similar.** The impacts associated with construction and operation of the Outfall Option 1 would be similar to the proposed project outfall.	**Similar.** The impacts associated with construction and operation of the Outfall Option 2 would be similar to the proposed project outfall.	**Similar.** The impacts associated with construction and operation of the Outfall Option 3 would be similar to the proposed project outfall.	**Similar.** The impacts associated with construction and operation of the Outfall Option 4 would be similar to the proposed project outfall.	**Similar.** The impacts associated with construction and operation of the Outfall Option 5 would be similar to the proposed project outfall.	**Similar.** The impacts associated with construction and operation of the Outfall Option 6 would be similar to the proposed project outfall.	**Similar.** The impacts associated with construction and operation of the Outfall Option 7 would be similar to the proposed project outfall.

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TABLE 7-7
COMPARISON OF ENVIRONMENTAL EFFECTS –DESALINATION PLANT SITE OPTIONS

Environmental Topic Area	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 Parcel *(new construction)*
Geology, Soils, and Seismicity	*Construction Activities:* Construction of the MPWSP Desalination Plant would have a LSM impact associated with the potential to increase soil erosion or loss of topsoil. *Operations, and Maintenance:* Operation and maintenance of the MPWSP Desalination Plant 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 no impact from the potential to expose people or structures to landslides, coastal retreat due to sea level rise, subsidence, expensive soil and soil disposal.	**Similar** – The impacts associated with construction and operation of Desalination Plant Site Option 2 would be similar to the MPWSP Desalination Plant. While Desalination Plant Site Option 2 is in a moderate to high susceptibility zone for liquefaction risk the impact would remain LS.	**Similar** – The impacts associated with construction and operation of Desalination Plant Site Option 3 would be similar to the MPWSP Desalination Plant. While Desalination Plant Site Option 3 is in a moderate to high susceptibility zone for liquefaction risk the impact would remain LS.
Surface Water Hydrology and Water Quality	*Construction Activities:* Construction of the MPWSP Desalination Plant 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 from the MPWSP Desalination Plant during project operation would be a LS impact. Operation and maintenance of the MPWSP Desalination Plant would have a LS impact resulting from the alteration of drainage patterns in a way that would increase erosion, siltation, the amount of surface runoff and increase flooding on- or offsite or 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 due to the siting of the MPWSP Desalination Plant in a 100-year flood hazard area or exposing people or structure to risk of loss, injury, or death from flooding due to a tsunami.	**Increased** – This desalination site option has the potential to 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 MPWSP Desalination Plant.	**Increased** – This desalination site option has the potential to expose people or structures to a significant risk of loss, injury, or death from flooding due to sea level rise, tsunamis and coastal flooding. Other surface water hydrology and water quality impacts would be similar to the MPWSP Desalination Plant.

TABLE 7-7 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS –DESALINATION PLANT SITE OPTIONS

Environmental Topic Area	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 Parcel *(new construction)*
Groundwater Resources	*Construction Activities:* Construction of the MPWSP Desalination Plant would not substantially 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 nor would construction violate water quality standards or otherwise degrade water quality. Therefore, no impacts would result due to the construction of the MPWSP Desalination Plant. *Operations and Maintenance:* For the reasons stated above, operation and maintenance of the MPWSP Desalination Plant would have no impact on groundwater resources.	**Similar -** The impacts associated with construction and operation of the Desalination Plant Site Option 2 would be similar to the MPWSP Desalination Plant.	**Similar -** The impacts associated with construction and operation of the Desalination Plant Site Option 3 would be similar to the MPWSP Desalination Plant.
Marine Resources	There would be no impact on Marine Resources as a result of construction activities or operations at the MPWSP proposed desalination plant location at Charles Benson Road.	**Similar -** The impacts associated with construction and operation of the Desalination Plant Site Option 2 would be similar to the MPWSP Desalination Plant.	**Similar -** The impacts associated with construction and operation of the Desalination Plant Site Option 3 would be similar to the MPWSP Desalination Plant.
Terrestrial Biological Resources	*Construction Activities:* Project-related construction activities would have a LSM 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:* Operation of the MPWSP Desalination Plant would result in LSM impacts to 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 to biological resources. However, two drainages on-site may be considered jurisdictional features by the U.S. Army Corps of Engineers, Regional Water Quality Control Board and/or the California Coastal Commission. Therefore, this site option has an increase potential to adversely affect federally protected wetlands, federal “other waters”, and Waters of the State and would have LSM impacts to wetlands or other waters. Operations of this desalination plant would have similar LSM impacts to 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 a LSM impact to 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 LSM impacts to 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.

TABLE 7-7 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS –DESALINATION PLANT SITE OPTIONS

Environmental Topic Area	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 Parcel *(new construction)*
Hazards and Hazardous Materials	*Construction Activities:* Construction of the MPWSP Desalination Plant would have a LS impact associated with the potential to create a hazard to the public through the routine transport, use and disposal of hazardous materials and a LSM impact associated with the potential to release hazardous materials to the environment. The increased risk of fire during MPWSP Desalination Plant construction would be a LS impact. There would be no impact 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 during MPWSP Desalination Plant operation would have a LS impact associated with the transport, use, and disposal of hazardous materials. There would be no impact from hazardous materials handling or hazardous emissions within 0.25 mile of a school during operation of the MPWSP Desalination Plant and no impact on groundwater remediation activities. The MPWSP Desalination Plant would be located within an airport land use plan area; therefore the impact would be LS.	**Similar** - The impacts associated with construction and operation of the Desalination Plant Site Option 2 would be similar to the MPWSP Desalination Plant.	**Similar** - The impacts associated with construction and operation of the Desalination Plant Site Option 3 would be similar to the MPWSP Desalination Plant.
Land Use, Land Use Planning, and Recreation	*Construction Activities:* There are no parks or recreational facilities in the vicinity of the MPWSP Desalination Plant site; therefore, construction of the MPWSP Desalination Plant would have no impact related to disruption or closure of recreational facilities. *Operations and Maintenance:* The MPWSP Desalination Plant would have a LS impact with respect to land use compatibility because it would not preclude continued use of other adjacent lands for grazing and other agricultural activities.	**Similar** - The impacts associated with construction and operation of the Desalination Plant Site Option 2 would be similar to the MPWSP Desalination Plant.	**Similar**- The impacts associated with construction and operation of the Desalination Plant Site Option 3 would be similar to the MPWSP Desalination Plant.

TABLE 7-7 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS –DESALINATION PLANT SITE OPTIONS

Environmental Topic Area	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 Parcel *(new construction)*
Traffic and Transportation	*Construction Activities:* Project-related 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 a LSM impact. The MPWSP Desalination Plant construction would have a 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 MPWSP Desalination Plant operation and maintenance activities would be LS.	**Similar** - The impacts associated with construction and operation of the Desalination Plant Site Option 2 would be similar to the MPWSP Desalination Plant.	**Similar** - The impacts associated with construction and operation of the Desalination Plant Site Option 3 would be similar to the MPWSP Desalination Plant.
Air Quality	*Construction Activities:* Generated 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 of the MPWSP Desalination Plant would be LS 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** - The impacts associated with construction and operation of the Desalination Plant Site Option 2 would be similar to the MPWSP Desalination Plant.	**Similar** - The impacts associated with construction and operation of the Desalination Plant Site Option 3 would be similar to the MPWSP Desalination Plant.

TABLE 7-7 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS –DESALINATION PLANT SITE OPTIONS

Environmental Topic Area	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 Parcel *(new construction)*
Greenhouse Gases	*Construction Activities:* The contribution to climate change of GHG emissions from construction of the MPWSP Desalination Plant, 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 of the MPWSP Desalination Plant, in conjunction with other project operations would be SUM.	**Similar** - The impacts associated with construction and operation of the Desalination Plant Site Option 2, in conjunction with other project construction would be similar to the MPWSP Desalination Plant.	**Similar** - The impacts associated with construction and operation of the Desalination Plant Site Option 3, in conjunction with other project construction would be similar to the MPWSP Desalination Plant.
Noise and Vibration	*Construction Activities:* Construction of the MPWSP Desalination Plant 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 of the MPWSP Desalination Plant would have a LS impact as a result of noise and vibration.	**Similar** - The impacts associated with construction and operation of the Desalination Plant Site Option 2 would be similar to the MPWSP Desalination Plant.	**Increased** – Due to the site proximity to nearby residences, construction at this location has an increased potential to violate established standards and expose sensitive receptors to increase vibrations, resulting in a LSM impact. Furthermore, operation of a desalination plant on this site would likely violate established standards set by Monterey County and could require mitigation.
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 of the MPWSP Desalination Plant 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 no impact would occur.	**Similar** - The impacts associated with construction and operation of the Desalination Plant Site Option 2 would be similar to the MPWSP Desalination Plant.	**Similar** - The impacts associated with construction and operation of the Desalination Plant Site Option 3 would be similar to the MPWSP Desalination Plant.

TABLE 7-7 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS –DESALINATION PLANT SITE OPTIONS

Environmental Topic Area	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 Parcel *(new construction)*
Public Services and Utilities (cont.)	*Operations and Maintenance:* Operation and maintenance of the MPWSP Desalination Plant would have a 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. Furthermore, the impacts would be LSM as the MPWSP Desalination Plant could result exceed wastewater treatment requirements of the Central Coast RWQCB. The MPWSP Desalination Plant 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 no impact would occur.		
Aesthetics	*Construction Activities:* Construction of the MPWSP Desalination Plant would have a 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 of the MPWSP Desalination Plant would have a LS impact on aesthetics resources.	**Similar** – The impacts associated with construction and operation of the Desalination Plant Site Option 2 would be similar to the MPWSP Desalination Plant.	**Increased** – This desalination site option would be located within 500 feet of nearby residences, which could be affected by night time lighting. Implementation of the mitigation identified for the proposed project would reduce this impact to LS. However, all other impacts would likely be similar to the MPWSP Desalination Plant.
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, no impact to historical resources would result from construction of the MPWSP Desalination Plant. The potential inadvertent discovery of human remains is considered a significant impact, however could be mitigated to LS. Construction of the MPWSP Desalination Plant would result in a LS impact related to the direct or indirect destruction of a unique paleontological resource or site, or unique geologic feature during construction.	**Similar** – The impacts associated with construction and operation of the Desalination Plant Site Option 2 would be similar to the MPWSP Desalination Plant.	**Similar** – The impacts associated with construction and operation of the Desalination Plant Site Option 3 would be similar to the MPWSP Desalination Plant.

TABLE 7-7 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS –DESALINATION PLANT SITE OPTIONS

Environmental Topic Area	**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 Parcel** *(new construction)*
Agriculture and Forest Resources	*Construction Activities:* Construction of the MPWSP Desalination Plant would have no impact 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 of the MPWSP Desalination Plant would have no impact on agricultural resources.	**Similar** – The impacts associated with construction and operation of the Desalination Plant Site Option 2 would be similar to the MPWSP Desalination Plant.	**Similar** – The impacts associated with construction and operation of the Desalination Plant Site Option 3 would be similar to the MPWSP Desalination Plant.
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, the impacts of the MPWSP Desalination would have be LS. *Operations and Maintenance:* For the reasons stated above operation and maintenance of the MPWSP Desalination would have a LS impact to mineral resources.	**Similar** – The impacts associated with construction and operation of the Desalination Plant Site Option 2 would be similar to the MPWSP Desalination Plant.	**Similar** – The impacts associated with construction and operation of the Desalination Plant Site Option 3 would be similar to the MPWSP Desalination Plant.
Energy Resources	*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.	**Similar** – The impacts associated with construction and operation of the Desalination Plant Site Option 2 would be similar to the MPWSP Desalination Plant.	**Similar** – The impacts associated with construction and operation of the Desalination Plant Site Option 3 would be similar to the MPWSP Desalination Plant.

TABLE 7-7 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS –DESALINATION PLANT SITE OPTIONS

Environmental Topic Area	**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 Parcel** *(new construction)*
Energy Resources (cont.)	*Operations and Maintenance:* While operation and maintenance of the MPWSP Desalination Plant (and other MPWSP components) 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 MPWSP Desalination Plant operation, in conjunction with other MPWSP components, on local or regional energy supplies or the need for expanded generation or transmission facilities would also be LS.		
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 MPWSP Desalination Plant (and all other project components) would not create employment opportunities substantially greater than would normally be available to construction workers in the area. *Operations and Maintenance:* During operation, 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** – The impacts associated with construction and operation of the Desalination Plant Site Option 2 would be similar to the MPWSP Desalination Plant.	**Similar** – The impacts associated with construction and operation of the Desalination Plant Site Option 3 would be similar to the MPWSP Desalination Plant.

7.8 Conclusions for Intake, Outfall and Desalination Plant Options

The evaluation in Section 7.7 compared intake, discharge and desalination plant options against the same components of the proposed project. Of the seven intake options evaluated, two were carried forward into the development of whole alternatives -- Option #3 Slant Wells at Potrero Road, and Option #9 Open Water at Moss Landing (Deep Water Desal). Because all outfall options evaluated would have greater construction-related impacts than the proposed project (which would utilize the existing MRWPCA outfall without modification), only the existing MRWPCA outfall was carried forward into the development of whole alternatives. The Charles Benson Road desalination plant site was also carried forward since neither of the other options offered any advantage to, and did not reduce any significant impacts of, the proposed project.

7.8.1 Intake Options

As discussed above in Section 7.6.1.3, the CCC, Monterey Bay National Marine Sanctuary, SWRCB, and other resources agencies will not consider permitting an open-water intake unless a subsurface intake has been deemed infeasible or would result in greater environmental impacts. Intake Option #3, Slant Wells at Potrero Road, would provide an optional location for slant wells that would be located behind the dunes, in a parking lot. This location would avoid impacts to and from coastal erosion and would reduce potential impacts to sensitive biological resources when compared to the 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 and would have increased noise and access impacts to nearby residences.

Ranney wells, while not being carried forward into a whole alternative, offer an opportunity to replace slant well technology at either the CEMEX or the Potrero Road site if necessary.

Although not anticipated, it is possible that a subsurface intake will be deemed infeasible. If it were not possible to implement a subsurface intake for the MPWSP, CalAm would need to consider an open-water intake. The modification of the outfall at National Refractories to convert it into an open water intake (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, replace it with a riser and wedgewire screen, in addition to whatever (currently un-defined) structural modifications would be required to secure the infrastructure for its intended use. This open water option was not carried forward.

A new open water intake north of CEMEX (Option #2) and a new open water intake at Potrero Road (Option #4) may be feasible, but would be problematic. Both locations and construction techniques would avoid impacts to and from coastal erosion, but both options would impact agricultural or residential land uses on the inland side, and would have greater noise impacts during construction than the other open water options evaluated. No entrainment or impingement studies have been performed at either of these locations. Neither of these options was carried forward.

Open water options at Moss Landing would avoid the noise and construction impacts at North of CEMEX and Potrero Road because of the industrial land uses in the area. Of the Moss Landing open water options evaluated, Intake Option #8 (MLPP) would have fewer construction-related impacts because it involves a modification to an existing facility. Option #9 (Deep Water Desal) would have fewer operational impacts because of its proposed location and design: studies conducted by Deep Water Desal suggest the abundance of marine species is reduced at this deep water location. When compared to the other open water intakes evaluated, this alternative could have fewer impacts from impingement and entrainment than the other open water intakes considered. Therefore, Option #9 was carried forward.

7.8.2 Outfall Options

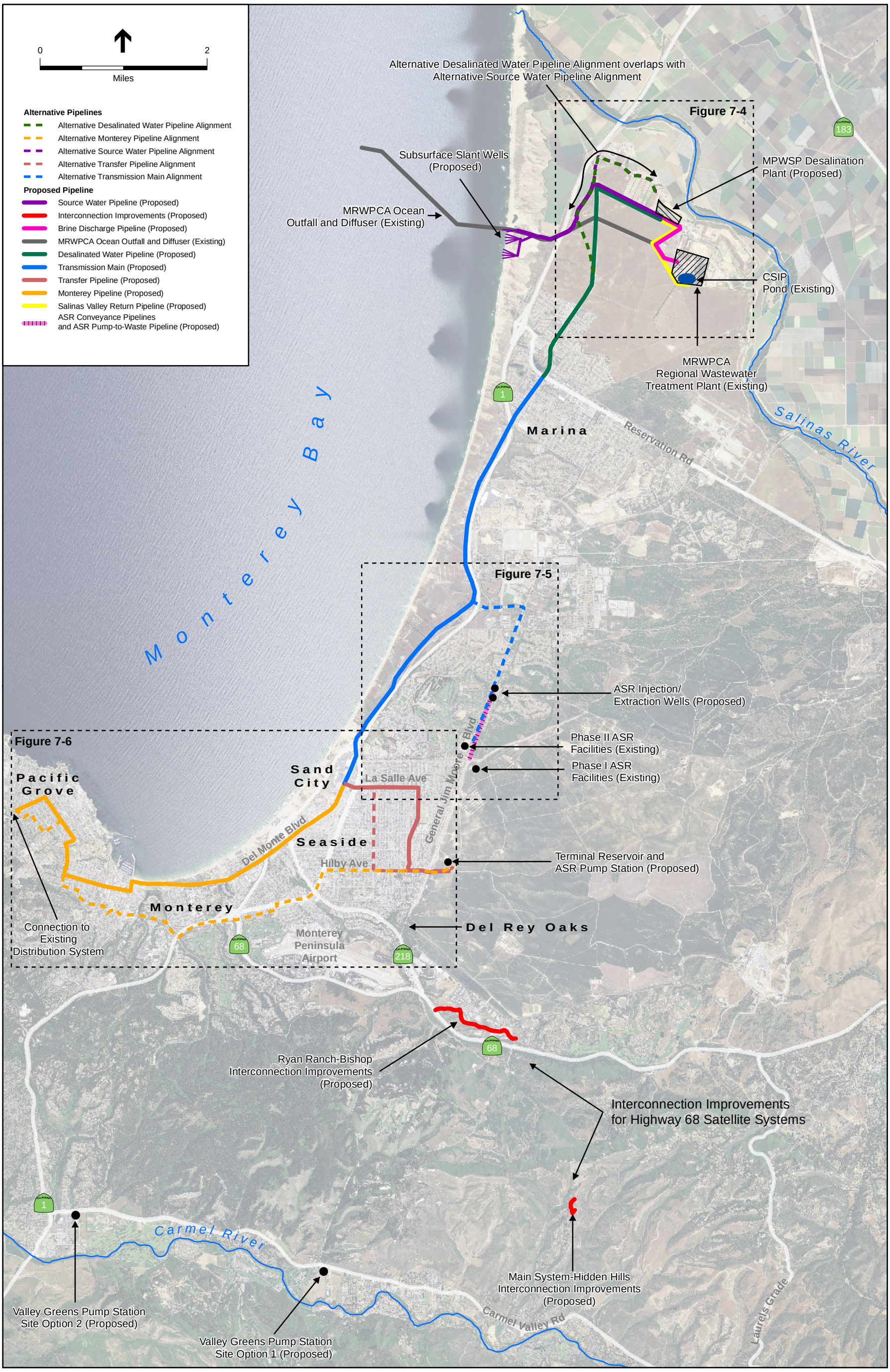
The only outfall option not requiring new construction or any physical modification is the proposed project's use of the existing MRWPCA outfall. All other outfall options would require some modification and/or ocean floor construction. There is nothing suggesting the proposed use of the existing MRWPCA outfall is not feasible and the other outfall options do not avoid or minimize any potential impacts. Therefore, the proposed use of the MRWPCA outfall was carried forward.

7.8.3 Desalination Plant Site Options

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 (National Refractories or East Parcel at MLPP). For this reason, and due to the fact that CalAm already owns the location, the Charles Benson Road site alone was carried forward.

7.9 Alternative Pipeline Alignments

This analysis presents alternative pipeline alignments for the Source Water Pipeline, Desalinated Water Pipeline, Transmission Main, Monterey Pipeline, and Transfer Pipeline that, in general, address potential logistical and/or construction issues associated with certain segments of the pipelines of the proposed project. In 2013, CalAm contracted with URS Corporation to provide permitting and engineering services associated with the pipelines of the proposed project. URS Corporation surveyed local jurisdictions and municipal and utility districts to identify potential issues associated with the proposed project's pipelines. Although none of the pipelines of the proposed project were determined to be fatally flawed, in April 2014, URS Corporation provided the CPUC a memo articulating alternative pipeline alignments that could minimize certain construction and logistical constraints (URS, 2014a). The following sections present a set of alternative pipeline alignments that CalAm (through URS Corporation) has reviewed with the affected local jurisdictions. The alternative alignments for individual pipelines are described below in Section 7.9.1. In Section 7.9.3, and the individual pipelines are then grouped into alternative pipeline configurations that could be used in lieu of the proposed project pipeline configuration shown in **Figure 7-3**.



SOURCE: ESA, 2014

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Figure 7-3

Index Map: Alternative Pipeline Alignments

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7.9.1 Description of the Alternative Pipeline Alignments

Table 7-8, below, summarizes the proposed project pipeline alignments and alternative pipeline alignments. Construction techniques for the alternative pipeline alignments are assumed to be the same as for the proposed project alignments, unless otherwise noted. All of the alternative pipeline alignments, when coupled with the other project facilities or alternative options to those facilities, would meet the project objectives and are all technically and logistically feasible. The proposed alignments and the alternative alignments are summarized below.

7.9.1.1 Source Water Pipeline

Proposed Project Alignment

The proposed project Source Water Pipeline would be 2.2 miles long. The proposed Source Water Pipeline would generally follow the CEMEX access road east for approximately 0.7 mile, and approximately 500 feet east of Highway 1 would veer northeast along a dirt path for roughly 1,000 feet to Lapis Road and continue north along Lapis Road for about 0.5 mile. Just south of where Lapis Road meets Del Monte Boulevard, the pipeline would then turn east across Del Monte Boulevard and continue east along Charles Benson Road for approximately 0.8 mile to the MPWSP Desalination Plant.

Alternative Alignment

The Alternative Source Water Pipeline would be approximately 2.6 miles long. The western 1.3 miles of this alternative pipeline, originating from the CEMEX active mining area, would have the exact same alignment as that of the proposed project. The eastern 1.3 miles of this alternative pipeline would be different starting at the intersection of Lapis Road/Del Monte Boulevard, where the Alternative Source Water Pipeline alignment would continue north across Del Monte Boulevard and along an existing dirt access road to Neponset Road. At Neponset Road the pipeline would turn east and continue along Neponset Road for roughly 0.8 mile to the proposed MPWSP Desalination Plant site (URS, 2014b).

7.9.1.2 Desalinated Water Pipeline

Proposed Project Alignment

The proposed project Desalinated Water Pipeline would be approximately 3.3 miles long and would extend west from the MPWSP Desalination Plant for approximately 0.8 mile along Charles Benson Road, parallel to and south of the proposed Source Water Pipeline. At Del Monte Boulevard, the Desalinated Water Pipeline would cross Del Monte Boulevard and turn south, then continue along the west side of Del Monte Boulevard, within the Monterey Peninsula Recreation Trail, for approximately 2.5 miles to a connection with the proposed Transmission Main at Reservation Road.

TABLE 7-8
ALTERNATIVE PIPELINE ALIGNMENTS

Proposed Project Pipeline Alignment	Key Construction Considerations	Alternative Pipeline Alignment
Source Water Pipeline – From the subsurface slant wells in the CEMEX active mining area, the proposed 2.2-mile-long pipeline would follow the CEMEX access road for approximately 0.7 mile, veer northeast along a dirt path to Lapis Road, and continue north along Lapis Road. Just south of where Lapis Road meets Del Monte Boulevard, the pipeline would then turn east, cross Del Monte Boulevard, and continue east along Charles Benson Road for approximately 0.8 mile to the proposed MPWSP Desalination Plant site.	• Discussions with Monterey County Regional Waste Management District (MCRWMD) indicate that daytime construction in Charles Benson Road could affect municipal waste haul truck traffic (URS, 2014). • Implementation of the alternative pipeline alignments for both the Source Water Pipeline and Desalinated Water Pipeline would avoid 0.8-mile of in-road construction activities along Charles Benson Road.	**Alternative Source Water Pipeline** • 2.6-mile-long pipeline • Western 1.3 mile (from CEMEX active mining area to intersection of Lapis Road/Del Monte Boulevard) would be identical to the EIR proposed project pipeline alignment. • Eastern 1.3 mile would be different: from the intersection of Lapis Road/Del Monte Boulevard, the alternative pipeline alignment would continue north across Del Monte Boulevard and along an existing dirt access road to Neponset Road. At Neponset Road the pipeline would turn east and continue along Neponset Road for roughly 0.8 mile to the proposed MPWSP Desalination Plant site. • Alternative Source Water Pipeline alignment would be implemented together with the Alternative Desalinated Water Pipeline alignment (below).
Desalinated Water Pipeline – From the proposed MPWSP Desalination Plant site, the 3.3-mile-long proposed pipeline would be aligned west along Charles Benson Road for 0.8 mile to Del Monte Boulevard. At Del Monte Boulevard, the Desalinated Water Pipeline would cross Del Monte Boulevard and turn south, then continue on the west side of Del Monte Boulevard within the Monterey Peninsula Recreational Trail and/or the TAMC rights-of-way to it's connection with the proposed Transmission Main at Reservation Road.	• See considerations for Charles Benson Road, above. • In addition, because this alternative alignment would avoid construction alongside 1 mile of Del Monte Boulevard, this alignment would also minimize construction-related traffic impacts along Del Monte Boulevard associated with the movement of construction vehicles in and out of the roadway (URS, 2014).	**Alternative Desalinated Water Pipeline** • 3.8-mile-long pipeline • Northern 2.4 miles would be different than the proposed project pipeline alignment: from the proposed MPWSP Desalination Plant site, the alternative alignment would be routed west along Neponset Road for roughly 0.8 mile to an existing dirt access road, turn south, and then continue along the access road to the intersection of Lapis Road/Del Monte Boulevard. The alternative pipeline alignment would continue south along Lapis Road to Del Monte Boulevard. • Southern 1.4 mile would be identical to the EIR proposed project pipeline. • Alternative Desalinated Water Pipeline would be implemented together with the Alternative Source Water Pipeline (above).
Transmission Main – From Reservation Road, the 6-mile-long, Transmission Main would be routed south along the west side of Del Monte Boulevard, within the Monterey Peninsula Recreational Trail and/or TAMC rights-of-way, to the intersection of Del Monte Boulevard and Auto Center Parkway.	• Similar construction techniques between the MPWSP and Alternative Transmission Main pipelines. • The MPWSP and Alternative Transmission Main pipeline alignments would be located within TAMC and/or FORA right(s) of way. The Alternative Transmission Main alignment segment north of the MPSWP ASR-5 and -6 would be adjacent to land on the east of General Jim Moore Boulevard that could require NEPA approval should the alternative pipeline be located within those lands.	**Alternative Transmission Main** • 5.3-mile-long pipeline • Northern 2.9 miles (from Reservation Road to Highway 1/Lightfighter Drive interchange) would be identical to the proposed project alignment. • At Highway 1/Lightfighter Drive interchange, the alternative alignment would veer east and continue along Lightfighter Drive for 0.7 mile to General Jim Moore Boulevard. The alternative alignment would turn and continue south along General Jim Moore Boulevard for approximately 1.9 miles to connect CalAm's existing water supply distribution system at the General Jim Moore Boulevard/Coe Avenue intersection.

TABLE 7-8 (Continued)
ALTERNATIVE PIPELINE ALIGNMENTS

Proposed Project Pipeline Alignment	Key Construction Considerations	Alternative Pipeline Alignment
Transfer Pipeline – From the intersection of Del Monte Boulevard and Auto Center Parkway, the proposed 2.4-mile-long Transfer Pipeline would be routed east along Auto Center Parkway and La Salle Avenue for approximately 0.9 mile to Yosemite Street, turn south and continue for approximately 1 mile to Hilby Avenue, and then continue east for approximately 0.4 mile along Hilby Avenue to the proposed ASR Pump Station and Terminal Reservoir site.	• Similar construction techniques between the MPWSP and Alternative Transfer Pipelines. • The Transmission Main alignment would be located within TAMC and/or FORA right(s)-of-way.	**Alternative Transfer Pipeline** • 2.4-mile-long pipeline • The Alternative Transfer Pipeline would start at the same location as the MPWSP Transfer Pipeline at the intersection of Del Monte Boulevard and Auto Center Parkway. The Alternative Transfer Pipeline would be constructed within TAMC right-of-way from this point to La Salle Avenue east for approximately 0.3 mile, then head south within Noche Buena Street for approximately one mile, then head east within Hilby Avenue for approximately 1 mile to the intersection with General Jim Moore Boulevard, continuing approximately 0.3 mile east along Watkins Gate Road to the ASR Pump Station and Terminal Reservoir Site.
Monterey Pipeline - From the intersection of Del Monte Boulevard/Auto Center Parkway, the proposed 5.4-mile-long Monterey Pipeline would be routed southwest along the west side of Del Monte Boulevard, generally following the Monterey Peninsula Recreational Trail and TAMC right-of-way. The alignment would pass under Highway 1, and in front of the Naval Postgraduate School and El Estero Park. East of El Estero Park, the pipeline would turn south on Figueroa Street and west along Franklin Street. At High Street, the alignment would bear north and traverse the Presidio of Monterey by paralleling an existing CalAm pipeline in an existing CalAm easement. At the western boundary of the Presidio of Monterey, the alignment would continue on to Spencer Street. The alignment would then turn from Spencer Street southwest on Eardley Street and terminate near the existing Eardley Pump Station.	• Similar construction techniques, except the Alternative Monterey Pipeline alignment would avoid contaminated plumes of groundwater, and use jack-and-bore construction techniques at major road intersections, such as at the Fremont Road and Highway 218 intersection, to avoid traffic impacts. • The Transmission Main alignment would be located within the TAMC right of way. • Alternative Monterey Pipeline Alignment would avoid the CCC jurisdiction and shallow groundwater.	**Alternative Monterey Pipeline** • 7.2-mile-long pipeline • The Alternative Monterey alignment would begin at the ASR Pump Station and Terminal Reservoir Site in the east, and would proceed west along Watkins Gate Road and Hilby Avenue for approximately 1.6 miles, then head south along Fremont Boulevard/Steer. for approximately 0.8 mile. The alternative alignment would be installed beneath Highway 218 using jack-and-bore construction. At Fremont Street/Airport Road, the pipeline would turn southeast and continue along Airport Road for approximately 0.1 mile, then south/southwest along Fairground Road for approximately 0.5 mile to Highway 68. At the Fairgrounds Road/Mark Thomas Drive bridge over Highway 68, the pipe would be supported on a 400-foot-long truss pipe bridge alongside and under the existing road bridge. The alternative alignment would then continue south/southwest along Mark Thomas Drive for approximately 0.8 mile, then northwest along Aguajito Road for approximately 0.25 mile, then west on Fremont Street approximately 0.7 mile, then west on Webster Street for approximately 0.1 mile, then northwest along Hartnell Street for approximately 0.1 mile, then west on Pol Street to Madison Street approximately 0.4 mile, then north on Monroe Street for approximately 0.06 mile, then west on Jefferson Street for approximately 0.2 mile, then north on High Street for approximately 0.13 mile until meeting the same route along High Street and Stillwell Road in the Presidio of Monterey and north on Spencer. The Alternative Monterey Pipeline alignment would then be constructed from Spencer Street within Hoffman Avenue for approximately 0.25 mile southwest, then northwest within Lily Street, then southwest within Withers Avenue, then north within Sinex Avenue approximately 0.1 mile to the Eardley Pump Station.

Alternative Alignment

The Alternative Desalinated Water Pipeline would be approximately 3.8 miles long. The northern 2.4 mile of this alternative pipeline alignment would be different than the EIR proposed project pipeline alignment (see **Figure 7-4**). From the proposed MPWSP Desalination Plant site, this alternative pipeline alignment would be routed west along Neponset Road for roughly 0.8 mile to an existing dirt access road, turn south, and then continue along the access road to the intersection of Lapis Road/Del Monte Boulevard. This alternative pipeline alignment would continue south along Lapis Road to Del Monte Boulevard (URS, 2014b). The southern 1.4 miles of this alternative pipeline would be identical to the proposed project's Desalinated Water Pipeline. At the intersection of Beach Road and Del Monte Boulevard the Alternative Desalinated Water Pipeline would be installed using the jack and bore methods under Beach Road. Just north of Reservation Road the Alternative Desalinated Water Pipeline would be installed using microtunnelling under Reservation Road and the adjacent wetland.

7.9.1.3 Transmission Main

Proposed Project Alignment

The proposed project Transmission Main would be 6 miles long. It would parallel Del Monte Boulevard from Reservation Road in the north, and continue along the west side of Highway 1 to the intersection of Del Monte Boulevard and La Salle Avenue in the south.

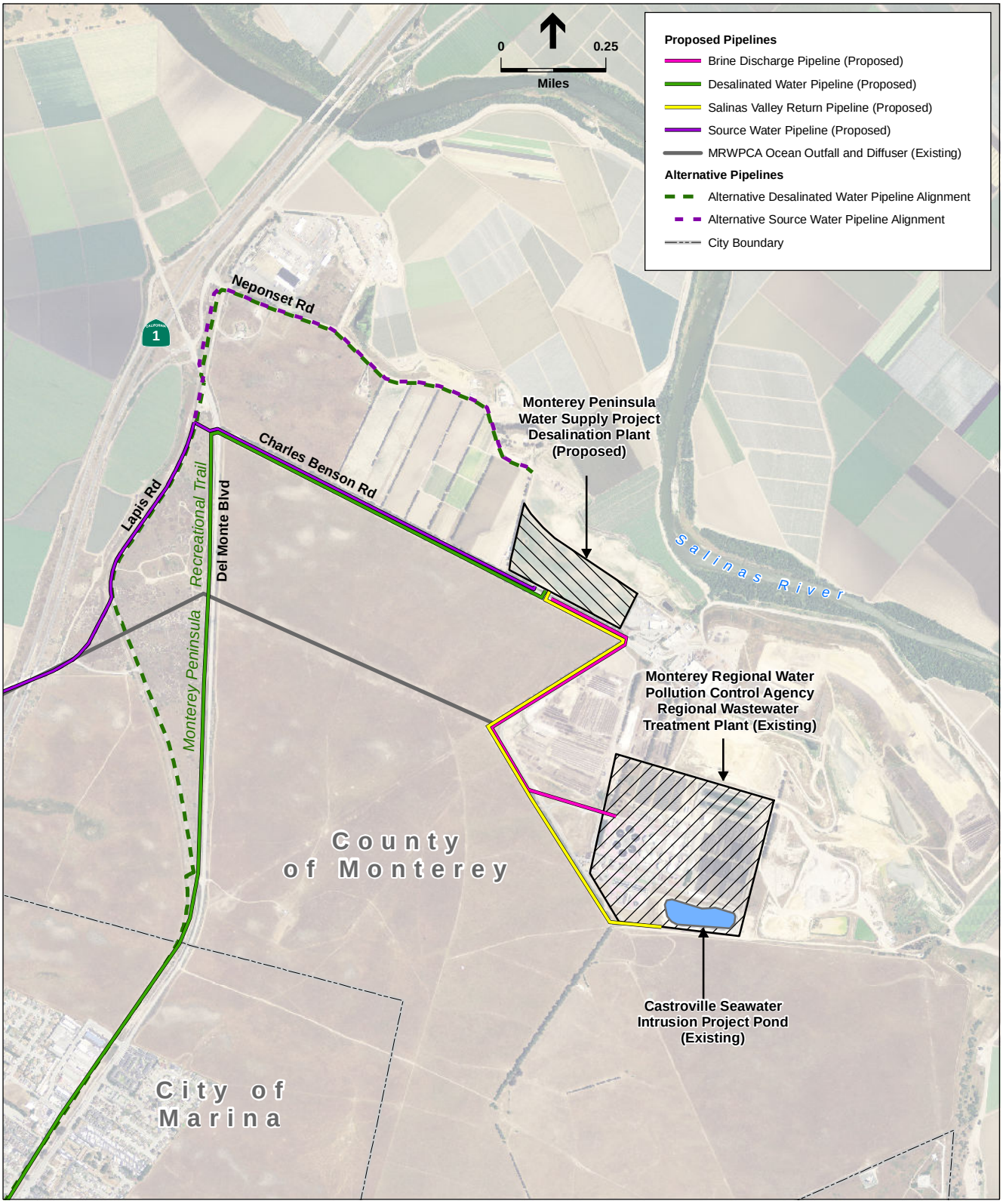
Alternative Alignment

The Alternative Transmission Main would be 5.3 miles long. The northern 2.9 miles (from Reservation Road to the Highway 1/Lightfighter Drive interchange) would be identical to the proposed project alignment (see **Figure 7-5**). At the Highway 1/Lightfighter Drive interchange, the Alternative Transmission Main would be installed using jack and bore methods under Highway 1. At Lightfighter Drive, the Alternative Transmission Main would turn east and continue along Lightfighter Drive to General Jim Moore Boulevard, where it would turn south, continue along General Jim Moore Boulevard and terminate at General Jim Moore Boulevard and Hilby Avenue (URS, 2014b). The southern 2.4 miles of this alignment are entirely within existing paved road rights-of-way.

7.9.1.4 Transfer Pipeline

Proposed Project Alignment

The proposed project Transfer Pipeline would be 2.4 miles long. From the intersection of Del Monte Boulevard/La Salle Avenue, the proposed Transfer Pipeline would be routed east along La Salle Avenue for approximately 0.9 mile to Yosemite Street, then turn south and continue for approximately 1 mile to Hilby Avenue, and then continue east for approximately 0.4 mile along Hilby Avenue to the ASR Pump Station and Terminal Reservoir. With the exception of the last 1,300 feet located east of General Jim Moore Boulevard, the rest of the proposed project Transfer Pipeline alignment would be within existing paved road rights-of-way.



SOURCE: ESA, 2014

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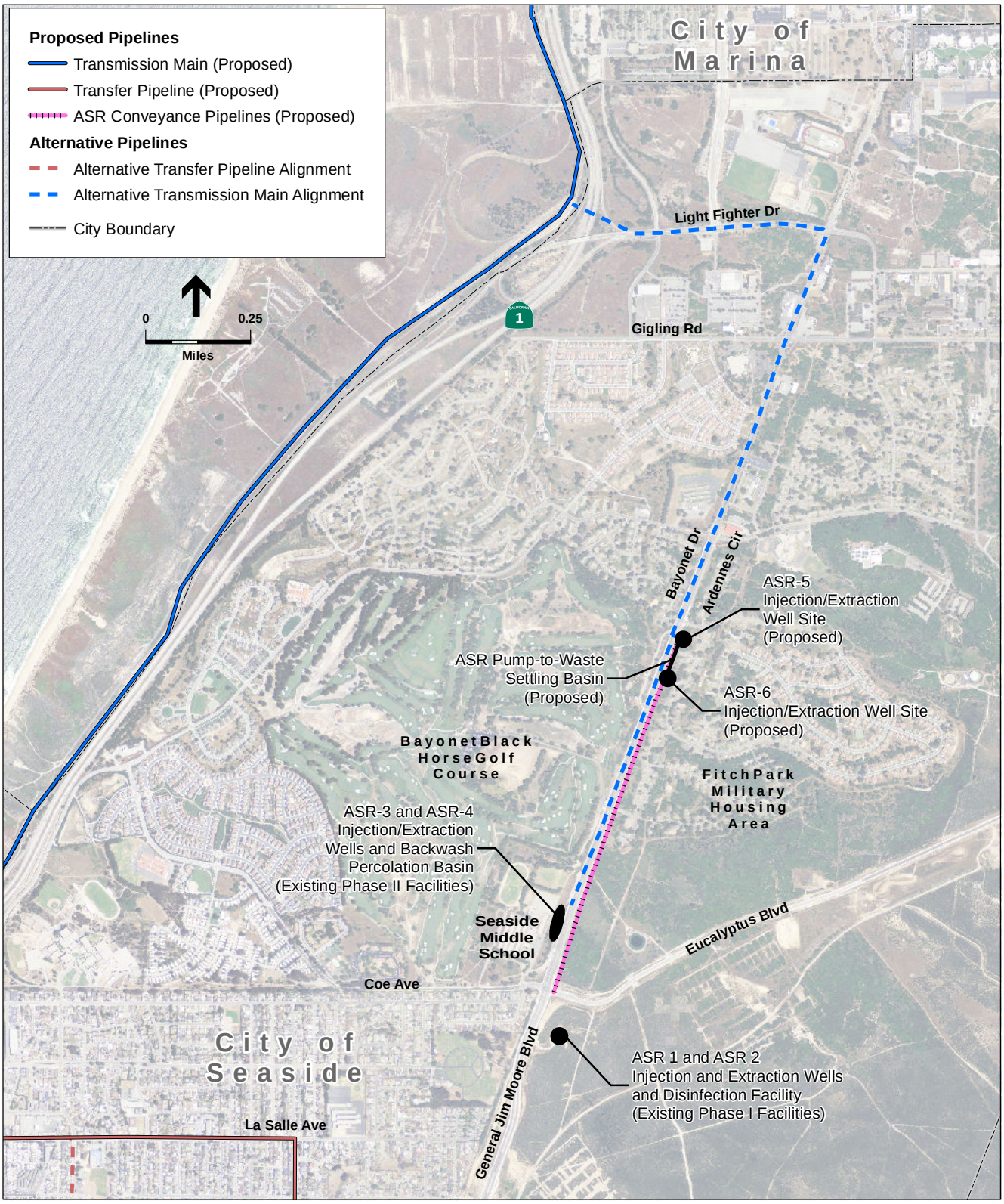
Figure 7-4

Alternative Source Water Pipeline and Alternative Desalinated Water Pipeline



SOURCE: ESA, 2013

205335.01 Monterey Peninsula Water Supply Project

Figure 7-5

Alternative Transmission Main

Alternative Alignment

The Alternative Transfer Pipeline would be 2.4 miles long. From the intersection of Del Monte Boulevard/La Salle Avenue, the Alternative Transfer Pipeline would be routed east along La Salle Avenue for approximately 0.3 mile to Noche Buena Street (this first segment is the same as proposed project alignment, see **Figure 7-5**). At Noche Buena Street, the Alternative Transfer Pipeline would turn south for 1 mile along Noche Buena Street to Hilby Avenue. At Hilby Avenue, the Alternative Transfer Pipeline would turn east and continue along Hilby Avenue for approximately 1 mile to the ASR Pump Station and Terminal Reservoir (URS, 2014b). With the exception of the last 1,300 feet located east of General Jim Moore Boulevard, the rest of the Alternative Transfer Pipeline alignment would be within existing paved road rights-of-way exactly the same as the proposed project.

7.9.1.5 Monterey Pipeline

Proposed Project Alignment

The proposed project Monterey Pipeline would be 5.4 miles long. From the intersection of Del Monte Boulevard/La Salle Avenue, the proposed Monterey Pipeline would be routed southwest on the west side of Del Monte Boulevard, generally following the Monterey Peninsula Recreational Trail and TAMC right-of-way. The alignment would pass under Highway 1, and in front of the Naval Postgraduate School and El Estero Park. East of El Estero Park, the pipeline would turn south on Figueroa Street and west along Franklin Street. At High Street, the alignment would bear north and traverse the Presidio of Monterey by paralleling an existing CalAm pipeline in an existing CalAm easement. At the western boundary of the Presidio of Monterey, the alignment would continue on to Spencer Street. The alignment would then turn from Spencer Street southwest on Eardley Street and terminate near the existing Eardley Pump Station.

Alternative Alignment

The Alternative Monterey Pipeline would be 7.2 miles long. Like the proposed project, from the Terminal Reservoir/ASR Pump Station site, the alternative pipeline would run west for approximately 1,300 feet along a dirt access road in the former Fort Ord military base to General Jim Moore Boulevard (see **Figure 7-6**). From the intersection of General Jim Moore Boulevard/Hilby Avenue, the pipeline would continue west along Hilby Avenue to Fremont Boulevard. At the intersection of Fremont Boulevard and Canyon Del Rey Boulevard, the pipeline would be installed using jack and bore construction methods under Canyon Del Rey Boulevard. From there the route would head generally southwest along Fremont Street and Mark Thomas Drive to Aquajito Road.

At the Fairgrounds Road/Mark Thomas Drive bridge over Highway 68, the pipeline would be supported on an approximately 400-foot-long truss pipe bridge alongside the existing road bridge below bridge railing height. From the intersection of Mark Thomas Drive/Aquajito Road, the alternative alignment would head northwest along Aquajito Road to Fremont Street and continue west along Fremont Street, Munras Street, and Webster Street. At the intersection of Webster Street/Hartnell Street, the alternative alignment would turn northwest onto Hartnell Street. The

pipeline would cross over Hartnell Gulch within the existing roadway. From the intersection of Hartnell Street/Madison Street, the alternative alignment would continue northwest along Madison Street to Monroe Street. The pipeline would turn north onto Monroe Street, west onto Jefferson Street, and north onto High Street.

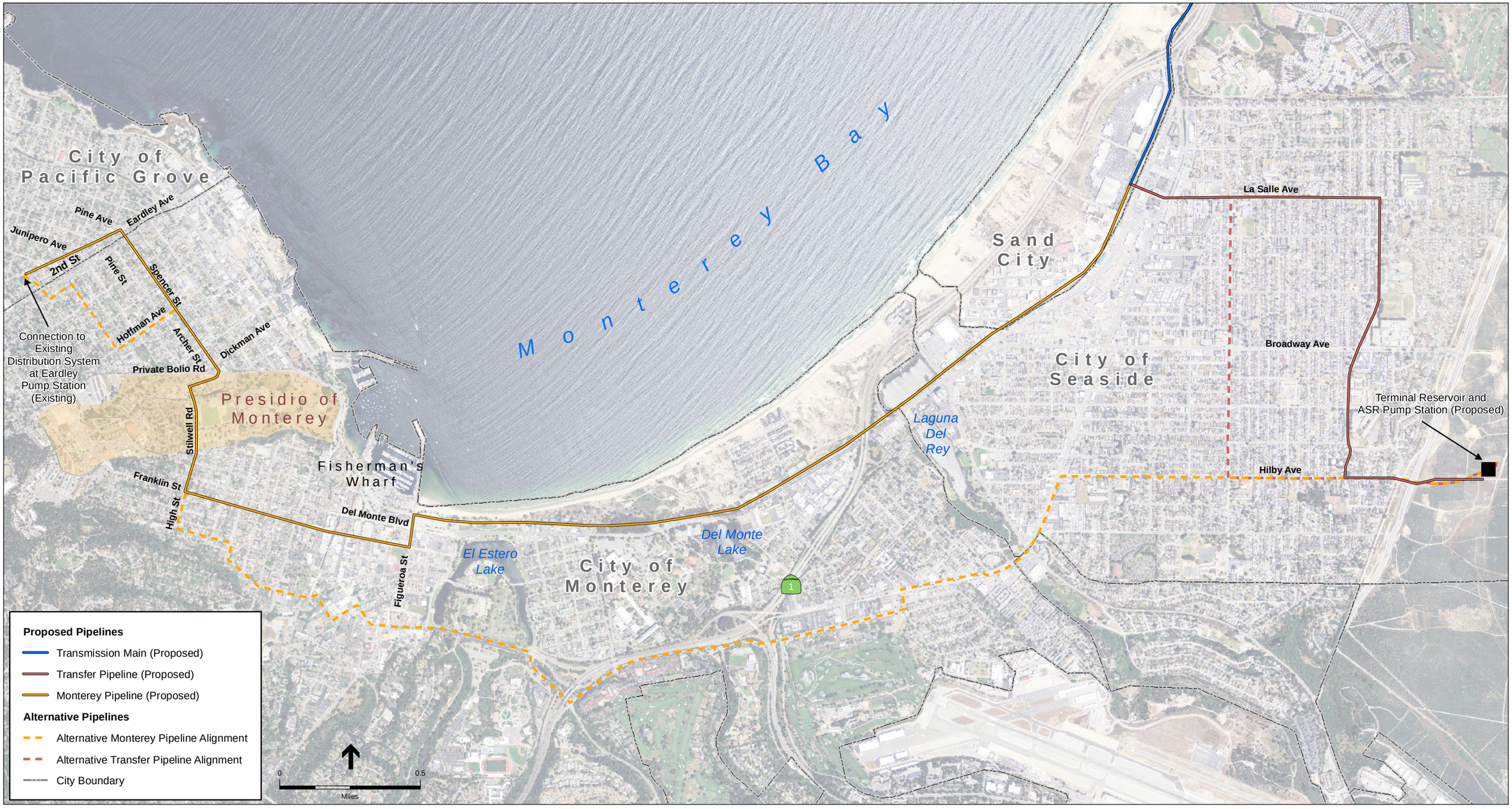
The 0.8-mile segment between the intersection of High Street/Franklin Street and the intersection of Spencer Street/Hoffman Avenue would be the same as the proposed project alignment. At Spencer Street/Hoffman Avenue, the alternative alignment would head southwest along Hoffman Avenue, northwest along Lily Street, west along Withers Avenue, and northwest along Filmore Street and Sinex Avenue, terminating at a new connection with the CalAm distribution system near the Eardley Pump Station (URS, 2014b). With the exception of the 1,300-foot-long segment located east of General Jim Moore Boulevard in the former Fort Ord military base and the 400-foot-long segment that would be suspended in a truss bridge alongside the Fairgrounds Road/Mark Thomas Drive bridge over Highway 68, the rest of the alternative alignment would be located entirely within existing paved road rights-of-way.

7.9.2 Comparison of the Alternative Pipeline Alignments with the Proposed Project Pipeline Alignments

Tables 7-9 through **7-13** compare the impacts of the alternative pipeline alignments with the impacts of the respective proposed project pipeline alignments. The alternative pipeline alignments described above could be implemented altogether or independently, with some exceptions, in lieu of the corresponding proposed project pipeline segments. In general, the pipeline installation activities along the alternative pipeline alignments would entail the same kinds of construction equipment and techniques as the proposed project pipeline alignments. As shown in **Tables 7-9** through **7-13**, most of the alternative pipeline alignments would result in impacts similar to the proposed pipeline alignments. In general, where the alternative pipeline alignments are shorter, impacts from construction activities are less than the proposed project pipelines. Likewise, alternative pipeline alignments that are longer generally result in an increase in impacts as a result of a corresponding increase in construction activities. For those resources where impacts would be greater than the impacts of the proposed project, implementation of mitigation measures for the proposed project would reduce impacts to the significance levels indicated in Chapter 4 for each affected resource. The following is a summary of the impacts for each alternative pipeline segment compared to the proposed project, the details of which are provided in the previous tables:

7.9.2.1 Alternative Source Water Pipeline

The Alternative Source Water Pipeline would result in similar impacts to the proposed project Source Water Pipeline, except for impacts on aesthetics (i.e., impacts on the visual character and light and glare during nighttime construction on Neponset Road), air quality (i.e., dust from construction activities), and nighttime noise levels that would be slightly greater than the proposed project due to the closer proximity (i.e., 300 feet vs. 1,100 feet) of construction activities to two residences on Neponset Road and additional 0.4-mile of pipeline length. These



SOURCE: ESA, 2013

205335.01 Monterey Peninsula Water Supply Project

Figure 7-6

Alternative Pipelines South

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short-term and temporary impacts of the Alternative Source Water Pipeline would be less than significant or less than significant with the same mitigations as included in Chapter 4 for the proposed project, as indicated in **Table 7-9** below. The Alternative Source Water Pipeline alignment would eliminate traffic impacts of the proposed project Source Water Pipeline on truck traffic traveling to and from the MRWPCA and landfill on Charles Benson Road.

7.9.2.2 Alternative Desalinated Water Pipeline

The Alternative Desalinated Water Pipeline would also result in similar impacts as the proposed project, except for impacts on aesthetics (i.e., impacts on the visual character and light and glare during nighttime construction on Neponset Road), air quality (i.e., dust from construction activities), and noise and vibration that would be slightly greater than the proposed project due to closer proximity (i.e., 300 feet vs. 1,200 feet) to two residences and the greater length (roughly 0.5 mile longer) of the alternative pipeline route. These short-term and temporary impacts would be less than significant or less than significant with mitigations included in Chapter 4 for the proposed project, as indicated in **Table 7-10** below. The Alternative Desalinated Pipeline alignment would eliminate traffic impacts of the proposed project Desalinated Pipeline on truck traffic traveling to and from the MRWPCA and landfill on Charles Benson Road. The Alternative Desalinated Water Pipeline would also reduce the length of construction along the Monterey Peninsula Recreation Trail. Therefore, the Alternative Desalinated Water Pipeline would resulting in a significant reduction of impacts on traffic and recreation for these specific areas along the pipeline route compared to the proposed project Desalinated Water Pipeline. However, the significance conclusion of impacts from the Alternative Desalinated Water Pipeline would be the same as that of the proposed project.

7.9.2.3 Alternative Transmission Main

The Alternative Transmission Main would result in similar impacts to the proposed project, except it would have fewer overall impacts to special-status species and habitat due to its inland route within urban roadways, avoiding a significant amount of construction impacts of the proposed project pipeline alignment along the coast. Although the Alternative Transmission Main may conflict with the Fort Ord Habitat Management Plan (HMP) due to its alignment along General Jim Moore Boulevard, short-term and temporary construction activities would not impact habitat within the HMP as construction would be entirely within the roadway. The Alternative Transmission Main would also result in an increase in impacts on geology, soils and seismicity (i.e., potential to be located in potentially corrosive soil), aesthetics (i.e., impacts on the visual character along Lightfighter Dr., and Gen. Jim Moore Blvd.), air quality (i.e., dust from construction activities), and noise and vibration due to closer proximity to a greater number of residences and other sensitive receptors along Gen. Jim Moore Blvd. compared to the proposed project alignment. Although the Alternative Transmission Main would be in proximity to a greater number of sensitive receptors, it would not increase the number of receptors exposed to air quality, noise and vibration impacts per day of construction. These short-term and temporary impacts would be less than significant or less than significant with mitigations included in Chapter 4 for the proposed project, as identified in **Table 7-11**. Finally, the Alternative Transmission Main would have reduced impacts compared to the proposed project Transmission

Main related to surface fault rupture. However, the significance conclusion of impacts from the Alternative Transmission Main would be the same as that of the proposed project.

7.9.2.4 Alternative Transfer Pipeline

The Alternative Transfer Pipeline would have similar impacts to the proposed project because the route is the same length and is within the same general urban area of the City of Seaside. Unlike the proposed project, the Alternative Transfer Pipeline route would not be in close proximity to school, avoiding aesthetics, air quality, traffic, and noise and vibration impacts of the proposed project on three schools. These short-term and temporary impacts would be less than significant or less than significant with mitigations included in Chapter 4 for the proposed project, as identified in **Table 7-12**. However, the significance conclusion of impacts from the Alternative Transfer Pipeline would be the same as that of the proposed project.

7.9.2.5 Alternative Monterey Pipeline

The Alternative Monterey Pipeline would have similar impacts to the project on most resource areas, except, due to an increase in length (~1.8 miles longer), it would have slightly greater impacts to terrestrial biological resources (i.e., conflict with HMP), short-term impacts related to hazards and hazardous materials (i.e., construction activities within areas with known hazardous materials), and cultural resources (i.e., a greater number of historical and archeological sites located near the pipeline route).

Unlike the proposed project Monterey Pipeline, the Alternative Monterey Pipeline would result in the construction of a 1,300-foot long segment of pipeline east of General Jim Moore Boulevard to the Terminal Reservoir and ASR Pump Station within an area in the Seaside MRA and Fort Ord HMP area. This particular segment of pipeline would result in hazards and hazardous materials impacts related to exposure of workers to unexploded ordinance. In addition, this segment would conflict with the Fort Ord HMP, and could result in impacts to central maritime chapparal and special-status species. Although this segment is not included in the proposed project's Monterey Pipeline alignment, it is an element of the proposed project's Transfer Pipeline. While the Alternative Monterey Pipeline would result in increased impacts compared to the proposed project Monterey Pipeline for hazards and hazardous materials and biological resources, impacts would be short-term and temporary impacts would be less than significant or less than significant with mitigations included in Chapter 4 for the proposed project, as identified in **Table 7-13**.

Finally, the Alternative Monterey Pipeline would eliminate impacts of the proposed project Monterey Pipeline on: recreation along the Monterey Peninsula Recreation Trail; impacts on the pipeline from coastal retreat and erosion; and impacts on flooding related to tsunami and siting within a 100-year flood hazard area.

TABLE 7-9
COMPARISON OF ENVIRONMENTAL EFFECTS – ALTERNATIVE SOURCE WATER PIPELINE ALIGNMENT

Environmental Topic Area	**Proposed Project: Source Water Pipeline Route** *(new construction)*	**Alternative Source Water Pipeline Route** *(new construction)*
Geology, Soils, and Seismicity	***Construction Activities:*** Construction of the proposed project Source Water Pipeline would have a LSM impact associated with the potential to increase soil erosion or loss of topsoil. Mitigation Measures: 4.6-2b: Avoid, Minimize, and Compensate for Direct Construction Impacts to Sensitive Communities. 4.16-3: Measures to Minimize Indirect Effects on Agricultural Land. ***Operations and Facility Siting:*** Operation and maintenance of the proposed project Source Water Pipeline would have a LS impact as a result of the potential to expose people or structures to seismically-induced groundshaking, liquefaction, and lateral spreading. There would be no impact from the potential to expose people or structures to fault rapture, landslides, coastal retreat due to sea level rise, subsidence, expansive or corrosive soil. Mitigation Measures: None required.	***Construction Activities:*** **Similar** – Construction-related soil erosion would be similar to that of the proposed project alignment because the pipelines are roughly the same length (0.4 mile longer) and the associated ground disturbance area would be slightly increased. Compliance with the requirements of the NPDES Construction General Permit and local grading and erosion control ordinances would avoid substantial adverse effects. Like the proposed project, the alternative alignment would disturb vegetated areas and would result in a LSM impact related to loss of topsoil. Mitigation Measures: 4.6-2b: Avoid, Minimize, and Compensate for Direct Construction Impacts to Sensitive Communities. 4.16-3: Measures to Minimize Indirect Effects on Agricultural Land. ***Operations and Facility Siting:*** **Similar** – Operations and facility siting impacts would be similar to those of the proposed project Source Water Pipeline and would have the same level of impact significance as the proposed project alignment. Like the proposed project alignment, the alternative alignment is not close enough to faults to be vulnerable to surface fault rupture; therefore, there would be no impact. The alternative alignment is not located near active faults; therefore, there would be no impact. Like the proposed pipeline alignment, the alternative alignment would have no impact related to landslides because it would be located in an area with relatively flat to gently-sloping topography that is not susceptible to landslides. There would be no impact related to expansive soils because the alternative alignment is located in an area with low soil expansion properties. There would be no impact related to subsidence because pipelines are not used to extract groundwater. There would be no impact related to corrosive soils because the alternative alignment would be located in soils with a low corrosivity potential. All risks of seismically-induced groundshaking, liquefaction, and lateral spreading would be similar to the proposed project as LS because the alternative alignment would be designed in accordance with the recommendations of a design-level geotechnical investigation, the current California Building Code, and local ordinances regulating construction. Mitigation Measures: None required.

TABLE 7-9 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS – ALTERNATIVE SOURCE WATER PIPELINE ALIGNMENT

Environmental Topic Area	Proposed Project: Source Water Pipeline Route *(new construction)*	Alternative Source Water Pipeline Route *(new construction)*
Surface Water Hydrology and Water Quality	***Construction Activities:*** Construction of the proposed project Source Water Pipeline would have a LS impact related to degradation of water quality associated with increased soil erosion, sedimentation, and inadvertent releases of toxic chemicals during construction, and a LSM from construction-related discharges of dewatering effluent from open excavations. Mitigation Measures: 4.7-2b: Soil and Groundwater Management Plan. ***Operations and Facility Siting:*** The proposed project Source Water Pipeline would have no impact on potential to violate water quality standards or waste discharge requirements or result in an adverse water quality effect as a result of brine discharges, alteration of drainage patterns in a way that would increase erosion, siltation, the amount of surface runoff and increase flooding on- or offsite or the capacity of the stormwater drainage systems. The proposed project Source Water Pipeline would result in a LS impact from the potential to expose structures to a significant risk of loss, injury, or death from flooding due to sea level rise. The proposed project Source Water Pipeline would result in a LS impact from the restriction or redirection of flood flows due to the siting of the proposed project Source Water Pipeline in a 100-year flood hazard area. No impact would result from the exposure of people or structures to a significant risk of loss, injury, or death from flooding due to a tsunami. Mitigation Measures: None required.	***Construction Activities:*** **Similar** – All construction-related impacts to surface water hydrology and water quality would be similar to those of the proposed project Source Water Pipeline and would have the same level of impact significance as the proposed project alignment. The impact related to increased soil erosion and inadvertent releases of toxic chemicals during construction would be similar to that of the proposed project alignment because the two pipelines are similar in the length, and would result in about the same ground disturbance area. However, the impact would remain LS because construction activities would be conducted in accordance with the NPDES General Construction Permit. Although it is anticipated that most dewatering effluent from open excavations would be disposed of in accordance with the General WDRs, if discharges of dewatering effluent were to exceed the water quality limitations in the General WDRs, a significant impact would result. Like the proposed project alignment, this analysis conservatively assumes the alternative alignment would result in a LSM impact related to discharges of dewatering effluent from open excavations. Like the proposed project alignment, the impact related to degradation of water quality from discharges of disinfectant from the newly installed pipeline would be LS with mandatory compliance with the General WDRs. Mitigation Measures: 4.7-2b: Soil and Groundwater Management Plan. ***Operations and Facility Siting:*** **Similar** – Operations and facility siting impacts would be similar to those of the proposed project Source Water Pipeline and would have the same level of impact significance as the proposed project alignment. The Alternative Source Water Pipeline would have no impact related to discharges of brine or any other discharges associated with operations and maintenance. Once constructed, the Alternative Source Water Pipeline would be located entirely underground and the surface along the pipeline alignment would be restored to pre-construction conditions. Therefore, there would be no impacts related to long-term changes in drainage patterns. The Alternative Source Water Pipeline would be located within 100-year coastal flood hazard areas and in areas that would be subject to flooding from sea level rise. However, once constructed, the pipeline would be located underground and would not impede or redirect flood flows, nor be subject to a significant risk of flood damage from sea level rise. This impact would be LS. The Alternative Source Water alignment within a tsunami inundation zone. Therefore, no impact would result. Mitigation Measures: None required.

TABLE 7-9 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS – ALTERNATIVE SOURCE WATER PIPELINE ALIGNMENT

Environmental Topic Area	**Proposed Project: Source Water Pipeline Route** *(new construction)*	**Alternative Source Water Pipeline Route** *(new construction)*
Groundwater Resources	***Construction Activities:*** Construction of the proposed project Source Water Pipeline would have a LS impact related to substantial interference with groundwater recharge and depletion of groundwater supplies. Impact related to degradation of groundwater quality during pipeline installation activities would occur; impacts would be LS. Mitigation Measures: None required. ***Operations and Facility Siting:*** Operation and maintenance of the proposed project Source Water Pipeline would not deplete groundwater supplies, interfere substantially with groundwater recharge, or degrade groundwater quality. The proposed project Source Water Pipeline would have no impact on groundwater resources during operations. Mitigation Measures: None required.	***Construction Activities:*** **Similar** - Construction-related impacts of the Alternative Source Water Pipeline to groundwater would be the same as those of the proposed project alignment and would have the same level of impact significance as the proposed project. Because temporary construction dewatering would occur only in isolated areas and if groundwater is encountered in the pipeline trench, installation of the Alternative Source Water Pipeline alignment would have a LS impact related to depletion of groundwater supplies. Like the proposed project, the impact related to degradation of groundwater quality during pipeline installation activities would be LS. Mitigation Measures: None required. ***Operations and Facility Siting:*** **Similar** – Like the proposed project pipeline, operation and maintenance of the Alternative Source Water Pipeline would have no effect on groundwater resources, and no impact would result. Mitigation Measures: None required.
Marine Biological Resources	The proposed project Source Water Pipeline alignment would have no impact on marine biological resources. Mitigation Measures: None required.	**Similar** - Like the proposed project Source Water Pipeline alignment, the Alternative Source Water Pipeline alignment would have no impact on marine biological resources. Mitigation Measures: None required.
Terrestrial Biological Resources	***Construction Activities:*** Project-related construction activities would have a LSM related to the adverse effects on species identified as candidate, sensitive, or special-status, either directly or through habitat modification; riparian habitat, critical habitat, or other sensitive natural communities; federally protected wetlands, federal other waters, and/or waters of the State, through direct removal, filling, hydrological interruption; and, the conflict with local tree ordinances. Mitigation Measures: 4.6-1a: Retain a Lead Biologist to Oversee Implementation of Protective Measures.	***Construction Activities:*** **Similar** - The Alternative Source Water Pipeline would be located in proximity to the proposed project Source Water Pipeline route and within the same types of habitats. Installation of the Alternative Source Water Pipeline would likely impact approximately 1,000 additional linear feet of disturbed central dune scrub and 1,200 additional linear feet of coyote brush scrub, but this would not be significantly different from the impacts from installation of the proposed project Source Water Pipeline. The Alternative Source Water Pipeline would have LSM impact on the same candidate, sensitive, or special-status species and riparian habitat, critical habitat, or other sensitive natural communities as the proposed Source Water Pipeline.

TABLE 7-9 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS – ALTERNATIVE SOURCE WATER PIPELINE ALIGNMENT

Environmental Topic Area	**Proposed Project: Source Water Pipeline Route** *(new construction)*	**Alternative Source Water Pipeline Route** *(new construction)*
Terrestrial Biological Resources (cont.)	4.6-1b: Construction Worker Environmental Awareness Training and Education Program. 4.6-1c: General Avoidance and Minimization Measures. 4.6-1d: Avoidance and Minimization 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. 4.6-1l: Avoidance and Minimization Measures for Special-status Bats. 4.6-1n: Habitat Mitigation and Monitoring Plan. 4.6-1o: Avoidance and Minimization Measures for California Red-legged Frog and California Tiger Salamander 4.6-2a: Consultation with Local Agencies and the California Coastal Commission regarding Environmentally Sensitive Habitat Areas. 4.6-2b: Avoid, Minimize, and Compensate for Construction Impacts to Sensitive Communities. 4.6-4: Compliance with Local Tree Policies and Ordinances. 4.12-1b: General Noise Controls for Construction Equipment. 4.14-2: Site-Specific Construction Lighting Measures. ***Operations and Maintenance:*** Operation of the proposed project Source Water Pipeline would result in no impact to species identified as candidate, sensitive, or special-status, either directly or through habitat modification; riparian habitat, critical habitat, or other sensitive natural communities; and federally protected wetlands, federal other waters, and/or waters of the State. Furthermore, operation would not conflict with adopted habitat conservation plans, natural community conservation plans or other approved local, regional, or state habitat conservation plans, there would be no impact.	No additional potential wetlands or other waters are located within the Alternative Source Water Pipeline route compared to the proposed project Source Water Pipeline route. Similar to the proposed project, the CEMEX settling pond is located within 30 feet of the alternative alignment and another wetland is located approximately 90 feet north of northern part of alignment. The Alternative have would have LSM impacts to these wetlands, which is similar to the proposed project Source Water Pipeline. Like the proposed project alignment, tree removal or construction within the driplines of trees associated with installation of the alternative alignment could result in conflicts with the local tree ordinances, a LSM impact. 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: Avoidance and Minimization 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. 4.6-1l: Avoidance and Minimization Measures for Special-status Bats. 4.6-1n: Habitat Mitigation and Monitoring Plan. 4.6-1o: Avoidance and Minimization Measures for California Red-legged Frog and California Tiger Salamander 4.6-2a: Consultation with Local Agencies and the California Coastal Commission regarding Environmentally Sensitive Habitat Areas. 4.6-2b: Avoid, Minimize, and Compensate for Construction Impacts to Sensitive Communities. 4.6-4: Compliance with Local Tree Policies and Ordinances. 4.12-1b: General Noise Controls for Construction Equipment.

TABLE 7-9 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS – ALTERNATIVE SOURCE WATER PIPELINE ALIGNMENT

Environmental Topic Area	**Proposed Project: Source Water Pipeline Route** *(new construction)*	**Alternative Source Water Pipeline Route** *(new construction)*
Terrestrial Biological Resources (cont.)	Mitigation Measures: None required.	4.14-2: Site-Specific Construction Lighting Measures. ***Operations and Maintenance:*** **Similar** – Operations and maintenance impacts to terrestrial biological resources would be identical to those of the proposed project Source Water Pipeline and the alternative alignment would have the same level of impact significance as the proposed project alignment. No impact to 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. Furthermore, operation would not conflict with adopted habitat conservation plans, natural community conservation plans or other approved local, regional, or state habitat conservation plans, there would be no impact. Mitigation Measures: None required.
Hazards and Hazardous Materials	***Construction Activities:*** Construction of the proposed project Source Water Pipeline would have a LS impact associated with the potential to create a hazard to the public through the routine transport, use and disposal of hazardous materials and a LSM impact associated with the potential to release hazardous materials to the environment. The increased risk of fire during proposed project Source Water Pipeline construction would be a LS impact. There would be no impact from siting the proposed project Source Water Pipeline 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. Mitigation Measures: 4.7-2a: Health and Safety Plan. 4.7-2b: Soil and Groundwater Management Plan. ***Operations and Maintenance:*** Operation of the proposed project Source Water Pipeline would not involve the routine storage or use of hazardous materials. Thus, no impact would occur. There would be no impact from hazardous materials handling or hazardous emissions within 0.25 mile of a school during operation of the proposed project Source Water Pipeline and no impact on groundwater remediation activities. The proposed project Source Water Pipeline would not be located within an airport land use plan area; therefore, there would be no impact related to airport safety hazards.	***Construction Activities:*** **Similar** - Construction-related impacts to hazards and hazardous materials would be the same as those of the proposed project Source Water Pipeline alignment and would have the same level of impact significance as the proposed project alignment. Because construction activities would comply with numerous hazardous materials and stormwater regulations designed to ensure that hazardous materials are transported, used, stored, and disposed of in a safe manner, the impact related to the routine transport, use, and disposal of hazardous materials during pipeline installation activities would be LS. Like the proposed project alignment, past releases may have affected subsurface conditions at various locations along the alternative pipeline alignment. Therefore, the impact associated with the potential to release hazardous materials to the environment during construction would be LSM. The alternative alignment would be located on known hazardous materials sites. There are no schools located within 0.25 mile of the Alternative Source Water Pipeline alignment, therefore no impact would occur relate to handling hazardous materials or emitting hazardous emissions within 0.25 mile of a school during construction. The alternative alignment would not be located within an area classified by CAL FIRE as a High or Very High Fire Hazard Severity Zone (see **Figure 4.7-1**) (CAL FIRE, 2007); but, construction activities could temporarily increase fire risk. However, the impact related to wildfires would be LS because construction would comply with applicable California fire code regulations. Mitigation Measures: 4.7-2a: Health and Safety Plan. 4.7-2b: Soil and Groundwater Management Plan.

TABLE 7-9 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS – ALTERNATIVE SOURCE WATER PIPELINE ALIGNMENT

Environmental Topic Area	**Proposed Project: Source Water Pipeline Route** *(new construction)*	**Alternative Source Water Pipeline Route** *(new construction)*
Hazards and Hazardous Materials (cont.)	Mitigation Measures: None required.	***Operations and Maintenance:*** **Similar** – The Alternative Source Water Pipeline would result in the same operations and maintenance impacts to hazards and hazardous materials as the proposed project alignment. There would be no impacts related to the routine transport, use and disposal of hazardous materials, or hazardous materials handling or generation of hazardous emissions within 0.25 mile of a school during operations. The alternative alignment would not be located within an airport land use plan area; therefore, there would be no impact related to airport safety hazards. Mitigation Measures: None required.
Land Use, Land Use Planning, and Recreation	***Construction Activities:*** Construction of the source water pipeline could directly affect a small portion of the Class I pedestrian and bicycle path along Del Monte Boulevard at Lapis Road, and indirectly affect recreational opportunities generally (e.g., access to parklands) through increased traffic congestion and disruption of transit. Such disruptions would be temporary and limited to the project's construction phase. The source water pipeline construction would not substantially conflict with plans, policies, or regulations that were adopted for the purpose of avoiding or mitigating an adverse environmental effect related to land use or recreation. The impact would be LS. Mitigation Measures: None required.	***Construction Activities:*** **Similar** - The construction-related direct and indirect effects of the alternative alignment on recreational facilities would be about the same as that for the proposed project source water pipeline alignment. The alternative pipeline alignment could temporarily limit access along the Del Monte Boulevard Class I pedestrian and bicycle path, and the construction-related indirect effects resulting from transportation and transit disruption would be would be similar to those of the proposed project source water pipeline alignment. Furthermore, construction would not substantially conflict with plans, policies, or regulations that were adopted for the purpose of avoiding or mitigating an adverse environmental effect related to land use or recreation. The impact would be LS. Mitigation Measures: None required.
Traffic and Transportation	***Construction Activities:*** Construction activities associated with installation of the proposed project Source Water Pipeline would result in LSM impacts related to: temporary reduction in the capacities of roadways due to construction within the road right-of-way; increases in traffic safety hazards due to potential conflicts between large construction vehicles and other vehicles, bicyclists, and pedestrians; impaired emergency access, temporary disruptions to public transportation, bicycle, and pedestrian facilities; and wear and tear on smaller haul route roadways caused by heavy trucks transporting equipment and material to and from construction work areas. The proposed project Source Water Pipeline would have LS impacts on a temporary increase in traffic from construction workers and trucks traveling to and from the construction work areas, and parking interference.	***Construction Activities:*** **Similar** – Construction-related impacts to traffic and transportation would be the same as those of the proposed project Source Water Pipeline and would have the same level of impact significance as the proposed project alignment. The alternative alignment would be installed along Lapis Road, Del Monte Boulevard, and Neponset Road. This alternative alignment would eliminate the need for construction in the road right-of-way of Charles Benson Road. Because the alternative alignment is about the same length (roughly 0.4 mile longer) as the proposed project alignment, the number of constructed-related vehicle trips would be the same. The impact related to the increased congestion and delays for vehicles would be LS. Construction activities occurring within vehicle travel lanes and road shoulders could require temporary lane closures and/or detours, also a LSM impact. The impact associated with impaired emergency access during project construction would be LSM. Construction activities

TABLE 7-9 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS – ALTERNATIVE SOURCE WATER PIPELINE ALIGNMENT

Environmental Topic Area	Proposed Project: Source Water Pipeline Route *(new construction)*	Alternative Source Water Pipeline Route *(new construction)*
Traffic and Transportation (cont.)	Mitigation Measures: 4.9-1: Traffic Control and Safety Assurance Plan. 4.9-6: Roadway Rehabilitation Program. ***Operations and Facility Siting:*** Long-term traffic increases from operation and maintenance of the proposed project Source Water Pipeline would be LS. Mitigation Measures: None required.	associated with the alternative alignment could increase traffic safety hazards in the project area, a LSM impact. Pipeline installation activities could temporarily affect public transportation, bicycle travel, and pedestrian travel along affected roadways in the project area. This impact would be LSM. Like the proposed project Source Water Pipeline, the impact related to increase wear-and-tear of haul routes would be LSM. The alternative alignment could temporarily displace parking spaces along the affected roadways mentioned above; however, the impact would be LS. Mitigation Measures: 4.9-1: Traffic Control and Safety Assurance Plan. 4.9-6: Roadway Rehabilitation Program. ***Operations and Facility Siting:*** **Similar** – Operations and facility siting impacts would be similar to those of the proposed project Source Water Pipeline and would have the same level of impact significance as the proposed project alignment. Any increases in traffic generated by facility operations and maintenance would be negligible compared to existing conditions and would not result in a noticeable increase in traffic on adjacent streets. Therefore, the long-term increases in vehicle trips during operations and maintenance would result in a LS impact. Mitigation Measures: None required.
Air Quality	***Construction Activities:*** Generated emissions of criteria air pollutants and contribution to the violation of an ambient air quality standard during construction of the proposed project Source Water Pipeline (and all other project components) would be LSM. The proposed project Source Water Pipeline (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. Mitigation Measures: 4.10-1a: Construction Fugitive Dust Control Plan. 4.10-1c: Idling Restrictions. ***Operations and Maintenance:*** Operation and maintenance of the proposed project Source Water Pipeline would have no impact related to the increase of criteria pollutant emissions	***Construction Activities:*** **Similar** – The Alternative Source Water Pipeline alignment would be located closer to two sensitive receptors (roughly 300 feet away). Maximum daily emissions of PM_{10} would exceed the Monterey Bay Unified Air Pollution Control District (MBUAPCD) significance threshold of 82 pounds per day, a LSM impact. Construction activities would not expose sensitive receptors to substantial pollutant concentrations or create objectionable odors that would affect a substantial number of people (LS). Mitigation Measures: 4.10-1a: Construction Fugitive Dust Control Plan. 4.10-1c: Idling Restrictions. ***Operations and Maintenance:*** **Similar** – Operation and maintenance of the Alternative Source Water Pipeline would not result in the direct emissions of criteria pollutants. Therefore, no impact related to the long-term increase in criteria pollutants would result. The alternative alignment

TABLE 7-9 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS – ALTERNATIVE SOURCE WATER PIPELINE ALIGNMENT

Environmental Topic Area	**Proposed Project: Source Water Pipeline Route** *(new construction)*	**Alternative Source Water Pipeline Route** *(new construction)*
Air Quality (cont.)	that could affect regional air quality. The proposed project Source Water Pipeline would result in no impacts related to the potential to expose sensitive receptors to substantial pollutant concentrations or create objectionable odors affecting a substantial number of people during operations. Mitigation Measures: None required.	wouldn't include an on-site DPM emissions source; therefore, no impact related to the exposure of sensitive receptors to substantial pollutant concentrations would result. Implementation of the alternative alignment would not create a source of objectionable odors; no impact related to objectionable odors would result. Mitigation Measures: None required.
Greenhouse Gas Emissions	***Construction Activities:*** The contribution to climate change of GHG emissions from construction of the proposed project Source Water Pipeline, in conjunction with other project construction amortized over the 30 month construction period would have a SUM impact. Mitigation Measures: 4.11-1: Carbon Footprint Reporting and Offsets Plan. 4.18-1: Construction Equipment Efficiency Plan. ***Operations and Maintenance:*** The contribution to climate change of GHG emissions from operation and maintenance of the proposed project Source Water Pipeline, in conjunction with other project operations would be SUM because the proposed project would not be consistent with the GHG emission reduction goals for year 2020 identified in Executive Order S-3-05 and AB. The proposed project Source Water Pipeline, in conjunction with other project operations would result in a LS related to the conflict with AB 32 Climate change Scoping Plan. Mitigation Measures: 4.11-1: Carbon Footprint Reporting and Offsets Plan. 4.18-1: Construction Equipment Efficiency Plan.	***Construction Activities:*** **Similar** – The impacts associated with GHG emissions would be similar to those of the proposed project Source Water Pipeline alignment and would have the same level of impact significance. The Alternative Source Water Pipeline would be located within the same setting for GHG emissions as the proposed project. The GHG emissions and the total net operation emissions for the Alternative Source Water Pipeline (and all other project components) would exceed the land use development significance threshold of 2,000 metric tons CO2e per year. Therefore, the Alternative Source Water Pipeline (and all other proposed project components) short-term contribution to overall GHG emissions would be SUM. Mitigation Measures: 4.11-1: Carbon Footprint Reporting and Offsets Plan. 4.18-1: Construction Equipment Efficiency Plan. ***Operations and Maintenance:*** **Similar** – As for the proposed project alignment, impact related to long-term GHG emission during operation and maintenance of the Alternative Source Water Pipeline would be SUM. Mitigation Measures: 4.11-1: Carbon Footprint Reporting and Offsets Plan. 4.18-1: Construction Equipment Efficiency Plan.

TABLE 7-9 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS – ALTERNATIVE SOURCE WATER PIPELINE ALIGNMENT

Environmental Topic Area	**Proposed Project: Source Water Pipeline Route** *(new construction)*	**Alternative Source Water Pipeline Route** *(new construction)*
Noise and Vibration	***Construction Activities:*** Construction of the proposed project Source Water Pipeline would result in a LS impact from a substantial temporary increase in daytime ambient noise levels. Exposure to construction noise levels in excess of standards established would be LS impact. Impacts related to structural damage and human annoyance from excessive groundborne vibration during construction would be LSM. The proposed project Source Water Pipeline would result in no impact associated with conflicts with local construction time limits. Mitigation Measures: 4.15-1a: Avoidance and Vibration Monitoring for Pipeline Installation in the Presidio of Monterey Historic District, Downtown Monterey, and the Lapis Sand Mining Plant Historic District. ***Operations and Maintenance:*** The proposed project Source Water Pipeline would have no impact as a result of ambient noise or permanent noise increases. Mitigation Measures: None required.	***Construction Activities:*** **Increase** – The Alternative Source Water alignment would be located within 300 feet of the nearest sensitive receptors, within the jurisdiction of unincorporated Monterey County. During construction, the resultant daytime noise level at residential receptors could be as high as 63.6 dBA. Based on a pipeline installation rate of 250 feet per day, the maximum amount of time that any one receptor would be exposed to these noise levels would be limited to 1 to 3 days. Pipeline construction noise at the nearest residences would be below the speech interference threshold of 70 dBA Leq, and the construction noise impact associated with increases in daytime noise levels would be LS. If pipeline construction work were to occur during nighttime hours such work could exceed the sleep interference threshold of 60 dBA at the receptors, and impacts related to nighttime noise level increases pipeline construction would be significant. This impact could be reduced to a less than significant level by implementation of **Mitigation Measure 4.12-1c (Noise Control Plan for Nighttime Pipeline Construction)**. Similar to the proposed project Source Water Pipeline the alternative alignment would not generate noise levels in excess of standards established in the local general plan, noise ordinance, or applicable standards for Monterey County or the City of Marina. Vibration levels from vibratory rollers for construction of the Alternative Source Water Pipeline would reach 0.12 in/sec PPV at a distance of 45 feet resulting in a LSM impact related to building damage. Alternative Source Water Pipeline would not conflict with established noise level limits for construction activities. Mitigation Measures: 4.12-1c :Noise Control Plan for Nighttime Pipeline Construction. 4.15-1a: Avoidance and Vibration Monitoring for Pipeline Installation in the Presidio of Monterey Historic District, Downtown Monterey, and the Lapis Sand Mining Plant Historic District. ***Operations and Maintenance:*** **Similar** – Like the proposed project Alternative Source Water Pipeline operation and maintenance of the Alternative Source Water Pipeline would have no impact related to noise and vibration. Mitigation Measures: None required.

TABLE 7-9 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS – ALTERNATIVE SOURCE WATER PIPELINE ALIGNMENT

Environmental Topic Area	Proposed Project: Source Water Pipeline Route *(new construction)*	Alternative Source Water Pipeline Route *(new construction)*
Public Services and Utilities	***Construction Activities:*** Construction of the proposed project Source Water Pipeline, and all other proposed project components, would result in a LSM impact related to the disruption or relocation of regional or local utilities. Installation of the proposed project Source Water Pipeline would generate approximately 1,573 cubic yards of the total 35,225 cubic yards of excess spoils that would be generated by the proposed project as a whole. The Monterey Peninsula Landfill has sufficient capacity to accept the construction waste generated by the proposed project. However, the potential to conflict with federal, state, and local statutes and regulations related to the diversion of solid waste from landfills is a LSM impact. 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. 4.13-1f: Ensure Prompt Reconnection of Utilities 4.13-2: Construction Waste Reduction and Recycling Plan. ***Operations and Maintenance:*** Operation and maintenance of the proposed project Source Water Pipeline related to the potential to exceed landfill capacity and compliance with federal, state, and local statutes and regulations related to solid waste would be LS. The proposed project Source Water Pipeline would not result in the construction of new wastewater treatment or conveyance facilities, the expansion of existing facilities, exceed wastewater treatment requirements of the Central Coast RWQCB; therefore, no impact. The proposed project Source Water Pipeline would not result in the increased corrosion of the MRWPCA outfall and diffuser (NI). Mitigation Measures: None required.	***Construction Activities:*** **Similar** – The impacts of the Alternative Source Water Pipeline related to public services and utilities would be similar to those of the proposed project alignment and would have the same level of impact significance as the proposed project alignment. The impacts related to the potential relocation or disruption of local or regional utilities would be slightly less due to the decreased length of the pipe; however, the impact would remain LSM. Assuming all other pipelines stay the same, installation of the Alternative Source Water Pipeline would generate approximately 1,473 cubic yards of a total 35,125 cubic yards of excess spoils that would be generated by the proposed project as a whole. Similar to the proposed project, the landfill has sufficient capacity to accept the construction waste but the impact is considered LSM due to the potential for project construction to conflict with federal, state, and local statutes and regulations related to the diversion of solid waste from landfills. 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. 4.13-1f: Ensure Prompt Reconnection of Utilities 4.13-2: Construction Waste Reduction and Recycling Plan. ***Operations and Maintenance:*** **Similar** – Operations and maintenance of the Alternative Source Water Pipeline would be similar to those of the proposed project Source Water Pipeline would have the same level of impact significance as the proposed project alignment. The Alternative Source Water Pipeline would have a limited potential to generate waste during operations and maintenance, and any waste generated would be nominal. The impact associated with landfill capacity and compliance with local, state, and federal regulations related to solid waste would be LS. Operation and maintenance of the Alternative Source Water Pipeline would not require additional employees; therefore, any increase in wastewater generated would be negligible and would not exceed wastewater treatment capacity (NI). The Alternative Source Water Pipeline would not require the construction of wastewater treatment facilities or affect the treatment processes at the regional wastewater treatment plant. The Alternative Source Water Pipeline would not result in the increased corrosion of the MRWPCA outfall and diffuser as a result of brine discharge associated with project operations.

TABLE 7-9 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS – ALTERNATIVE SOURCE WATER PIPELINE ALIGNMENT

Environmental Topic Area	Proposed Project: Source Water Pipeline Route *(new construction)*	Alternative Source Water Pipeline Route *(new construction)*
Public Services and Utilities (cont.)		Mitigation Measures: None required.
Aesthetics	***Construction Activities:*** Construction of the proposed project Source Water Pipeline would have a LS impact on scenic resources and visual character. However, the proposed project Source Water Pipeline would result in LSM impacts from temporary light and glare during construction. Improvement Measures: 4.14-1: Maintain Clean and Orderly Construction Sites. Mitigation Measures: 4.14-2: Site-Specific Construction Lighting Measures. ***Operations and Facility Siting:*** Once constructed the proposed project Source Water Pipeline would be underground and thus would have no permanent impacts on scenic resources or the visual character of the area. Mitigation Measures: None required.	***Construction Activities:*** **Similar** – Construction impacts to aesthetic resources would be similar to those of the proposed project Source Water Pipeline and would have the same level of impact significance as the proposed project alignment. Like the proposed project Source Water Pipeline, installation of the alternative alignment would traverse more mostly undeveloped terrain characterized by coastal scrub, grassland, and agricultural fields. Due to the increase distance of the alternative alignment along Highway 1 compared to the proposed project Source Water Pipeline, it is anticipated that an increase number of motorist could notice construction activities. However, due to the limited duration of construction activities and fleeting views of construction along this alignment, construction would not substantially degrade the aesthetic character or scenic vistas in the vicinity of the proposed alignment. This impact is LS. Nighttime construction activities would involve the use of high output lamps, such as halogen, mercury vapor, or high-pressure sodium lamps, which would introduce a new substantial source of light into the area. This light would affect nighttime views from and could temporarily affect nighttime motorists' vision along Highway 1, Lapis Road, Charles Benson Road, Del Monte Boulevard, and Monte Road. Therefore, the impact related to temporary sources of substantial light or glare during construction would be LSM. Improvement Measures: 4.14-1: Maintain Clean and Orderly Construction Sites. Mitigation Measures: 4.14-2: Site-Specific Construction Lighting Measures. ***Operations and Facility Siting:*** **Similar** – Like the proposed project Source Water Pipeline once constructed the Alternative Source Water Pipeline would be underground and thus would have no permanent impacts on scenic resources or the visual character of the area. Mitigation Measures: None required.

TABLE 7-9 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS – ALTERNATIVE SOURCE WATER PIPELINE ALIGNMENT

Environmental Topic Area	Proposed Project: Source Water Pipeline Route *(new construction)*	Alternative Source Water Pipeline Route *(new construction)*
Cultural Resources	***Construction Activities:*** Direct and indirect impacts to historic resources would be LSM. Impacts to unknown subsurface historic-era resources in the Lapis Sand Mining Plant Historic District would be LSM. The potential inadvertent discovery of archaeological resources and human remains during construction of the proposed project Source Water Pipeline is considered a LSM impact. Construction of the proposed project Source Water Pipeline would result in a LS impact related to the direct or indirect destruction of a unique paleontological resource or site, or unique geologic feature during construction. Mitigation Measures: 4.15-1a: Avoidance and Vibration Monitoring for Pipeline Installation in the Presidio of Monterey Historic District, Downtown Monterey, and the Lapis Sand Mining Plant Historic District. 4.15-1b: Special Construction Techniques to Preserve Lapis Siding. 4.15-2a: Establish Archaeologically Sensitive Areas. 4.15-2b: Inadvertent Discovery of Cultural Resources. 4.15-4: Inadvertent Discovery of Human Remains.	***Construction Activities:*** **Similar** – All construction impacts would be similar to those of the proposed project Source Water Pipeline and would have the same level of impact significance. Like the proposed project Source Water Pipeline, a portion of the alternative alignment would be located within the direct APE and indirect APE of the Lapis Sand Mining Plant Historic District. A segment of the Lapis Siding could require removal to accommodate the Alternative Source Water Pipeline if the pipeline were installed using open trench construction methods. Furthermore, the construction could cause cosmetic or structural damage to historical resources. For these reasons the alternative alignment impacts to the adverse change of a significance historical resource would be LSM. There is potential for unknown historic-era subsurface archaeological resources related to the early operations within the Lapis Sand Mining Plant Historic District to be discovered and inadvertently damaged and/or destroyed during installation of the Alternative Source Water Pipeline; therefore the impact is LSM. Although the Monterey Formation is known to have vertebrate fossils that would qualify as a significant paleontological resource, the alternative alignment would be constructed within a limited extent of the Monterey Formation and within previously-disturbed road rights-of way or agricultural roads. While no known human remains have been documented within the direct APE for the alternative alignment, the possibility of inadvertently uncovering human remains cannot be entirely discounted. The potential inadvertent discovery of human remains would result in an LSM impact. Mitigation Measures: 4.15-1a: Avoidance and Vibration Monitoring for Pipeline Installation in the Presidio of Monterey Historic District, Downtown Monterey, and the Lapis Sand Mining Plant Historic District. 4.15-1b: Special Construction Techniques to Preserve Lapis Siding. 4.15-2a: Establish Archaeologically Sensitive Areas. 4.15-2b: Inadvertent Discovery of Cultural Resources. 4.15-4: Inadvertent Discovery of Human Remains.

TABLE 7-9 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS – ALTERNATIVE SOURCE WATER PIPELINE ALIGNMENT

Environmental Topic Area	Proposed Project: Source Water Pipeline Route *(new construction)*	Alternative Source Water Pipeline Route *(new construction)*
Agriculture and Forest Resources	***Construction Activities:*** Construction of the proposed project Source Water Pipeline would have LSM impacts related to conversion of important farmland, conflicts with agricultural zoning or land with Williamson Act contracts, or otherwise changing the existing environment in a way that would result in the conversion of farmland to non-agricultural use because the proposed project Source Water Pipeline would be located adjacent to areas mapped as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, or land under Williamson Act contract. There would be no impact on forest resources. Mitigation Measures: 4.16-1: Minimize Disturbance to Farmland. 4.16-3: Measures to Minimize Indirect Effects on Agricultural Land.	***Construction Activities:*** **Similar** – The impacts associated with agriculture and forest resources would be identical to those of the proposed project Source Water Pipeline and would have the same level of impact significance. Similar to the proposed project Source Water Pipeline, the alternative alignment would disrupt agricultural production on Farmland of Statewide Importance north of Charles Benson Road. Therefore, the impact related to disturbance and disruption of agricultural uses in areas designated as important farmland, would be LSM. Lands under Williamson Act contract are present on north side of Charles Benson Road, surrounding the Alternative Source Water Pipeline. The alternative alignment would also be border parcel zoned for agricultural uses. The temporary conflicts with Williamson Act contracts, and agricultural lands zoned for grazing would therefore result in LSM impacts. The Alternative Source Water Pipeline could also result in surface disturbance and earthmoving activities in agricultural lands, which could in turn adversely affect soil conditions or inadvertently damage to agricultural irrigation systems. Therefore, this impact is LSM. Mitigation Measures: 4.16-1: Minimize Disturbance to Farmland. 4.16-3: Measures to Minimize Indirect Effects on Agricultural Land.
Mineral Resources	***Construction Activities:*** Portions of the proposed project Source Water Pipeline would be constructed within the CEMEX active mining area. Construction activities would have limited impacts on mining activities. Therefore, the impacts of the proposed project Source Water Pipeline would be LS. Mitigation Measures: None required.	***Construction Activities:*** **Similar** – Same as the proposed project Source Water Pipeline, the Alternative Source Water Pipeline would be located within the CEMEX active mining area, beneath the existing CEMEX access road. Construction equipment, materials, and trucks would access the CEMEX active mining area via Lapis Road and the existing CEMEX access road. Although mining operations could experience minor disruptions during project construction, mining operations would continue throughout project construction. Therefore, the Alternative Source Water Pipeline would not result in the temporary loss of known mineral resources and construction-related impacts would be LS. Mitigation Measures: None required.

TABLE 7-9 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS – ALTERNATIVE SOURCE WATER PIPELINE ALIGNMENT

Environmental Topic Area	Proposed Project: Source Water Pipeline Route *(new construction)*	Alternative Source Water Pipeline Route *(new construction)*
Energy Conservation	***Construction Activities:*** Construction of the proposed project Source Water Pipeline (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 impact. Mitigation Measures: 4.18-1: Construction Equipment Efficiency Plan. 4.10-1c: Idling Restrictions. ***Operations and Maintenance:*** Operation and maintenance of the proposed project Source Water Pipeline would not use fossil fuels and electricity or have any effect on local or regional energy supplies. Mitigation Measures: None required.	***Construction Activities:*** **Similar** – The impacts associated with energy conservation would be similar to those of the proposed project Source Water Pipeline and would have the same level of impact significance as the proposed project alignment. Construction activities for the Alternative Source Water Pipeline could result in the wasteful or inefficient use of energy if construction 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 for construction to use large amounts of fuel or energy in a wasteful or inefficient manner is considered a LSM impact. Mitigation Measures: 4.18-1: Construction Equipment Efficiency Plan. 4.10-1c: Idling Restrictions. ***Operations and Maintenance:*** **Similar** – Same as the proposed project Source Water Pipeline, operation and maintenance of the Alternative Source Water Pipeline would not use fossil fuels and electricity or have any effect on local or regional energy supplies. Mitigation Measures: None required.
Population and Housing	***Construction Activities:*** Construction of the proposed project Source Water Pipeline would require up to 25 construction workers. The potential for project construction to induce substantial population growth as a result of construction would be LS as the proposed project Source Water Pipeline (and all other project components) would not create employment opportunities substantially greater than would normally be available to construction workers in the area. Although up to 30 additional personnel would be needed to operate the MPWSP Desalination Plant, there would be no increase in staffing to operate and maintain the proposed project Source Water Pipeline. Overall, the direct growth-inducing impact of the proposed project Source Water Pipeline, and proposed project as a whole, would be LS. Mitigation Measures: None required.	***Construction Activities:*** **Similar** – The Alternative Source Water Pipeline route would be located in proximity to the proposed project Source Water Pipeline route and within the same setting for population and housing. Impacts from the Alternative Source Water Pipeline route would be similar. Mitigation Measures: None required.

TABLE 7-10
COMPARISON OF ENVIRONMENTAL EFFECTS – ALTERNATIVE DESALINATED WATER PIPELINE ALIGNMENT

Environmental Topic Area	**Proposed Project: Desalinated Water Pipeline Route** *(new construction)*	**Alternative Desalinated Water Pipeline Route** *(new construction)*
Geology, Soils, and Seismicity	***Construction Activities:*** Construction of the proposed project Desalinated Water Pipeline would have a LSM impact associated with the potential to increase soil erosion or loss of topsoil. <u>Mitigation Measures:</u> 4.6-2b: Avoid, Minimize, and Compensate for Direct Construction Impacts to Sensitive Communities. 4.16-3: Measures to Minimize Indirect Effects on Agricultural Land. ***Operations and Facility Siting:*** Operation and maintenance of the proposed project Desalinated Water Pipeline would have a LS impact as a result of the potential to expose people or structures to seismically-induced groundshaking, liquefaction, and lateral spreading. There would be no impact from the potential to expose people or structures to fault rupture, landslides, coastal retreat due to sea level rise, subsidence, expansive, or corrosive soil. <u>Mitigation Measures:</u> None required.	***Construction Activities:*** **Similar** – Construction-related soil erosion would be slightly greater due to the increase in length (roughly 0.5 mile longer) and associated increase in ground disturbance but compliance with the requirements of the NPDES Construction General Permit and local grading and erosion control ordinances would avoid substantial adverse effects. Like the proposed project, the alternative alignment would disturb vegetated areas and would result in a LSM impact related to loss of topsoil. <u>Mitigation Measures:</u> 4.6-2b: Avoid, Minimize, and Compensate for Direct Construction Impacts to Sensitive Communities. 4.16-3: Measures to Minimize Indirect Effects on Agricultural Land. ***Operations and Facility Siting:*** **Similar** – Operations and facility siting impacts would be similar to those of the proposed project Desalinated Water Pipeline and would have the same level of impact significance as the proposed project alignment. Like the proposed project alignment, the alternative alignment is not close enough to faults to be vulnerable to surface fault rupture; therefore, there would be no impact. Like the proposed project alignment, the alternative alignment is not located near active faults; therefore, there would be no impact. Like the proposed pipeline alignment, the alternative alignment would have no impact related to landslides because it would be located in an area with relatively flat to gently-sloping topography that is not susceptible to landslides. There would be no impact related to expansive soils because the alternative alignment is located in an area with low soil expansion properties. There would be no impact related to subsidence because pipelines are not used to extract groundwater. There would be no impact related to corrosive soils because the alternative alignment would be located in soils with a low corrosivity potential. All risks of seismically-induced groundshaking, liquefaction, and lateral spreading would be similar to the proposed project as LS because the alternative alignment would be designed in accordance with the recommendations of a design-level geotechnical investigation, the current California Building Code, and local ordinances regulating construction. <u>Mitigation Measures:</u> None required.

TABLE 7-10 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS – ALTERNATIVE DESALINATED WATER PIPELINE ALIGNMENT

Environmental Topic Area	Proposed Project: Desalinated Water Pipeline Route *(new construction)*	Alternative Desalinated Water Pipeline Route *(new construction)*
Surface Water Hydrology and Water Quality	***Construction Activities:*** Construction of the proposed project Desalinated Water Pipeline would have a LS impact related to the degradation of water quality associated with increased soil erosion, sedimentation, and inadvertent releases of toxic chemicals during construction, and a LSM from construction-related discharges of dewatering effluent from open excavations. Mitigation Measures: 4.7-2b: Soil and Groundwater Management Plan. ***Operations and Facility Siting:*** The proposed project Desalinated Water Pipeline would have no impact on potential to violate water quality standards or waste discharge requirements or result in an adverse water quality effect as a result of brine discharges, alteration of drainage patterns in a way that would increase erosion, siltation, the amount of surface runoff and increase flooding on- or offsite or the capacity of the stormwater drainage systems. The proposed project Desalinated Water Pipeline would result in no impact from the potential to expose structures to a significant risk of loss, injury, or death from flooding due to sea level rise. No impacts would result from the impeding or redirecting flood flows due to the siting of the proposed project Desalinated Water Pipeline in a 100-year flood hazard area or exposing people or structure to risk of loss, injury, or death from flooding due to a tsunami. Mitigation Measures: None required.	***Construction Activities:*** **Similar** – All construction-related impacts to surface water hydrology and water quality would be similar to those of the proposed project Desalinated Water Pipeline and would have the same level of impact significance as the proposed project alignment. The impact related to increased soil erosion and inadvertent releases of toxic chemicals during construction would be slightly greater due to the increase in pipeline length (roughly 0.5 mile longer) and the associated increases in ground disturbance and overall construction area. However, the impact would remain LS because construction activities would be conducted in accordance with the NPDES General Construction Permit. Although it is anticipated that most dewatering effluent from open excavations would be disposed of in accordance with the General WDRs, if discharges of dewatering effluent were to exceed the water quality limitations in the General WDRs, a significant impact would result. Like the proposed project alignment, this analysis conservatively assumes the alternative alignment would result in a LSM impact related to discharges of dewatering effluent from open excavations. Like the proposed project alignment, the impact related to degradation of water quality from discharges of disinfectant from the newly installed pipeline would be LS with mandatory compliance with the General WDRs. Mitigation Measures: 4.7-2b: Soil and Groundwater Management Plan. ***Operations and Facility Siting:*** **Increased** – The Alternative Desalinated Water Pipeline would be located within a short portion of Neponset Road that would be subject to flooding from sea level rise. However, once constructed, the pipeline would be located underground and would not impede or redirect flood flows, nor be subject to a significant risk of flood damage from sea level rise. This impact would be LS. The Alternative Desalinated Water Pipeline would have no impact related to discharges of brine or any other discharges associated with operations and maintenance. Once constructed, the Alternative Desalinated Water Pipeline would be located entirely underground and the surface along the pipeline alignment would be restored to pre-construction conditions. Therefore, there would be no impacts related to long-term changes in drainage patterns. The Alternative Source Water alignment would not be within a 100-year flood hazard area or tsunami inundation zone. Therefore, no impact would result. Mitigation Measures: None required.

TABLE 7-10 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS – ALTERNATIVE DESALINATED WATER PIPELINE ALIGNMENT

Environmental Topic Area	Proposed Project: Desalinated Water Pipeline Route *(new construction)*	Alternative Desalinated Water Pipeline Route *(new construction)*
Groundwater Resources	***Construction Activities:*** Construction of the proposed project Desalinated Water Pipeline would have a LS impact related to substantial interference with groundwater recharge and depletion of groundwater supplies. There would be a LS impact related to degradation of groundwater quality during pipeline installation activities would occur. Mitigation Measures: None required. ***Operations and Maintenance:*** Operation and maintenance of the proposed project Desalinated Water Pipeline would not deplete groundwater supplies, interfere substantially with groundwater recharge, or degrade groundwater quality. The proposed project Desalinated Water Pipeline would have no impact on groundwater resources during operations. Mitigation Measures: None required.	***Construction Activities:*** **Similar** - Construction-related impacts of the Alternative Desalinated Water Pipeline to groundwater would be the same as those of the proposed project alignment and would have the same level of impact significance as the proposed project. Because temporary construction dewatering would occur only in isolated areas and if groundwater is encountered in the pipeline trench, installation of the Alternative Desalinated Water Pipeline alignment would have a LS impact related to depletion of groundwater supplies. Mitigation Measures: None required. ***Operations and Maintenance:*** **Similar** – Like the proposed project pipeline, operation and maintenance of the Alternative Desalinated Water Pipeline would have no effect on groundwater resources, and no impact would result. Mitigation Measures: None required.
Marine Biological Resources	The proposed project Desalinated Water Pipeline alignment would have no impact on marine biological resources. Mitigation Measures: None required.	**Similar** - Like the proposed project Desalinated Water Pipeline alignment, the Alternative Desalinated Water Pipeline alignment would have no impact on marine biological resources. Mitigation Measures: None required.
Terrestrial Biological Resources	***Construction Activities:*** Project-related construction activities would have a LSM related to the adverse effects on species identified as candidate, sensitive, or special-status, either directly or through habitat modification; riparian habitat, critical habitat, or other sensitive natural communities; federally protected wetlands, federal other waters, and/or waters of the State, through direct removal, filling, hydrological interruption; the conflict with local tree ordinances. 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.	***Construction Activities:*** **Similar** - In general, the Alternative Desalinated Water Pipeline would be located in proximity to the MPWSP Desalinated Water Pipeline route and would be routed within the same type of habitat. Both the portion of the alternative pipeline along Lapis Road and the proposed pipeline along Del Monte Boulevard would be routed through disturbed central dune scrub habitat. The northern portion of the alternative pipeline would be routed through coyote brush scrub along Neponset Road compared to the proposed pipeline, which would be routed through agricultural/grazed lands along Charles Benson Road. Although these are two different types of habitats, they have the potential to support the same type of special-status species. The only exception is in regards to Smith's blue butterfly. Potential Smith's blue butterfly habitat was observed within the coyote brush scrub along Neponset Road and this species could be impacted by the Alternative Desalinated Water Pipeline. The MPWSP Desalinated Water

TABLE 7-10 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS – ALTERNATIVE DESALINATED WATER PIPELINE ALIGNMENT

Environmental Topic Area	**Proposed Project: Desalinated Water Pipeline Route** *(new construction)*	**Alternative Desalinated Water Pipeline Route** *(new construction)*
Terrestrial Biological Resources (cont.)	4.6-1c: General Avoidance and Minimization Measures. 4.6-1e: Avoidance and Minimization Measures for Special-status Plants. 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. 4.6-1l: Avoidance and Minimization Measures for Special-status Bats. 4.6-1n: Habitat Mitigation and Monitoring Plan. 4.6-1o: Avoidance and Minimization Measures for California Red-legged Frog and California Tiger Salamander. 4.6-2a: Consultation with Local Agencies and the California Coastal Commission regarding Environmentally Sensitive Habitat Areas. 4.6-2b: Avoid, Minimize, and Compensate for Construction Impacts to Sensitive Communities. 4.6-3: Avoid, Minimize, and or Mitigate Impacts to Wetlands. 4.6-4: Compliance with Local Tree Policies and Ordinances. 4.14-2: Site-Specific Construction Lighting Measures. ***Operations and Maintenance:*** Operation of the MPWSP Desalinated Water Pipeline would result in no impact to species identified as candidate, sensitive, or special-status; riparian habitat, critical habitat, or other sensitive natural communities; and federally protected wetlands, federal other waters, and/or waters of the State. Furthermore, operation would not conflict with adopted habitat conservation plans, natural community conservation plans or other approved local, regional, or state habitat conservation plans, therefore no impact. <u>Mitigation Measures:</u> None required.	Pipeline does not have potential to impact this species. Like the proposed project alignment, installation of the Alternative Desalinated Water Pipeline would result in a LSM impact to candidate, sensitive, and special-status species and sensitive natural communities. All mitigation measures that apply to the MPWSP Desalinated Water Pipeline would apply to the Alternative Desalinated Water Pipeline as well as a mitigation measure to avoid impacts to Smith's blue butterfly. No additional potential wetlands or other waters are located within alternative pipeline route. Similar to the proposed project pipeline, the alternative pipeline would be routed alongside the pond at Locke-Paddon Park. The alternative would have LSM impacts to this wetland, which is similar to the proposed project Desalinated Water Pipeline. Like the proposed project alignment, tree removal or construction within the driplines of trees associated with installation of the alternative alignment could result in conflicts with the local tree ordinances, a LSM impact. <u>Mitigation Measures:</u> 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. 4.6-1e: 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. 4.6-1l: Avoidance and Minimization Measures for Special-status Bats. 4.6-1n: Habitat Mitigation and Monitoring Plan. 4.6-1o: Avoidance and Minimization Measures for California Red-legged Frog and California Tiger Salamander. 4.6-2a: Consultation with Local Agencies and the California Coastal Commission regarding Environmentally Sensitive Habitat Areas.

TABLE 7-10 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS – ALTERNATIVE DESALINATED WATER PIPELINE ALIGNMENT

Environmental Topic Area	**Proposed Project: Desalinated Water Pipeline Route** *(new construction)*	**Alternative Desalinated Water Pipeline Route** *(new construction)*
Terrestrial Biological Resources (cont.)		4.6-2b: Avoid, Minimize, and Compensate for Construction Impacts to Sensitive Communities. 4.6-3: Avoid, Minimize, and or Mitigate Impacts to Wetlands. 4.6-4: Compliance with Local Tree Policies and Ordinances. 4.14-2: Site-Specific Construction Lighting Measures. ***Operations and Maintenance:*** **Similar** – Operations and maintenance impacts to terrestrial biological resources would be identical to those of the proposed project Desalinated Water Pipeline and the alternative alignment would have the same level of impact significance as the proposed project alignment. No impact to 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. Furthermore, operation would not conflict with adopted habitat conservation plans, natural community conservation plans or other approved local, regional, or state habitat conservation plans, therefore no impact. Mitigation Measures: None required.
Hazards and Hazardous Materials	***Construction Activities:*** Construction of the proposed project Desalinated Water Pipeline would have a LS impact associated with the potential to create a hazard to the public through the routine transport, use and disposal of hazardous materials and a LSM impact associated with the potential to release hazardous materials to the environment. The increased risk of fire during proposed project Desalinated Water Pipeline construction would be a LS impact. There would be no impact from siting the proposed project Desalinated Water Pipeline on a known hazardous materials site and a LS impact from hazardous materials handling or hazardous emissions within 0.25 mile of a school during construction. Mitigation Measures: 4.7-2a: Health and Safety Plan. 4.7-2b: Soil and Groundwater Management Plan. ***Operations and Maintenance:*** Operation of the proposed project Desalinated Water Pipeline would not involve the routine storage or use of hazardous materials. Thus, no impact	***Construction Activities:*** **Similar** - Construction-related impacts to hazards and hazardous materials would be the same as those of the proposed project Desalinated Water Pipeline and would have the same level of impact significance as the proposed project alignment. Because construction activities would comply with numerous hazardous materials and stormwater regulations designed to ensure that hazardous materials are transported, used, stored, and disposed of in a safe manner, the impact related to the routine transport, use, and disposal of hazardous materials during pipeline installation activities would be LS. Like the proposed project alignment, past releases may have affected subsurface conditions at various locations along the alternative pipeline alignment. Therefore, the impact associated with the potential to release hazardous materials to the environment during construction would be LSM. The alternative alignment would be located on known hazardous materials sites. Olsen Elementary School (261 Beach Road, Marina) is located within 0.25 mile of the Alternative Desalinated Water Pipeline alignment. Based on a screening-level analysis discussed in Section 4.10, Air Quality, construction-related DPM emissions would be less than the Monterey Bay Unified Air Pollution Control District's increased cancer risk threshold. Therefore, the impact related to handling hazardous materials and emitting hazardous emissions within 0.25 mile of a school during pipeline installation activities would be LS.

TABLE 7-10 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS – ALTERNATIVE DESALINATED WATER PIPELINE ALIGNMENT

Environmental Topic Area	**Proposed Project: Desalinated Water Pipeline Route** *(new construction)*	**Alternative Desalinated Water Pipeline Route** *(new construction)*
Hazards and Hazardous Materials (cont.)	would occur. There would be no impact from hazardous materials handling or hazardous emissions within 0.25 mile of a school during operation of the proposed project Desalinated Water Pipeline and no impact on groundwater remediation activities. The proposed project Desalinated Water Pipeline would be located within an airport land use plan area; therefore the impact would be LS. Mitigation Measures: None required.	The alternative alignment would not be located within an area classified by CAL FIRE as a High or Very High Fire Hazard Severity Zone (see Figure 4.7-1)(CAL FIRE, 2007); however, construction activities could temporarily increase fire risk. Although the risk of fire during pipeline installation would be slightly greater due to the increase in pipeline length and the associated increase in the pipeline construction duration and overall ground disturbance, the impact related to wildfires would remain LS because construction would be comply with applicable California fire code regulations. Mitigation Measures: 4.7-2a: Health and Safety Plan. 4.7-2b: Soil and Groundwater Management Plan. ***Operations and Maintenance:*** **Similar** – All operations and maintenance impacts related to hazards and hazardous materials would be similar to those of the proposed Desalinated Water Pipeline and would have the same level of impact significance as the proposed project alignment. Pipeline operations and maintenance would not involve the routine storage or use of hazardous materials. Therefore, no impact related to inadvertent releases of hazardous materials during pipeline operations would result. Similarly, pipeline operations would not involve the routine handling of hazardous materials or generate hazardous emissions, so no impact related to handling hazardous materials or generating hazardous emissions within 0.25 mile of a school would result. Like the proposed project alignment, the Alternative Desalinated Water Pipeline would be located at the edge of the Marina Municipal Airports planning area boundary (Monterey County Airport Land Use Commission, 1996); however, the alternative alignment would not be located within the airport traffic pattern zone or approach protection zone. Therefore, the impact to airport safety would be LS. Mitigation Measures: None required.
Land Use, Land Use Planning, and Recreation	Construction of the Desalinated Water Pipeline could directly affect a small portion of the Class I pedestrian and bicycle path along Del Monte Boulevard at Lapis Road, and indirectly affect recreational opportunities generally (e.g., access to parklands) through increased traffic congestion and disruption of transit. Such disruptions would be temporary and limited to the project's construction phase. The source water pipeline construction would not substantially conflict with plans, policies, or regulations that were adopted for the purpose of avoiding or mitigating an adverse environmental effect related to land use or recreation. The impact would be LS.	**Similar** – The construction-related direct and indirect effects of the alternative alignment on recreational facilities would be about the same as that for the proposed project source water pipeline alignment. The alternative pipeline alignment could temporarily limit access along the Del Monte Boulevard Class I pedestrian and bicycle path, and the construction-related indirect effects resulting from transportation and transit disruption would be would be similar to those of the proposed project Desalinated Water Pipeline alignment. Furthermore, construction would not substantially conflict with plans, policies, or regulations that were adopted for the purpose of avoiding or mitigating an adverse environmental effect related to land use or recreation. The impact would be LS.

TABLE 7-10 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS – ALTERNATIVE DESALINATED WATER PIPELINE ALIGNMENT

Environmental Topic Area	**Proposed Project: Desalinated Water Pipeline Route** *(new construction)*	**Alternative Desalinated Water Pipeline Route** *(new construction)*
Land Use, Land Use Planning, and Recreation (cont.)	Mitigation Measures: None required.	Mitigation Measures: None required.
Traffic and Transportation	***Construction Activities:*** The proposed project Desalinated Water Pipeline would result in LSM impact from temporary reduction in the capacities of roadways due to construction within the road right-of-way; increases in traffic safety hazards due to potential conflicts between large construction vehicles and other vehicles, bicyclists, and pedestrians; impaired emergency access, temporary disruptions to public transportation, bicycle, and pedestrian facilities; and wear and tear on smaller haul route roadways caused by heavy trucks transporting equipment and material to and from construction work areas. The proposed project Desalinated Water Pipeline would have LS impacts on a temporary increase in traffic from construction workers and trucks traveling to and from the construction work areas, and parking interference. Mitigation Measures: 4.9-1: Traffic Control and Safety Assurance Plan. 4.9-6: Roadway Rehabilitation Program. ***Operations and Facility Siting:*** Long-term traffic increases from operation and maintenance of the proposed Desalinated Water Pipeline would be LS. Mitigation Measures: None required.	***Construction Activities:*** **Similar** – Construction-related impacts to traffic and transportation would be the same as those of the proposed project Desalinated Water Pipeline and would have the same level of impact significance as the proposed project alignment. The northern portion of the alternative alignment would differ from the proposed project alignment as the pipeline would be routed along TAMC rights-of-way, Lapis Road, Del Monte Boulevard, and Neponset Road. This alternative alignment would eliminate the need for construction in the road right-of-way of Charles Benson Road. Although the alternative alignment is slightly longer than the proposed project alignment (roughly 0.5 mile longer) it is anticipated that the number of constructed-related vehicle trips would be the same. The impact related to the increased congestion and delays for vehicles would be LS. Construction activities occurring within vehicle travel lanes and road shoulders could require temporary lane closures and/or detours, also a LSM impact. The impact associated with impaired emergency access during project construction would be LSM. Construction activities associated with the alternative alignment could increase traffic safety hazards in the project area, a LSM impact. Pipeline installation activities could temporarily affect public transportation, bicycle travel, and pedestrian travel along affected roadways in the project area. This impact would be LSM. Like the proposed project Desalinated Water Pipeline, the impact related to increase wear-and-tear of haul routes would be LSM. The alternative alignment could temporarily displace parking spaces along the affected roadways mentioned above; however, the impact would be LS. Mitigation Measures: 4.9-1: Traffic Control and Safety Assurance Plan. 4.9-6: Roadway Rehabilitation Program. ***Operations and Facility Siting:*** **Similar** – As for the proposed project alignment, long-term traffic increases during operation and maintenance of the Alternative Desalinated Water Pipeline would be LS. Mitigation Measures: None required.

TABLE 7-10 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS – ALTERNATIVE DESALINATED WATER PIPELINE ALIGNMENT

Environmental Topic Area	Proposed Project: Desalinated Water Pipeline Route *(new construction)*	Alternative Desalinated Water Pipeline Route *(new construction)*
Air Quality	***Construction Activities:*** The proposed project Desalinated Water Pipeline (and all other project components) would result in a LSM impact related to emissions of criteria air pollutants and contribution to the violation of an ambient air quality standard during construction. The impact related to the exposure of sensitive receptors to substantial pollutant concentrations and the creation of objectionable odors affecting a substantial number of people during construction would be LS. Mitigation Measures: 4.10-1a: Construction Fugitive Dust Control Plan. 4.10-1c: Idling Restrictions. ***Operations and Maintenance:*** No impact related to the long-term increase in criteria pollutants, exposure of sensitive receptors to substantial pollutant concentrations, and objectionable odors would result from operation and maintenance of the proposed project Desalinated Water Pipeline. Mitigation Measures: None required.	***Construction Activities:*** **Similar** – The Alternative Desalinated Water Pipeline route would be located in proximity to the proposed project Desalinated Water Pipeline route and within the same setting for air quality. All construction-related air quality impacts of the alternative alignment would be slightly greater due to the increase length (roughly 0.5 mile longer); however the alternative alignment would have the same level of impact significance. The unchanged portion of the alternative alignment within the Marina would be located within the same proximity to sensitive receptors (receptors are roughly 100 feet). North of Charles Benson Road sensitive receptors would be within 300 feet. Maximum daily emissions of PM_{10} would exceed the MBUAPCD significance threshold of 82 pounds per day, a LSM impact. Construction activities would not expose sensitive receptors to substantial pollutant concentrations or create objectionable odors that would affect a substantial number of people (LS). Mitigation Measures: 4.10-1a: Construction Fugitive Dust Control Plan. 4.10-1c: Idling Restrictions. ***Operations and Maintenance:*** **Similar** – Operation and maintenance of the proposed project Desalinated Water Pipeline would not result in the direct emissions of criteria pollutants. Therefore, no impact related to the long-term increase in criteria pollutants would result. The alternative alignment wouldn't include an on-site DPM emissions source; therefore, no impact related to the exposure of sensitive receptors to substantial pollutant concentrations would result. Implementation of the alternative alignment would not create a source of objectionable odors; no impact related to objectionable odors would result. Mitigation Measures: None required.
Greenhouse Gas Emissions	***Construction Activities:*** The contribution to climate change of GHG emissions from construction of the proposed project Desalinated Water Pipeline, in conjunction with other project construction amortized over the 30 month construction period would have a SUM impact. Mitigation Measures: 4.11-1: Carbon Footprint Reporting and Offsets Plan.	***Construction Activities:*** **Similar** – The impacts associated with GHG emissions would be similar to those of the proposed project Desalinated Water Pipeline alignment and would have the same level of impact significance. The Alternative Desalinated Water Pipeline would be located within the same setting for GHG emissions as the proposed project. The GHG emissions and the total net operation emissions for the Alternative Desalinated Water Pipeline (and all other project components) would exceed the land use development significance threshold of 2,000 metric tons CO2e per year. Therefore,

TABLE 7-10 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS – ALTERNATIVE DESALINATED WATER PIPELINE ALIGNMENT

Environmental Topic Area	Proposed Project: Desalinated Water Pipeline Route *(new construction)*	Alternative Desalinated Water Pipeline Route *(new construction)*
Greenhouse Gas Emissions (cont.)	4.18-1: Construction Equipment Efficiency Plan. ***Operations and Maintenance:*** The contribution to climate change of GHG emissions from operation and maintenance of the proposed project Desalinated Water Pipeline, in conjunction with other project operations would be SUM because the proposed project would not be consistent with the GHG emission reduction goals for year 2020 identified in Executive Order S-3-05 and AB. The proposed project Desalinated Water Pipeline, in conjunction with other project operations would result in a LS related to the conflict with AB 32 Climate change Scoping Plan. Mitigation Measures: 4.11-1: Carbon Footprint Reporting and Offsets Plan. 4.18-1: Construction Equipment Efficiency Plan.	the Alternative Desalinated Water Pipeline (and all other proposed project components) short-term contribution to overall GHG emissions would be SUM. Mitigation Measures: 4.11-1: Carbon Footprint Reporting and Offsets Plan. 4.18-1: Construction Equipment Efficiency Plan. ***Operations and Maintenance:*** **Similar** – As for the proposed project alignment, impact related to long-term GHG emission during operation and maintenance of the Alternative Desalinated Water Pipeline would be SUM. Mitigation Measures: 4.11-1: Carbon Footprint Reporting and Offsets Plan. 4.18-1: Construction Equipment Efficiency Plan.
Noise and Vibration	***Construction Activities:*** Construction of the proposed project Desalinated Water Pipeline would have a LSM impacts from a substantial temporary increase in ambient noise levels and exposure of people to construction-related noise levels in excess of established standards. Impacts from exposure of people to excessive groundborne vibration during construction would be LSM. The proposed project Desalinated Water Pipeline would result in a LSM impact associated with conflicts with local construction time limits. Mitigation Measures: 4.12-1a: Neighborhood Notice. 4.12-1b: General Noise Controls for Construction Equipment. 4.12-1c: Noise Control Plan for Nighttime Pipeline Construction. 4.12-3: Vibration Reduction Measures. ***Operations and Maintenance:*** The proposed project Desalinated Water Pipeline would no impact as a result of ambient noise or permanent noise increases. Mitigation Measures: None required.	***Construction Activities:*** **Similar** – Construction impacts associated with noise and vibration would be similar to those of the proposed project Desalinated Water Pipeline and would have the same level of impact significance. The Alternative Desalinated Water Pipeline route would be located in proximity to the proposed project Desalinated Water Pipeline route and within the same setting for noise and vibration. However, the northern portion of this alternative alignment would be located in closer proximity to two residences (approximately 300 feet) on Neponset Road than the Desalinated Water Pipeline. As discussed below the distance between these residences and construction activities is still greater than the southern portion of this alignment; therefore the impact would be similar. During construction, the resultant daytime noise level at residential receptors could be as high as 74.7 dBA. Based on a pipeline installation rate of 250 feet per day, the maximum amount of time that any one receptor would be exposed to these noise levels would be limited to 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 LS. If pipeline construction work were to occur during nighttime hours such work could exceed the sleep interference threshold of 60 dBA at the receptors, and impacts related to nighttime noise level increases pipeline construction would be LSM. Similar to the proposed project Desalinated Water Pipeline, the alternative alignment would not generate noise levels in excess of

TABLE 7-10 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS – ALTERNATIVE DESALINATED WATER PIPELINE ALIGNMENT

Environmental Topic Area	Proposed Project: Desalinated Water Pipeline Route *(new construction)*	Alternative Desalinated Water Pipeline Route *(new construction)*
Noise and Vibration (cont.)		standards established in the local general plan, noise ordinance, or applicable standards for Monterey County; however construction noise generated within the Marina would exceed City's standards. Therefore, this impact is LSM. Like the proposed project Desalinated Water Pipeline, open trench construction of the Alternative Desalinated Water Pipeline would result in LS impacts related to excessive groundborne vibrations. However trenchless pipeline installation methods such as sheeting piling would generate vibration levels above the 0.3-in/sec PPV structural damage threshold at modern buildings if it were to occur within 45 feet of such a structure. Furthermore, vibration levels from rollers would exceed the "strongly perceptible" threshold of 0.1 in/sec PPV, at 85 feet or closer to sensitive land uses. Therefore, the impact would be LSM related to groundborne vibrations. Like the proposed project Desalinated Water Pipeline, the Alternative Desalinated Water Pipeline could require approval by the City of Marina to deviate from the noise ordinance time limits; therefore, the impact related to construction time limits would be LSM. Mitigation Measures: 4.12-1a: Neighborhood Notice. 4.12-1b: General Noise Controls for Construction Equipment. 4.12-1c: Noise Control Plan for Nighttime Pipeline Construction. 4.12-3: Vibration Reduction Measures. ***Operations and Maintenance:*** **Similar** – Like the proposed project alignment, operation and maintenance of the Alternative Desalinated Water Pipeline would have no impact related to noise and vibration. Mitigation Measures: None required.
Public Services and Utilities	***Construction Activities:*** Installation of the proposed project Desalinated Water Pipeline would result in a LSM impact related to disruption or relocation of regional or local utilities. Installation of the proposed project Desalinated Water Pipeline would generate approximately 5,378 cubic yards of the total 35,225 cubic yards of excess spoils that would be generated by the proposed project as a whole. The Monterey Peninsula Landfill has sufficient capacity to accept the construction waste generated by the proposed project. However, the potential to conflict with federal, state, and local statutes and regulations related to the diversion of solid waste from landfills is a LSM impact.	***Construction Activities:*** **Similar** – Construction of the Alternative Desalinated Water Pipeline would result in the same impacts to public services and utilities as the proposed project Desalinated Water Pipeline and would have the same level of impact significance. The impacts related to the potential relocation or disruption of local or regional utilities would be slightly greater due to the increase in length of the alignment; however, the impact would remain LSM. The alternative alignment is anticipated to generate an increased volume of construction waste as alternative alignment is slightly longer (roughly 0.5 mile longer) and would require an increased area of ground disturbance. Assuming all other pipelines stay the same, installation of the Alternative Desalinated Water

TABLE 7-10 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS – ALTERNATIVE DESALINATED WATER PIPELINE ALIGNMENT

Environmental Topic Area	Proposed Project: Desalinated Water Pipeline Route *(new construction)*	Alternative Desalinated Water Pipeline Route *(new construction)*
Public Services and Utilities (cont.)	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. 4.13-1f: Ensure Prompt Reconnection of Utilities 4.13-2: Construction Waste Reduction and Recycling Plan. ***Operations and Facility Siting:*** Operation of the proposed project Desalinated Water Pipeline would have a LS impact related to the potential to exceed landfill capacity and compliance with federal, state, and local statutes and regulations related to solid waste. No impact related to wastewater treatment, conveyance, or capacity would result. No impact related to corrosion of other utilities would result. Mitigation Measures: None required.	Pipeline would generate approximately 5,478 cubic yards of a total 35,325 cubic yards of excess spoils that would be generated by the proposed project as a whole. Similar to the proposed project, the landfill has sufficient capacity to accept the construction waste but the impact is considered LSM due to the potential for project construction to conflict with federal, state, and local statutes and regulations related to the diversion of solid waste from landfills. 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. 4.13-1f: Ensure Prompt Reconnection of Utilities 4.13-2: Construction Waste Reduction and Recycling Plan. ***Operations and Facility Siting:*** **Similar** – Operation and maintenance of the Alternative Desalinated Water Pipeline would be similar to those of the proposed project Desalinated Water Pipeline would have the same level of impact significance as the proposed project alignment. The Alternative Desalinated Water Pipeline would have limited potential to generate waste during operations and maintenance, and any waste generated would be nominal. The impact associated with landfill capacity and compliance with local, state, and federal regulations related to solid waste would be LS. Operation and maintenance of the Alternative Desalinated Water Pipeline would not require additional employees; therefore, any increase in wastewater generated would be de minimus and would not exceed wastewater treatment capacity (NI). The Alternative Desalinated Water Pipeline would not require the construction of wastewater treatment facilities or affect the treatment processes at the regional wastewater treatment plant. There would be no impact related to outfall capacity. The Alternative Desalinated Water Pipeline would not result in the increased corrosion of the MRWPCA outfall and diffuser as a result of brine discharge associated with project operations. Mitigation Measures: None required.

TABLE 7-10 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS – ALTERNATIVE DESALINATED WATER PIPELINE ALIGNMENT

Environmental Topic Area	Proposed Project: Desalinated Water Pipeline Route *(new construction)*	Alternative Desalinated Water Pipeline Route *(new construction)*
Aesthetics	***Construction Activities:*** Construction of the proposed project Desalinated Water Pipeline would have a LS impact on scenic resources and visual character. However, the proposed project Desalinated Water Pipeline would result in LSM impacts from temporary light and glare during construction. Improvement Measures: 4.14-1: Maintain Clean and Orderly Construction Sites. Mitigation Measures: 4.14-2: Site-Specific Construction Lighting Measures. ***Operations and Facility Siting:*** Operation and maintenance of the proposed project Desalinated Water Pipeline would have no impact on aesthetics resources. Mitigation Measures: None required.	***Construction Activities:*** **Similar** – Construction impacts to aesthetic resources would be similar to those of the proposed project Desalinated Water Pipeline and would have the same level of impact significance as the proposed project alignment. Like the proposed project Desalinated Water Pipeline, installation of the alternative alignment would traverse the Grass and Rangeland and Urban and Built-up landscape unit. Due to the increase distance of the alternative alignment along Highway 1 compared to the proposed project Desalinated Water Pipeline, it is anticipated that an increase number of motorist could notice construction activities. However, due to the limited duration of construction activities and fleeting views of construction along this alignment, construction would not substantially degrade the aesthetic character or scenic vistas in the vicinity of the proposed alignment. This impact is LS. Nighttime construction activities would involve the use of high output lamps, such as halogen, mercury vapor, or high-pressure sodium lamps, which would introduce a new substantial source of light into the area. This light would affect nighttime views from and could temporarily affect nighttime motorists' vision along Highway 1, Lapis Road, Charles Benson Road, Del Monte Boulevard, and Monte Road. Therefore, the impact related to temporary sources of substantial light or glare during construction would be LSM. Improvement Measures: 4.14-1: Maintain Clean and Orderly Construction Sites. Mitigation Measures: 4.14-2: Site-Specific Construction Lighting Measures. ***Operations and Facility Siting:*** **Similar** – Like the proposed project Desalinated Water Pipeline once constructed the Alternative Desalinated Water Pipeline would be underground and thus would have no permanent impacts on scenic resources or the visual character of the area. Mitigation Measures: None required.

TABLE 7-10 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS – ALTERNATIVE DESALINATED WATER PIPELINE ALIGNMENT

Environmental Topic Area	Proposed Project: Desalinated Water Pipeline Route *(new construction)*	Alternative Desalinated Water Pipeline Route *(new construction)*
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 proposed project Desalinated Water Pipeline. Therefore, no impact to historical resources would result from construction of the proposed project Desalinated Water Pipeline. The potential inadvertent discovery of archaeological resources and human remains during construction of the proposed project Desalinated Water Pipeline is considered a LSM impact. Construction of the proposed project Desalinated Water Pipeline would result in a LS impact related to the direct or indirect destruction of a unique paleontological resource or site, or unique geologic feature during construction. Mitigation Measures: 4.15-2b: Inadvertent Discovery of Cultural Resources. 4.15-4: Inadvertent Discovery of Human Remains.	***Construction Activities:*** **Similar** – All construction impacts would be similar to those of the proposed project Desalinated Water Pipeline and would have the same level of impact significance. Like the proposed project Desalinated Water Pipeline, the alternative alignment is not within the direct APE of historical or archaeological resources eligible for listing in the CRHR or the NRHP. Therefore, no impact to known historical or archaeological resources would result from construction of the alternative alignment. There is however the potential to uncover unknown archaeological resources during project construction, a LSM impact. Although the Monterey Formation is known to have vertebrate fossils that would qualify as a significant paleontological resource, the alternative alignment would be constructed within a limited extent of the Monterey Formation and within previously-disturbed road rights-of way. Therefore, the potential impact to paleontological resources would be LS. While no known human remains have been documented within the direct APE for the alternative alignment, the possibility of inadvertently uncovering human remains cannot be entirely discounted. The potential inadvertent discovery of human remains would result in an LSM impact. Mitigation Measures: 4.15-2b: Inadvertent Discovery of Cultural Resources. 4.15-4: Inadvertent Discovery of Human Remains.
Agriculture and Forest Resources	***Construction Activities:*** Construction of the proposed project Desalinated Water Pipeline would have LSM impacts related to conversion of important farmland, conflicts with agricultural zoning or land with Williamson Act contracts, or otherwise changing the existing environment in a way that would result in the conversion of farmland to non-agricultural use because the proposed project Desalinated Water Pipeline would be located adjacent to areas mapped as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, or land under Williamson Act contract. There would be no impact on forest resources. Mitigation Measures: 4.16-1: Minimize Disturbance to Farmland. 4.16-3: Measures to Minimize Indirect Effects on Agricultural Land.	***Construction Activities:*** **Similar** – The impacts associated with agriculture and forest resources would be identical to those of the proposed project Desalinated Water Pipeline and would have the same level of impact significance. Similar to the proposed project Desalinated Water Pipeline, the alternative alignment would disrupt agricultural production on Farmland of Statewide Importance north of Charles Benson Road. Therefore, the impact related to disturbance and disruption of agricultural uses in areas designated as important farmland, would be LSM. Lands under Williamson Act contract are present on north side of Charles Benson Road, surrounding the Alternative Desalinated Water Pipeline. The temporary conflicts with Williamson Act contracts, and agricultural lands zoned for grazing would therefore result in LSM impacts. The Alternative Desalinated Water Pipeline could also result in surface disturbance and earthmoving activities in agricultural lands, which could in turn adversely affect soil conditions or inadvertently damage to agricultural irrigation systems. Therefore, this impact is LSM. Mitigation Measures: 4.16-1: Minimize Disturbance to Farmland. 4.16-3: Measures to Minimize Indirect Effects on Agricultural Land.

TABLE 7-10 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS – ALTERNATIVE DESALINATED WATER PIPELINE ALIGNMENT

Environmental Topic Area	**Proposed Project: Desalinated Water Pipeline Route** *(new construction)*	**Alternative Desalinated Water Pipeline Route** *(new construction)*
Mineral Resources	***Construction and Operation Activities:*** Construction and operation of the proposed project Desalinated Water Pipeline would have a LS impact on mineral resources. Mitigation Measures: None required.	***Construction and Operation Activities:*** **Similar** – Like the proposed project Desalinated Water Pipeline, installing the Alternative Desalinated Water Pipeline within or immediately adjacent to existing road or TAMC rights-of-way would minimize disturbance to nearby MRZ-2 land. Because the pipeline would have a limited footprint and would not be constructed across any active mining areas, it would not result in a significant reduction in the availability of mineral resources (primarily sand dunes). Therefore, construction and operation of the Alternative Desalinated Water Pipeline would result in a LS impact on mineral resources. Mitigation Measures: None required.
Energy Conservation	***Construction Activities:*** Construction of the proposed project Desalinated Water Pipeline (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 impact. Mitigation Measures: 4.18-1: Construction Equipment Efficiency Plan. 4.10-1c: Idling Restrictions. ***Operations and Maintenance:*** Operation and maintenance of the proposed project Desalinated Water Pipeline would not use fossil fuels and electricity or have any effect on local or regional energy supplies. Mitigation Measures: None required.	***Construction Activities:*** **Similar** – The impacts associated with energy conservation would be similar to those of the proposed project Desalinated Water Pipeline and would have the same level of impact significance as the proposed project alignment. Construction activities for the Alternative Desalinated Water Pipeline could result in the wasteful or inefficient use of energy if construction 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 for construction to use large amounts of fuel or energy in a wasteful or inefficient manner is considered a LSM impact. Mitigation Measures: 4.18-1: Construction Equipment Efficiency Plan. 4.10-1c: Idling Restrictions. ***Operations and Maintenance:*** **Similar** – Same as the proposed project Desalinated Water Pipeline, operation and maintenance of the Alternative Desalinated Water Pipeline would not use fossil fuels and electricity or have any effect on local or regional energy supplies. Mitigation Measures: None required.

TABLE 7-10 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS – ALTERNATIVE DESALINATED WATER PIPELINE ALIGNMENT

Environmental Topic Area	**Proposed Project: Desalinated Water Pipeline Route** *(new construction)*	**Alternative Desalinated Water Pipeline Route** *(new construction)*
Population and Housing	***Construction and Operation Activities:*** Construction of the proposed project Desalinated Water Pipeline would require up to 25 construction workers. The potential for project construction to induce substantial population growth as a result of construction would be LS as the proposed project Desalinated Water Pipeline (and all other project components) would not create employment opportunities substantially greater than would normally be available to construction workers in the area. Although up to 30 additional personnel would be needed to operate the proposed project Desalination Plant, there would be no increase in staffing to operate and maintain the proposed project Desalinated Water Pipeline. Overall, the direct growth-inducing impact of the proposed project Desalinated Water Pipeline, and proposed project as a whole, would be LS. Mitigation Measures: None required.	***Construction and Operation Activities:*** **Similar** – The impacts to population and housing associated with implementation of the Alternative Desalinated Water Pipeline would be the same as those associated with the proposed project alignment (LS). Mitigation Measures: None required.

TABLE 7-11
COMPARISON OF ENVIRONMENTAL EFFECTS – ALTERNATIVE TRANSMISSION MAIN ALIGNMENT

Environmental Topic Area	**Proposed Project: Transmission Main Route** *(new construction)*	**Alternative Transmission Main Route** *(new construction)*
Geology, Soils, and Seismicity	***Construction Activities:*** Construction of the proposed project Transmission Main would have a LSM impact associated with the potential to increase soil erosion or loss of topsoil. Mitigation Measures: 4.6-2b: Avoid, Minimize, and Compensate for Direct Construction Impacts to Sensitive Communities. ***Operations and Facility Siting:*** The proposed project Transmission Main would result in a LS impact related to surface fault rupture. Operation and maintenance of the proposed project Transmission Main would have a LS impact as a result of the potential to expose people or structures to seismically-induced groundshaking, liquefaction, and lateral spreading. There would be no impact from the potential to expose people or structures to landslides, coastal retreat due to sea level rise, subsidence, expansive or corrosive soil. Mitigation Measures: None required.	***Construction Activities:*** **Similar** – The Alternative Transmission Main route would be located in proximity to the proposed project Transmission Main route and within similar kinds of soils, geologic and seismic settings. Unlike the proposed project route, the Alternative Transmission Main route would not intersect the Chupines Fault Zone. Impacts from the Alternative Transmission Main alignment would be similar, however, impacts related to soil erosion would be slightly less due to the 0.7-mile decrease in length and associated decrease in ground disturbance. Mitigation Measures: 4.6-2b: Avoid, Minimize, and Compensate for Direct Construction Impacts to Sensitive Communities. ***Operations and Facility Siting:*** **Similar** – When compared to the proposed project, the Alternative Transmission Main would avoid the LS impact related to surface fault rupture because the alternative alignment would not intersect the Chupines Fault Zone (Ord Terrace Fault, Del Ray Oaks section). Therefore, no impact related to surface fault rupture would occur. The Alternative Transmission Main would be located in an area of clayey soil, potentially corrosive. Therefore, the impact related to corrosive soil would be LS. All other operations and facility siting impacts would be similar to those of the proposed project Transmission Main and would have the same level of impact significance as the proposed project alignment. The impact related to seismically-induced groundshaking, liquefaction, and lateral spreading would be LS because the alternative pipeline would be designed in accordance with the recommendations of a design-level geotechnical investigation, the current California Building Code, and local ordinances regulating construction. Like the proposed pipeline alignment, the alternative alignment would have no impact related to landslides because it would be located in an area with relatively flat to gently-sloping topography that is not susceptible to landslides. The alternative pipeline alignment would not be close enough to the cost to be vulnerable to coastal retreat. There would be no impact related to subsidence because pipelines are not used to extract groundwater. There would be no impact related to expansive soils because the alternative alignment is located in soils with a low linear extensibility potential. Mitigation Measures: None required.

TABLE 7-11 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS – ALTERNATIVE TRANSMISSION MAIN ALIGNMENT

Environmental Topic Area	**Proposed Project: Transmission Main Route** *(new construction)*	**Alternative Transmission Main Route** *(new construction)*
Surface Water Hydrology and Water Quality	***Construction Activities:*** The proposed project Transmission Main would have a LS impact related to degradation of water quality associated with increased soil erosion and sedimentation, and inadvertent releases of toxic chemicals during construction, and a LSM impact from construction-related discharges of dewatering effluent from open excavations. Mitigation Measures: 4.7-2b: Soil and Groundwater Management Plan. ***Operations and Facility Siting:*** The proposed project Transmission Main would have no impact on potential to violate water quality standards or waste discharge requirements or result in an adverse water quality effect as a result of brine discharges; alteration of drainage patterns in a way that would increase erosion, siltation, the amount of surface runoff and increase flooding on- or offsite or the capacity of the stormwater drainage systems. The proposed project Transmission Main would result in no impact from the potential to expose structures to a significant risk of loss, injury, or death from flooding due to sea level rise. No impacts would result from the impeding or redirecting flood flows due to the siting of the proposed project Transmission Main in a 100-year flood hazard area or exposing people or structure to risk of loss, injury, or death from flooding due to a tsunami. Mitigation Measures: None required.	***Construction Activities:*** **Similar** – The Alternative Transmission Main would be located in proximity to the proposed project Transmission Main route and within the same kind of setting for hydrology and water quality. Impacts from the Alternative Transmission Main would be similar, however, impacts related to soil erosion and inadvertent release of construction materials would be slightly less due to the 0.7-mile decrease in length and associated decrease in ground disturbance. However, the impact would remain LS because construction activities would be conducted in accordance with the NPDES General Construction Permit. Although it is anticipated that most dewatering effluent from open excavations would be disposed of in accordance with the General WDRs, if discharges of dewatering effluent were to exceed the water quality limitations in the General WDRs, a significant impact would result. Like the proposed project alignment, this analysis conservatively assumes the alternative alignment would result in a LSM impact related to discharges of dewatering effluent from open excavations. Like the proposed project alignment, the impact related to degradation of water quality from discharges of disinfectant from the newly installed pipeline would be LS with mandatory compliance with the General WDRs. Mitigation Measures: 4.7-2b: Soil and Groundwater Management Plan. ***Operations and Facility Siting:*** **Similar** -Operations and maintenance impacts would be similar to those of the proposed project Transmission Main Pipeline alignment and would have the same level of impact significance as the proposed project alignment. The Alternative Transmission Main alignment would have no impact related to discharges of brine or any other discharges associated with operations and maintenance. Once constructed, the Alternative Transmission Main, like all of the other pipelines, would be located entirely underground and the surface along the pipeline alignment would be restored to pre-construction conditions. Therefore, there would be no impacts related to long-term changes in drainage patterns. The Alternative Transmission Main Pipeline alignment would not be located within a 100-year flood hazard area, within a tsunami inundation zone, or in areas that would be subject to flooding from sea level rise. Therefore, no impact would occur related to flooding. Mitigation Measures: None required.

TABLE 7-11 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS – ALTERNATIVE TRANSMISSION MAIN ALIGNMENT

Environmental Topic Area	**Proposed Project: Transmission Main Route** *(new construction)*	**Alternative Transmission Main Route** *(new construction)*
Groundwater Resources	***Construction Activities:*** Construction of the proposed project Transmission Main would have a LS impact related to substantial interference with groundwater recharge and depletion of groundwater supplies. Impacts related to degradation of groundwater quality during pipeline installation activities would occur; impacts would be LS. Mitigation Measures: None required. ***Operations and Maintenance:*** Operation and maintenance of the proposed project Transmission Main would not deplete groundwater supplies, interfere substantially with groundwater recharge, or degrade groundwater quality. The proposed project Transmission Main would have no impact on groundwater resources during operations. Mitigation Measures: None required.	***Construction Activities:*** **Similar** - Construction-related impacts to groundwater would be the same as those of the proposed project Transmission Main and would have the same level of impact significance as the proposed project alignment. Because temporary construction dewatering would occur only in isolated areas and if groundwater is encountered in the pipeline trench, installation of the Alternative Transmission Main would have a LS impact related to depletion of groundwater supplies. Like the proposed project Transmission Main, would have a LS impact related to degradation of groundwater quality would occur during pipeline installation activities. Mitigation Measures: None required. ***Operations and Maintenance:*** **Similar** – Like the proposed project pipeline, operation and maintenance of the Alternative Transmission Main would have no effect on groundwater resources, and no impact would result. Mitigation Measures: None required.
Marine Biological Resources	The proposed project Transmission Main alignment would have no impact on marine biological resources. Mitigation Measures: None required.	**Similar** - Like the proposed project Transmission Main alignment, the Alternative Transmission Main alignment would have no impact on marine biological resources. Mitigation Measures: None required.
Terrestrial Biological Resources	***Construction Activities:*** Project-related construction activities for the proposed project Transmission Main would have a LSM related to the adverse effects on species identified as candidate, sensitive, or special-status, either directly or through habitat modification; riparian habitat, critical habitat, or other sensitive natural communities; federal wetland, federal other waters, and/or waters of the State; conflict with local tree ordinances. Mitigation Measures: 4.6-1a: Retain a Lead Biologist to Oversee Implementation of Protective Measures.	***Construction Activities:*** **Similar** – The segment of the Alternative Transmission Main north of Lightfighter Drive would be located within the same alignment, and extend through the same central dune scrub, as the proposed project Transmission Main route. The segment of the Alternative Transmission Main Pipeline south of Lightfighter Drive would be located east and inland of the proposed project Transmission Main Pipeline route and located in existing developed roadways, compared to the proposed project route that would be located in disturbed central dune scrub. The Alternative Transmission Main route would impact a smaller area of central dune scrub, but would still have some impact to central dune scrub and the special-status species that have potential to

TABLE 7-11 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS – ALTERNATIVE TRANSMISSION MAIN ALIGNMENT

Environmental Topic Area	**Proposed Project: Transmission Main Route** *(new construction)*	**Alternative Transmission Main Route** *(new construction)*
Terrestrial Biological Resources (cont.)	4.6-1b: Construction Worker Environmental Awareness Training and Education Program. 4.6-1c: General Avoidance and Minimization Measures. 4.6-1e: Avoidance and Minimization Measures for Special-status Plants. 4.6-1f: Avoidance and Minimization Measures for Smiths'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. 4.6-1l: Avoidance and Minimization Measures for Special-status Bats. 4.6-1n: Habitat Mitigation and Monitoring Plan. 4.6-2a: Consultation with Local Agencies and the California Coastal Commission regarding Environmentally Sensitive Habitat Areas. 4.6-2b: Avoid, Minimize, and Compensate for Construction Impacts to Sensitive Communities. 4.6-3: Avoid, Minimize, and or Mitigate Impacts to Wetlands. 4.6-4: Compliance with Local Tree Policies and Ordinances. 4.14-2: Site-Specific Construction Lighting Measures. ***Operations and Maintenance:*** Operation of the proposed project Transmission Main would result in no impact to 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. The operation of the proposed project Transmission Main would have no impact on conflicting with adopted habitat conservation plans or natural community conservation plans or other approved local, regional, or state habitat conservation plans. Mitigation Measures: None required.	occur in that habitat. The same mitigation measures would be implemented for construction of the Alternative Transmission Main as the proposed project Transmission Main to reduce impacts to special-status species and sensitive natural communities to LSM. The same wetlands (a small seasonal wetland located south of Reservation Road between Del Monte Boulevard and Marina Drive) are located within both the Alternative Transmission Main and the proposed project Transmission Main. Both alignments would have LSM impacts to the same wetland. Like the proposed project alignment, tree removal or construction within the driplines of trees associated with installation of the alternative alignment could result in conflicts with local tree ordinances, a LSM impact. 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. 4.6-1e: Avoidance and Minimization Measures for Special-status Plants. 4.6-1f: Avoidance and Minimization Measures for Smiths'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. 4.6-1l: Avoidance and Minimization Measures for Special-status Bats. 4.6-1n: Habitat Mitigation and Monitoring Plan. 4.6-2a: Consultation with Local Agencies and the California Coastal Commission regarding Environmentally Sensitive Habitat Areas. 4.6-2b: Avoid, Minimize, and Compensate for Construction Impacts to Sensitive Communities. 4.6-3: Avoid, Minimize, and or Mitigate Impacts to Wetlands. 4.6-4: Compliance with Local Tree Policies and Ordinances.

TABLE 7-11 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS – ALTERNATIVE TRANSMISSION MAIN ALIGNMENT

Environmental Topic Area	**Proposed Project: Transmission Main Route** *(new construction)*	**Alternative Transmission Main Route** *(new construction)*
Terrestrial Biological Resources (cont.)		4.14-2: Site-Specific Construction Lighting Measures. ***Operations and Maintenance:*** **Similar**– Similar to the proposed project, operations and maintenance of the Alternative Transmission Main would have no impact on species identified as candidate, sensitive, or special-status; riparian habitat, critical habitat, or other sensitive natural communities; and federal wetlands, federal other waters, or waters of the State. The Alternative Transmission Main would now extend through areas within the Ford Ord HMP. However, the Alternative Transmission Main would not conflict with the HMP in this area as the management requirements in this area only specify that Caltrans restore and enhance habitat in this area. So would have no impact, which is similar to the proposed project Transmission Main. Mitigation Measures: None required.
Hazards and Hazardous Materials	***Construction Activities:*** Construction of the proposed project Transmission Main would have a LS impact associated with the potential to create a hazard to the public through the routine transport, use and disposal of hazardous materials. The proposed project Transmission Main would have a LSM impact associated with the potential to release hazardous materials to the environment. The increased risk of fire during proposed project Transmission Main construction would be a LS impact. There would be no impact from siting the proposed project Transmission Main on a known hazardous materials site. The construction of the proposed project Transmission Main would have a LS impact from hazardous materials handling or hazardous emissions within 0.25 mile of a school during construction. Mitigation Measures: 4.7-2a: Health and Safety Plan. 4.7-2b: Soil and Groundwater Management Plan. ***Operations and Maintenance:*** Operations and maintenance associated with the proposed project Transmission Main would have no impacts related to the routine transport, use, and disposal of hazardous materials, and handling hazardous materials or generating hazardous emissions within 0.25 mile of a school. The proposed project alignment would have a LS impact related to airport safety hazards.	***Construction Activities:*** **Similar** - The Alternative Transmission Main route would be located in proximity and to the east of to the proposed project Transmission Main route and within the same kind of setting for hazards and hazardous materials. Impacts from the Alternative Transmission Main route would be similar, however, impacts related to routine transport, use and disposal of hazardous materials, and the risk of fire would be slightly less due to the decrease in length and associated decrease in ground disturbance. Because construction activities would comply with numerous hazardous materials and stormwater regulations designed to ensure that hazardous materials are transported, used, stored, and disposed of in a safe manner, the impact related to the routine transport, use, and disposal of hazardous materials during pipeline installation activities would be LS. Similar to the proposed project alignment, sites with known soil and/or groundwater contamination are not located within 0.25 mile of the alternative alignment (SWRCB, 2015a). Therefore, the impact associated with the potential to release hazardous materials to the environment during construction would be LSM. Although George C. Marshall Elementary School (300 Normandy Road, Seaside) and Seaside Middle School (96998 Coe Avenue, Seaside) are located within 0.25 mile of the Alternative Transmission Main, based on a screening-level analysis discussed in Section 4.10, Air Quality, construction-related DPM emissions would be less than the Monterey Bay Unified Air

TABLE 7-11 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS – ALTERNATIVE TRANSMISSION MAIN ALIGNMENT

Environmental Topic Area	**Proposed Project: Transmission Main Route** *(new construction)*	**Alternative Transmission Main Route** *(new construction)*
Hazards and Hazardous Materials (cont.)	Mitigation Measures: None required.	Pollution Control District's increased cancer risk threshold. Therefore, the impact related to handling hazardous materials and emitting hazardous emissions within 0.25 mile of a school during pipeline installation activities would be LS. The alternative pipeline alignment would not be located within an area classified by CAL FIRE as a High or Very High Fire Hazard Severity Zone (see Figure 4.7-2) (CAL FIRE, 2007); however, construction activities could temporarily increase fire risk. Although the risk of fire during pipeline installation would be slightly less due to the decrease in pipeline length and the associated decrease in the pipeline construction duration and overall ground disturbance, the impact related to wildfires would remain LS because construction would be comply with applicable California fire code regulations. Mitigation Measures: 4.7-2a: Health and Safety Plan. 4.7-2b: Soil and Groundwater Management Plan. ***Operations and Maintenance:*** **Decreased** – The Alternative Transmission Main would be located within the Monterey Peninsula Airport planning area but would be underground and there would be no impact related to airport safety hazards. Pipeline operations and maintenance would not involve the routine storage or use of hazardous materials. Therefore, no impact related to inadvertent releases of hazardous materials during pipeline operations would result. Similarly, pipeline operations would not involve the routine handling of hazardous materials or generate hazardous emissions, so no impact related to handling hazardous materials or generating hazardous emissions within 0.25 mile of a school would result. Mitigation Measures: None required.

TABLE 7-11 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS – ALTERNATIVE TRANSMISSION MAIN ALIGNMENT

Environmental Topic Area	**Proposed Project: Transmission Main Route** *(new construction)*	**Alternative Transmission Main Route** *(new construction)*
Land Use, Land Use Planning, and Recreation	Construction of the Transmission Main could directly affect use of recreational facilities (e.g., bicycle and pedestrian pathways) in the project vicinity. Similarly, such construction could also indirectly affect recreational opportunities (e.g., access to parklands) through increased traffic congestion, disruption of transit, and closure of bicycle lanes and pedestrian paths. Such disruptions would be temporary and limited to the project's construction phase. The Transmission Main construction would not substantially conflict with plans, policies, or regulations that were adopted for the purpose of avoiding or mitigating an adverse environmental effect related to land use or recreation. The impact would be LS. Mitigation Measures: None required.	**Similar** - The construction-related direct effects of the alternative alignment on use of recreational facilities (e.g., bicycle and pedestrian pathways) would be similar to, albeit slightly less than, those of the proposed project Transmission Main alignment. This is primarily due to the relocation of a portion of the pipeline inland, thereby avoiding impacts on a portion of the Monterey Peninsula Recreational Trail. The indirect effects on recreational facilities access would be about the same. The significance of impact would be the same as that described for the proposed Monterey Pipeline alignment. The impact would be LS. Mitigation Measures: None required.
Traffic and Transportation	***Construction Activities:*** Construction activities associated with installation of the proposed project Transmission Main would result in LSM impacts due to: temporary increase in traffic from construction workers and trucks traveling to and from the construction work areas; temporary reduction in the capacities of roadways due to construction within the road right-of-way; increases in traffic safety hazards due to potential conflicts between large construction vehicles and other vehicles, bicyclists, and pedestrians; impaired emergency access, temporary disruptions to public transportation, bicycle, and pedestrian facilities; and wear and tear on smaller haul route roadways caused by heavy trucks transporting equipment and material to and from construction work areas. The proposed project Transmission Main would have LS impacts on parking interference. Mitigation Measures: 4.9-1: Traffic Control and Safety Assurance Plan. 4.9-6: Roadway Rehabilitation Program. ***Operations and Maintenance:*** Long-term traffic increases from operation and maintenance the proposed project Transmission Main would be LS. Mitigation Measures: None required.	***Construction Activities:*** **Similar** – Construction-related impacts to traffic and transportation would be the same as those of the proposed project Alternative Transmission Main and would have the same level of impact significance as the proposed project alignment. From Reservation Road to Highway 1 at the Lightfighter Drive interchange the Alternative Transmission Main would be identical to the proposed project alignment. From the Lightfighter Drive interchange, the alternative alignment would veer east and continue along Lightfighter Drive then along General Jim Moore Boulevard. Due to the decreased length of the Alternative Transmission Main the construction duration would also be shorter than that of the proposed project alignment. Construction-related traffic increases on local and regional roadways would fall within the daily fluctuations of traffic volumes for the regional highways and arterial roadways in the area and would continue to be within the carrying capacities of the two-lane roads but could result in substantial adverse effects on local road ways. The impact from construction-related traffic increases would be LSM. Construction activities occurring within vehicle travel lanes and road shoulders could require temporary lane closures and/or detours, also a LSM impact. The alternative alignment would still be installed within or alongside the Monterey Peninsula Recreational Trail and/or TAMC rights-of-way for, potential traffic safety hazards for bicyclists and pedestrians would be decreased when compared to the proposed project alignment but the overall impact related to increased traffic safety hazards would remain LSM, and temporary disruptions to bicycle and pedestrian facilities would be slightly decreased when compared to the proposed project alignment but the overall impact to public transportation, bicycle, and pedestrian facilities would remain LSM. Impacts related to impaired emergency access and the increased wear-

TABLE 7-11 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS – ALTERNATIVE TRANSMISSION MAIN ALIGNMENT

Environmental Topic Area	**Proposed Project: Transmission Main Route** *(new construction)*	**Alternative Transmission Main Route** *(new construction)*
Traffic and Transportation (cont.)		and-tear on smaller roadways and residential streets that are used as haul routes would be about the same as the proposed project alignment (LS). The alternative alignment could temporarily displace parking spaces along the affected roadways mentioned above; however, the impact would be LS because the alternative alignment has less than-substantial demand for the available on street parking spaces and alternative parking spaces exist nearby. Mitigation Measures: 4.9-1: Traffic Control and Safety Assurance Plan. 4.9-6: Roadway Rehabilitation Program. ***Operations and Maintenance:*** **Similar** – Operations and facility siting impacts would be similar to those of the proposed project Transmission Main and would have the same level of impact significance as the proposed project alignment. Any increases in traffic generated by facility operations and maintenance would be negligible compared to existing conditions and would not result in a noticeable increase in traffic on adjacent streets. Therefore, the long-term increases in vehicle trips during operations and maintenance would result in a LS impact. Mitigation Measures: None required.
Air Quality	***Construction Activities:*** Generated emissions of criteria air pollutants and contribution to the violation of an ambient air quality standard during construction of the proposed project Transmission Main (and all other project components) would be LSM. The proposed project Transmission Main (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. Mitigation Measures: 4.10-1a: Construction Fugitive Dust Control Plan. 4.10-1c: Idling Restrictions. ***Operations and Maintenance:*** Operation and maintenance of the proposed project Transmission Main would have no related to the increase of criteria pollutant emissions that could affect	***Construction Activities:*** **Similar** – All construction-related air quality impacts and would have the same level of impact significance as the proposed project alignment. Installation of the Alternative Transmission Main would result in similar, albeit less, emissions of criteria pollutants due to the decrease in pipe length. However, Alternative Transmission Main would be located near a greater number of sensitive receptors that could be exposed to emissions from construction activities. Maximum daily emissions of PM_{10} would exceed the MBUAPCD significance threshold of 82 pounds per day, a LSM impact. Construction activities would not expose sensitive receptors to substantial pollutant concentrations or create objectionable odors that would affect a substantial number of people (LS). Mitigation Measures: 4.10-1a: Construction Fugitive Dust Control Plan. 4.10-1c: Idling Restrictions.

TABLE 7-11 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS – ALTERNATIVE TRANSMISSION MAIN ALIGNMENT

Environmental Topic Area	**Proposed Project: Transmission Main Route** *(new construction)*	**Alternative Transmission Main Route** *(new construction)*
Air Quality (cont.)	regional air quality. The proposed project Transmission Main would result in no impacts related to the potential to expose sensitive receptors to substantial pollutant concentrations or create objectionable odors affecting a substantial number of people during operations. Mitigation Measures: None required.	***Operations and Maintenance:*** **Similar** – Operation and maintenance of the Alternative Transmission Main would not result in the direct emissions of criteria pollutants. Therefore, no impact related to the long-term increase in criteria pollutants would result. The alternative alignment wouldn't include an on-site DPM emissions source; therefore, no impact related to the exposure of sensitive receptors to substantial pollutant concentrations would result. Implementation of the alternative alignment would not create a source of objectionable odors; no impact related to objectionable odors would result. Mitigation Measures: None required.
Greenhouse Gas Emissions	***Construction Activities:*** The contribution to climate change of GHG emissions from construction of the proposed project Transmission Main, in conjunction with other project construction amortized over the 30 month construction period would have a SUM impact. Mitigation Measures: 4.11-1: Carbon Footprint Reporting and Offsets Plan. 4.18-1: Construction Equipment Efficiency Plan. ***Operations and Maintenance:*** The contribution to climate change of GHG emissions from operation and maintenance of the proposed project Transmission Main, in conjunction with other project operations would be SUM because the proposed project would not be consistent with the GHG emission reduction goals for year 2020 identified in Executive Order S-3-05 and AB. The proposed project Transmission Main, in conjunction with other project operations would result in a LS related to the conflict with AB 32 Climate change Scoping Plan. Mitigation Measures: 4.11-1: Carbon Footprint Reporting and Offsets Plan. 4.18-1: Construction Equipment Efficiency Plan.	***Construction Activities:*** **Similar** – The impacts associated with GHG emissions would be similar to those of the proposed project Transmission Main alignment and would have the same level of impact significance. The Alternative Transmission Main would be located within the same setting for GHG emissions as the proposed project. The GHG emissions and the total net operation emissions for the Alternative Transmission Main (and all other project components) would exceed the land use development significance threshold of 2,000 metric tons CO2e per year. Therefore, the Alternative Transmission Main (and all other proposed project components) short-term contribution to overall GHG emissions would be SUM. Mitigation Measures: 4.11-1: Carbon Footprint Reporting and Offsets Plan. 4.18-1: Construction Equipment Efficiency Plan. ***Operations and Maintenance:*** **Similar** – As for the proposed project alignment, impact related to long-term GHG emission during operation and maintenance of the Alternative Transmission Main would be SUM. Mitigation Measures: 4.11-1: Carbon Footprint Reporting and Offsets Plan. 4.18-1: Construction Equipment Efficiency Plan.

TABLE 7-11 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS – ALTERNATIVE TRANSMISSION MAIN ALIGNMENT

Environmental Topic Area	**Proposed Project: Transmission Main Route** *(new construction)*	**Alternative Transmission Main Route** *(new construction)*
Noise and Vibration	***Construction Activities:*** Construction of the proposed project Transmission Main would have a LSM impacts from a substantial temporary increase in ambient noise levels and exposure of people to construction-related noise levels in excess of established standards. Impacts from exposure of people to excessive groundborne vibration during construction would be LSM. The proposed project Transmission Main would result in a LSM impact associated with conflicts with local construction time limits. Mitigation Measures: 4.12-1a: Neighborhood Notice. 4.12-1b: General Noise Controls for Construction Equipment. 4.12-1c: Noise Control Plan for Nighttime Pipeline Construction. 4.12-3: Vibration Reduction Measures. ***Operations and Maintenance:*** The proposed project Transmission Main would have no impact as a result of ambient noise or permanent noise increases. Mitigation Measures: None required.	***Construction Activities:*** **Similar** – Construction impacts associated with noise and vibration would be similar to those of the proposed project Transmission Main alignment and would have the same level of impact significance. The Alternative Transmission Main would be located within the same distance to sensitive receptors as the proposed project Transmission Main however it would be located near a greater number of sensitive receptors. During construction of the Alternative Transmission Main, the resultant daytime noise level at residential receptors is anticipated to be similar to the proposed project, which could be as high as 74.7 dBA. This impact would be LS. Like the proposed project Transmission Main, construction could occur during the night. The resultant nighttime noise levels at the residential receptors could be as high as 74 dBA, Leq, which would exceed the sleep interference threshold of 60 dBA. Therefore the impact related to the increase of ambient noise levels during construction would be LSM. The City of Seaside does not have established noise level limits for construction activities. However, like the proposed project alignment the Alternative Transmission Main would be within the jurisdiction of the City of Marina and has the potential to generation of noise in excess of regulatory noise standards. Therefore this impact is LSM. Like the proposed project Transmission Main, open trench construction of the Alternative Transmission Main would result in LS impacts related to excessive groundborne vibrations. However trenchless pipeline installation methods such as sheeting piling would generate vibration levels above the 0.3-in/sec PPV structural damage threshold at modern buildings if it were to occur within 45 feet of such a structure. Furthermore, vibration levels from rollers would exceed the “strongly perceptible” threshold of 0.1 in/sec PPV, at 85 feet or closer to sensitive land uses. Therefore, the impact would be LSM related to groundborne vibrations. Like the proposed project Transmission Main, the Alternative Transmission Main could require approval by the City of Marina to deviate from the noise ordinance time limits; therefore, the impact related to construction time limits would be LSM. Mitigation Measures: 4.12-1a: Neighborhood Notice. 4.12-1b: General Noise Controls for Construction Equipment. 4.12-1c: Noise Control Plan for Nighttime Pipeline Construction. 4.12-3: Vibration Reduction Measures.

TABLE 7-11 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS – ALTERNATIVE TRANSMISSION MAIN ALIGNMENT

Environmental Topic Area	**Proposed Project: Transmission Main Route** *(new construction)*	**Alternative Transmission Main Route** *(new construction)*
Noise and Vibration (cont.)		***Operations and Maintenance:*** **Similar** – Like the proposed project alignment, operation and maintenance of the Alternative Transmission Main would have no impact related to noise and vibration. Mitigation Measures: None required.
Public Services and Utilities	***Construction Activities:*** Installation of the proposed project Transmission Main would result in a LSM impact related to disruption or relocation of regional or local utilities. The proposed project Transmission Main (and all other proposed project components) would result in a LSM impact related to potential conflicts with federal, state, and local statutes and regulations related to solid waste diversion. 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. 4.13-1f: Ensure Prompt Reconnection of Utilities 4.13-2: Construction Waste Reduction and Recycling Plan. ***Operations and Maintenance:*** Operation of the proposed project Transmission Main would have a LS impact related to the potential to exceed landfill capacity and compliance with federal, state, and local statutes and regulations related to solid waste. The proposed project Transmission Main would not result in the construction of new wastewater treatment or conveyance facilities, the expansion of existing facilities, exceed wastewater treatment requirements of the Central Coast RWQCB; therefore, no impact. The proposed project Transmission Main would not result in the increased corrosion of the MRWPCA Outfall or diffuser. Mitigation Measures: None required.	***Construction Activities:*** **Similar** – Construction of the Alternative Transmission Main would result in the same impacts to public services and utilities as the proposed project Transmission Main and would have the same level of impact significance. Like the proposed project Transmission Main, construction of the Alternative Transmission Main could damage or interfere with existing water, sewer, stormwater drainage, natural gas, electric, or communication lines. Construction could require the permanent relocation of these utility lines, potentially interrupting service if the lines could not be avoided. Accidental rupture of or damage to utility lines during project construction could temporarily disrupt utility services and, in the case of high-risk utilities, such as high-pressure gas pipelines, could result in significant safety hazards for construction workers. For these reasons, impacts on existing utilities and utility services during construction would be LSM. The alternative alignment is anticipated to generate an equal volume construction waste as the proposed project Transmission Main, if not less, and would require slightly less area of ground disturbance. The amount of waste by project construction would not exceed or substantially deplete the landfill capacity. However, failing to divert a substantial portion of the waste generated during project construction could conflict with county and local diversion goals and policies, and could adversely affect the jurisdictions' waste diversion rates, a LSM impact. 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. 4.13-1f: Ensure Prompt Reconnection of Utilities

TABLE 7-11 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS – ALTERNATIVE TRANSMISSION MAIN ALIGNMENT

Environmental Topic Area	**Proposed Project: Transmission Main Route** *(new construction)*	**Alternative Transmission Main Route** *(new construction)*
Public Services and Utilities (cont.)		4.13-2: Construction Waste Reduction and Recycling Plan. ***Operations and Maintenance:*** **Similar** – Operations and maintenance of the Alternative Transmission Main would be similar to those of the proposed project Transmission Main and would have the same level of impact significance as the proposed project alignment. The Alternative Transmission Main would generate minimal waste during operations and maintenance. The impact associated with landfill capacity and compliance with local, state, and federal regulations related to solid waste would be LS. Operation and maintenance of the Alternative Transmission Main would not require additional employees; therefore, any increase in wastewater generated would be de minimus and would not exceed wastewater treatment capacity (NI). The Alternative Transmission Main would not require the construction of wastewater treatment facilities or affect the treatment processes at the regional wastewater treatment plant. There would not impact related to outfall capacity. The Alternative Transmission Main would not result in the increased corrosion of the MRWPCA outfall and diffuser as a result of brine discharge associated with project operations. Mitigation Measures: None required.
Aesthetics	***Construction Activities:*** Construction of the proposed project Transmission Main would have a LS impact on scenic resources or the visual character of the project area and surroundings. However, the proposed project Transmission Main would result in LSM impacts from temporary light and glare, as a result of nighttime construction lighting. Improvement Measure: 4.14-1: Maintain Clean and Orderly Construction Sites. Mitigation Measures: 4.14-2: Site-Specific Construction Lighting Measures. ***Operations and Facility Siting:*** Once constructed the proposed project Transmission Main would be underground and thus would have no permanent impacts on scenic resources or the visual character of the area.	***Construction Activities:*** **Similar** – Construction impacts to aesthetic resources would be similar to those of the proposed project Transmission Main and would have the same level of impact significance as the proposed project alignment. Installation of the alternative alignment would occur within the Urban and Built-up, Beach and Coastal Dunes, and Oak Woodland landscape unit and generally within the Monterey Peninsula Recreational Trail and/or TAMC road rights-of-way. No scenic resources would be affected by pipeline construction. Given the limited extent and temporary nature of pipeline construction, the impact to visual character would be LS. Nighttime construction activities would involve the use of high output lamps, such as halogen, mercury vapor, or high-pressure sodium lamps, which would introduce a new substantial source of light into the area. This light would affect nighttime views from and could temporarily affect nighttime motorists' vision along Highway 1 other roadways along which nighttime pipeline construction would occur. Therefore, the impact related to temporary sources of substantial light or glare during construction would be LSM.

TABLE 7-11 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS – ALTERNATIVE TRANSMISSION MAIN ALIGNMENT

Environmental Topic Area	**Proposed Project: Transmission Main Route** *(new construction)*	**Alternative Transmission Main Route** *(new construction)*
Aesthetics (cont.)	Mitigation Measures: None required.	Improvement Measure: 4.14-1: Maintain Clean and Orderly Construction Sites. Mitigation Measures: 4.14-2: Site-Specific Construction Lighting Measures. ***Operations and Facility Siting:*** **Similar** – Like the proposed project Transmission Main, the Alternative Transmission Main would be underground and thus would have no permanent impacts on scenic resources or the visual character of the area. Mitigation Measures: None required.
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 direct or indirect APE for the proposed project Transmission Main. Therefore, no impact to historical resources would result from construction of the proposed project Transmission Main. The potential inadvertent discovery of archaeological resources and human remains during construction of the proposed project Transmission Main is considered a significant impact, however could be mitigated to LSM. Construction of the proposed project Transmission Main would result in a LS impact related to the direct or indirect destruction of a unique paleontological resource. Mitigation Measures: 4.15-2b: Inadvertent Discovery of Cultural Resources. 4.15-4: Inadvertent Discovery of Human Remains.	***Construction Activities:*** **Similar** – All construction impacts would be similar to those of the proposed project Transmission Main and would have the same level of impact significance. Like the proposed project Transmission Main, the alternative alignment is not within the direct APE of historical or archaeological resources eligible for listing in the CRHR or the NRHP. Therefore, no impact to known historical or archaeological resources would result from construction of the alternative alignment. There is however the potential to uncover unknown archaeological resources during project construction, a LSM impact. Although the Monterey Formation is known to have vertebrate fossils that would qualify as a significant paleontological resource, the alternative alignment would be constructed within a limited extent of the Monterey Formation and within previously-disturbed rights-of-way. Therefore, the potential impact to paleontological resources would be LS. While no known human remains have been documented within the direct APE for the alternative alignment, the possibility of inadvertently uncovering human remains cannot be entirely discounted. The potential inadvertent discovery of human remains would result in an LSM impact. Mitigation Measures: 4.15-2b: Inadvertent Discovery of Cultural Resources. 4.15-4: Inadvertent Discovery of Human Remains.

TABLE 7-11 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS – ALTERNATIVE TRANSMISSION MAIN ALIGNMENT

Environmental Topic Area	**Proposed Project: Transmission Main Route** *(new construction)*	**Alternative Transmission Main Route** *(new construction)*
Agriculture and Forest Resources	***Construction Activities:*** Construction of the proposed project Transmission Main would have no impacts related to conversion of important farmland or land zoned for agriculture to non-agricultural uses because the pipeline is not located in an area mapped as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance or lands zoned for agricultural uses. Similarly, the proposed project alignment would have no impact related to conflicts Williamson Act contracts because the pipeline would not traverse land that is under a Williamson Act. Further, the proposed project alignment would not otherwise change the existing environment in a way that would result in the conversion of farmland to non-agricultural uses. No impact would result. Mitigation Measures: None required.	***Construction Activities:*** **Similar** – The impacts associated with agriculture and forest resources would be identical to those of the proposed project Transmission Main and would have the same level of impact significance (no impact). Mitigation Measures: None required.
Mineral Resources	***Construction Activities:*** Construction and operation of the proposed project Transmission Main would have a LS impact on mineral resources. Mitigation Measures: None required.	***Construction Activities:*** **Similar** – Like the proposed project Transmission Main installing the Alternative Transmission Main within or immediately adjacent to existing road, Monterey Peninsula Recreational Trail or TAMC rights-of-way would minimize disturbance to nearby MRZ-2 land. Because the pipeline would have a limited footprint and would not be constructed across any active mining areas, it would not result in a significant reduction in the availability of mineral resources (primarily sand dunes). Therefore, construction and operation of the Alternative Transmission Main would result in a LS impact on mineral resources. Mitigation Measures: None required.
Energy Conservation	***Construction Activities:*** Construction of the proposed project Transmission Main (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 impact. Mitigation Measures: 4.18-1: Construction Equipment Efficiency Plan. 4.10-1c: Idling Restrictions.	***Construction Activities:*** **Similar** – The impacts associated with energy conservation would be similar to those of the proposed project Transmission Main and would have the same level of impact significance as the proposed project alignment. Construction activities for the Alternative Transmission Main could result in the wasteful or inefficient use of energy if construction 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 for construction to use large amounts of fuel or energy in a wasteful or inefficient manner is considered a LSM impact.

TABLE 7-11 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS – ALTERNATIVE TRANSMISSION MAIN ALIGNMENT

Environmental Topic Area	**Proposed Project: Transmission Main Route** *(new construction)*	**Alternative Transmission Main Route** *(new construction)*
Energy Conservation (cont.)	***Operations and Maintenance:*** Operation and maintenance of the proposed project Transmission Main would not use fossil fuels and electricity or have any effect on local or regional energy supplies. Mitigation Measures: None required.	Mitigation Measures: 4.18-1: Construction Equipment Efficiency Plan. 4.10-1c: Idling Restrictions. ***Operations and Maintenance:*** **Similar** – Same as the proposed project Transmission Main, operation and maintenance of the Alternative Transmission Main would not use fossil fuels and electricity or have any effect on local or regional energy supplies. Mitigation Measures: None required.
Population and Housing	***Construction and Operation Activities:*** Construction of the proposed project Transmission Main would require up to 25 construction workers. The potential for project construction to induce substantial population growth as a result of construction would be LS as the proposed project Transmission Main (and all other project components) would not create employment opportunities substantially greater than would normally be available to construction workers in the area. Although up to 30 additional personnel would be needed to operate the proposed project Desalination Plant, there would be no increase in staffing to operate and maintain the proposed project Transmission Main. Overall, the direct growth-inducing impact of the proposed project Transmission Main, and proposed project as a whole, would be LS. Mitigation Measures: None required.	***Construction and Operation Activities:*** **Similar** – The impacts to population and housing associated with implementation of the Alternative Transmission Main would be the same as those associated with the proposed project alignment (LS). Mitigation Measures: None required.

TABLE 7-12
COMPARISON OF ENVIRONMENTAL EFFECTS – ALTERNATIVE TRANSFER PIPELINE ALIGNMENT

Environmental Topic Area	Proposed Project Transfer Pipeline	Alternative Transfer Pipeline Alignment
Geology, Soils, and Seismicity	***Construction Activities:*** Construction of the proposed project Transfer Pipeline would have a LSM impact associated with loss of topsoil. Mitigation Measures: 4.6-2b: Avoid, Minimize, and Compensate for Direct Construction Impacts to Sensitive Communities. ***Operations and Facility Siting:*** Operation and maintenance of the proposed project Transfer Pipeline would have a LS impact related to the potential to expose people or structures to seismically-induced groundshaking, liquefaction, and lateral spreading. There would be no impact from the potential to expose people or structures to fault rupture, landslides, coastal retreat due to sea level rise, subsidence, expansive or corrosive soils. Mitigation Measures: None required.	***Construction Activities:*** **Similar** – Construction-related soil erosion would be similar to that of the proposed project alignment because the pipelines are roughly the same length and the associated ground disturbance area would also be roughly the same. Like the proposed project pipeline alignment, the impact associated with increased soil erosion would be LS because construction activities would be conducted in accordance with requirements of the NPDES Construction General Permit and local grading and erosion control ordinances. Like the proposed project Transfer Pipeline alignment, the alternative alignment would extend into central maritime chaparral east of General Jim Moore Boulevard and would result in a LSM impact related to loss of topsoil. Mitigation Measures: 4.6-2b: Avoid, Minimize, and Compensate for Direct Construction Impacts to Sensitive Communities. ***Operations and Facility Siting:*** **Similar** – Operations and facility siting impacts would be similar to those of the proposed project Transfer Pipeline alignment and would have the same level of impact significance as the proposed project alignment. Like the proposed project alignment, the alternative alignment is not close enough to faults to be vulnerable to surface fault rupture; therefore, there would be no impact. The impact related to seismically-induced groundshaking, liquefaction, and lateral spreading would be LS because the alternative pipeline would be designed in accordance with the recommendations of a design-level geotechnical investigation, the current California Building Code, and local ordinances regulating construction. Like the proposed pipeline alignment, the alternative alignment would have no impact related to landslides because it would be located in an area with relatively flat to gently-sloping topography that is not susceptible to landslides. The alternative pipeline alignment would not be close enough to the coast to be vulnerable to coastal retreat; therefore, no impact would result. There would be no impact related to subsidence because the alternative pipeline would not be used to extract groundwater. There would be no impact related to expansive soils because the alternative alignment is located in soils with a low linear extensibility potential. There would be no impact related to corrosive soils because the alternative alignment would be located in soils with a low corrosivity potential. Mitigation Measures: None required.

TABLE 7-12 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS – ALTERNATIVE TRANSFER PIPELINE ALIGNMENT

Environmental Topic Area	Proposed Project Transfer Pipeline	Alternative Transfer Pipeline Alignment
Surface Water Hydrology and Water Quality	***Construction Activities:*** The proposed project Transfer Pipeline would have a LS impact related to degradation of water quality associated with increased soil erosion and sedimentation, and inadvertent releases of toxic chemicals during construction, and a LSM impact from construction-related discharges of dewatering effluent from open excavations. Mitigation Measures: 4.7-2b: Soil and Groundwater Management Plan. ***Operations and Facility Siting:*** The proposed project Transfer Pipeline would have no impact on potential to violate water quality standards or waste discharge requirements or result in an adverse water quality effect as a result of brine discharges or alteration of drainage patterns in a way that would increase erosion, siltation, the amount of surface runoff and increase flooding on- or offsite or the capacity of the stormwater drainage systems. The proposed project Transfer Pipeline would not be located in an area that would be subject to flooding from sea level rise; further, the underground pipeline would be designed to withstand inundation. Therefore, no impact related to exposure of people or structures to a significant risk of loss, injury, or death from flooding due to sea level rise would result. No impacts related to the siting of the proposed project Transfer Pipeline in a 100-year flood hazard area and impedance or redirection of flood flows, or exposure of people or structures to risk of loss, injury, or death from flooding due to a tsunami would result. Mitigation Measures: None required.	***Construction Activities:*** **Similar** – All construction-related impacts to surface water hydrology and water quality would be similar to those of the proposed project Transfer Pipeline alignment and would have the same level of impact significance as the proposed project alignment. The impact related to soil erosion and inadvertent releases of toxic chemicals during construction would be similar to that of the proposed project alignment because the two pipelines are similar in the length, and would result in about the same ground disturbance area. However, the impact would remain LS because construction activities would be conducted in accordance with the NPDES General Construction Permit. Although it is anticipated that most dewatering effluent from open excavations could be disposed of in accordance with the General WDRs, if discharges of dewatering effluent were to exceed the water quality limitations in the General WDRs, a significant impact would result. Like the proposed project alignment, this analysis conservatively assumes the alternative alignment would result in a LSM impact to water quality from discharges of dewatering effluent from open excavations. Like the proposed project alignment, the impact related to degradation of water quality from discharges of disinfectant from the newly installed pipeline would be LS with mandatory compliance with the General WDRs. Mitigation Measures: 4.7-2b: Soil and Groundwater Management Plan. ***Operations and Facility Siting:*** **Similar** – Operations and facility siting impacts would be similar to those of the proposed project Transfer Pipeline alignment and would have the same level of impact significance as the proposed project alignment. The Alternative Transfer Pipeline alignment would have no impact related to discharges of brine or any other discharges associated with operations and maintenance. Once constructed, the Alternative Transfer Pipeline would be located entirely underground and the surface along the pipeline alignment would be restored to pre-construction conditions. Therefore, there would be no impacts related to long-term changes in drainage patterns. The Alternative Transfer Pipeline alignment would not be located within a 100-year flood hazard area, within a tsunami inundation zone, or in areas that would be subject to flooding from sea level rise. Therefore, no impact would occur related to flooding. Mitigation Measures: None required.

TABLE 7-12 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS – ALTERNATIVE TRANSFER PIPELINE ALIGNMENT

Environmental Topic Area	Proposed Project Transfer Pipeline	Alternative Transfer Pipeline Alignment
Groundwater Resources	***Construction Activities:*** Construction of the proposed project Transfer Pipeline would have a LS impact related to depletion of groundwater supplies. Impact related to degradation of groundwater quality during pipeline installation activities would occur; impacts would be LS. Mitigation Measures: None required. ***Operations and Maintenance:*** Operation and maintenance of the proposed project Transfer Pipeline would have no impact on groundwater resources. Mitigation Measures: None required.	***Construction Activities:*** **Similar** - Construction-related impacts to groundwater would be the same as those of the proposed project Transfer Pipeline alignment and would have the same level of impact significance as the proposed project alignment. Although it is not anticipated that temporary construction dewatering would be needed for the Alternative Transfer Pipeline, if groundwater is encountered in open trenches and dewatering is needed, it would occur only in isolated areas. As a result, installation of the Alternative Transfer Pipeline alignment would have a LS impact related to depletion of groundwater supplies. Like the proposed project, the impact related to degradation of groundwater quality during pipeline installation activities would be LS. Mitigation Measures: None required. ***Operations and Maintenance:*** **Similar** – Like the proposed project pipeline, operation and maintenance of the Alternative Transfer Pipeline would have no effect on groundwater resources, and no impact would result. Mitigation Measures: None required.
Marine Biological Resources	The proposed project Transfer Pipeline alignment would have no impact on marine biological resources. Mitigation Measures: None required.	**Similar** - Like the proposed project Transfer Pipeline alignment, the Alternative Transfer Pipeline would have no impact on marine biological resources. Mitigation Measures: None required.
Terrestrial Biological Resources	***Construction Activities:*** Installation of the proposed project Transfer Pipeline would result in LSM impacts related to: adverse effects on species identified as candidate, sensitive, or special-status; sensitive natural communities; and potential conflicts with the local tree ordinance. Construction of the proposed project Transfer Pipeline would result in a LS impact associated with federal wetlands, federal other waters, and/or waters of the State.	***Construction Activities:*** **Similar** - The Alternative Transfer Pipeline alignment would be located within the same type of habitat as the proposed project alignment. Construction-related impacts to terrestrial biological resources would be the same as those of the proposed project Transfer Pipeline alignment and the alternative alignment would have the same level of impact significance as the proposed project alignment. The Alternative Transfer Pipeline alignment would result in LSM impacts on the same extent of central maritime chaparral habitat located

TABLE 7-12 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS – ALTERNATIVE TRANSFER PIPELINE ALIGNMENT

Environmental Topic Area	Proposed Project Transfer Pipeline	Alternative Transfer Pipeline Alignment
Terrestrial Biological Resources (cont.)	4.6-1b: Construction Worker Environmental Awareness Training and Education Program. 4.6-1c: General Avoidance and Minimization Measures. 4.6-1e: Avoidance and Minimization Measures for Special-status Plants. 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. 4.6-2b: Avoid, Minimize, and Compensate for Construction Impacts to Sensitive Communities. 4.6-4: Compliance with Local Tree Policies and Ordinances. 4.14-2: Site-Specific Construction Lighting Measures. ***Operations and Maintenance:*** Operation and maintenance of the proposed project Transfer Pipeline would no impact related to species identified as candidate, sensitive, or special-status; riparian habitat, critical habitat, or other sensitive natural communities; federal wetlands, federal other waters, and/or waters of the state; and interference with migratory corridors and wildlife nurseries. The proposed project Transfer Pipeline would extend into the Fort Ord Habitat Management Plan (HMP) area and could conflict with management measures in the HMP, a LSM impact. <u>Mitigation Measures:</u> 4.6-11: Management Requirements within Borderland Development Areas along Natural Resource Management Area Interface.	on former Fort Ord lands east of General Jim Moore Boulevard and the same special-status species as the proposed project Transfer Pipeline. Like the proposed project alignment, there are no known potentially jurisdictional waterbodies along the Alternative Transfer Pipeline alignment and the impact to federal wetlands, federal other waters, and/or waters of the State would be LS. Like the proposed project alignment, installation of the alternative alignment could conflict with the local tree ordinance, a LSM impact. <u>Mitigation Measures:</u> 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. 4.6-1e: Avoidance and Minimization Measures for Special-status Plants. 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. 4.6-2b: Avoid, Minimize, and Compensate for Construction Impacts to Sensitive Communities. 4.6-4: Compliance with Local Tree Policies and Ordinances. 4.14-2: Site-Specific Construction Lighting Measures.

TABLE 7-12 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS – ALTERNATIVE TRANSFER PIPELINE ALIGNMENT

Environmental Topic Area	Proposed Project Transfer Pipeline	Alternative Transfer Pipeline Alignment
Terrestrial Biological Resources (cont.)		***Operations and Maintenance:*** **Similar** – Operations and maintenance impacts to terrestrial biological resources would be identical to those of the proposed project Transfer Pipeline alignment and the alternative alignment would have the same level of impact significance as the proposed project alignment. No impact to 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. Same as the proposed project alignment, the Alternative Transfer Pipeline would extend into the HMP area and conflict with management measures in the HMP. As no information has been provided by the project applicant indicating that the pipeline would include invasive species control or the use of firebreaks, this analysis assumes the alternative alignment would conflict with this HMP management measure. The conflict with the HMP is a LSM impact. Mitigation Measures: 4.6-8: Management Requirements within Borderland Development Areas along Natural Resource Management Area Interface.
Hazards and Hazardous Materials	***Construction Activities:*** Installation of the proposed project Transfer Pipeline would result in a LS impact associated with the potential to create a hazard to the public through the routine transport, use, and disposal of hazardous materials. The proposed project Transfer Pipeline would have a LSM impact associated with the potential to release hazardous materials to the environment. The impact related to increased risk of fire during proposed project Transfer Pipeline construction would be a LS impact. The impact related to siting the proposed project Transfer Pipeline on a known hazardous materials site would be LS. Installation of the proposed project Transfer Pipeline would result in LS impact from the handling of hazardous materials and generation of hazardous emissions within 0.25 mile of a school. Mitigation Measures: 4.7-2a: Health and Safety Plan. 4.7-2b: Soil and Groundwater Management Plan. ***Operations and Maintenance:*** Operation of the proposed project Transfer Pipeline would not involve the routine storage or use of hazardous materials. Thus, no impact would occur. There would be no impact from hazardous materials handling or hazardous emissions within 0.25 mile of a school during operation of the proposed project Transfer	***Construction Activities:*** **Similar** – Construction-related impacts to hazards and hazardous materials would be the same as those of the proposed project Transfer Pipeline alignment and would have the same level of impact significance as the proposed project alignment. The portion of the Alternative Transfer Pipeline alignment located east of General Jim Moore Boulevard would also be within the Seaside MRA. This is a known hazardous materials site and is identified on the National Priorities List. Construction activities within this area have the potential to encounter unexploded ordnance which, if not identified and properly handled, could cause injury or death to construction workers. However, compliance with the applicable regulations for construction work at the former Fort Ord military base (discussed under Impact 4.7-3 in Section 4.7, Hazards and Hazardous Materials) would address the potential impact of encountering unexploded ordnance during project construction. Therefore, the impact associated with siting the pipeline on a known hazardous materials site would be LS. Because construction activities would comply with numerous hazardous materials and stormwater regulations designed to ensure that hazardous materials are transported, used, stored, and disposed of in a safe manner, the impact related to the routine transport, use, and disposal of hazardous materials during pipeline installation activities would be LS. Like the proposed

TABLE 7-12 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS – ALTERNATIVE TRANSFER PIPELINE ALIGNMENT

Environmental Topic Area	Proposed Project Transfer Pipeline	Alternative Transfer Pipeline Alignment
Hazards and Hazardous Materials (cont.)	Pipeline. The proposed project Transfer Pipeline would be located within an airport land use plan area but would not be located within the runway safety area; therefore, no impact related to airport safety hazards would result. Mitigation Measures: None required.	project alignment, past releases may have affected subsurface conditions at various locations along the alternative pipeline alignment. Therefore, the impact associated with the potential to release hazardous materials to the environment during construction would be LSM. Multiple schools, including Highland Elementary School (650 Sonoma Avenue, Seaside are located within 0.25 mile of the proposed Transfer Pipeline alignment. Based on a screening-level analysis discussed in Section 4.10, Air Quality, construction-related DPM emissions would be less than the Monterey Bay Unified Air Pollution Control District's increased cancer risk threshold. Therefore, the impact related to handling hazardous materials and emitting hazardous emissions within 0.25 mile of a school during pipeline installation activities would be LS. The alternative pipeline alignment would not be located within or near an area classified by CAL FIRE as a High or Very High Fire Hazard Severity Zone but construction activities could temporarily increase fire risk. However, the impact related to wildfires would be LS because construction would comply with applicable California fire code regulations. Mitigation Measures: 4.7-2a: Health and Safety Plan. 4.7-2b: Soil and Groundwater Management Plan. ***Operations and Maintenance:*** **Similar -** The Alternative Transfer Pipeline alignment would result in the same operations and maintenance impacts to hazards and hazardous materials as the proposed project pipeline. There would be no impacts related to the routine transport, use and disposal of hazardous materials, or hazardous materials handling or generation of hazardous emissions within 0.25 mile of a school during operations. The Alternative Transfer Pipeline would be located in the Monterey Peninsula Airport planning area; however, the alternative alignment would not be located within the runway safety area. Therefore, the impact to airport safety would be LS. Mitigation Measures: None required.
Land Use, Land Use Planning, and Recreation	The proposed project Transfer Pipeline would be aligned along existing Class III bike routes on La Salle Avenue, Yosemite Street, and Hilby Avenue, and would cross a Class I bike route on General Jim Moore Boulevard. Temporary closure of bicycle lanes during pipeline installation could directly affect recreational activities. However, such disruptions would be temporary and limited to the project's construction phase. Upon completion of construction, the disturbed	**Similar** - The construction-related direct effects of the alternative alignment on use of recreational facilities (e.g., bicycle and pedestrian pathways) would be the same as to those of the proposed project Transfer Pipeline alignment. The Alternative Transfer Pipeline would be aligned along existing Class III bike routes on La Salle Avenue, Noche Buena Street, and Hilby Avenue. Like the proposed project alignment, the alternative alignment would temporarily bisect

TABLE 7-12 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS – ALTERNATIVE TRANSFER PIPELINE ALIGNMENT

Environmental Topic Area	Proposed Project Transfer Pipeline	Alternative Transfer Pipeline Alignment
Land Use, Land Use Planning, and Recreation (cont.)	areas would be returned to their approximate pre-construction condition. Implementation of the proposed project Transfer Pipeline would have no long-term effect on recreational resources. The plans, policies, and regulations related to land use and recreation in **Table 4.8-2** reflect the long-term visions of the respective jurisdictions with respect to land use and development and are not directly relevant to temporary construction activities. Therefore, the proposed project alignment would not substantially conflict with plans, policies, or regulations that were adopted for the purpose of avoiding or mitigating an adverse environmental effect related to land use or recreation. The impact would be LS. Mitigation Measures: None required.	the Class II bicycle lane and sidewalk on General Jim Moore Boulevard. However, for the same reasons as the proposed project alignment, the alternative alignment would not substantially conflict with plans, policies, or regulations related to land use or recreation and the impact significance determination would be the same as for the proposed Monterey Pipeline alignment. The impact would be LS. Mitigation Measures: None required.
Traffic and Transportation	***Construction Activities:*** Construction activities associated with installation of the proposed project Transfer Pipeline would result in LSM impacts related to: temporary traffic increases from construction workers and trucks traveling to and from the construction work areas; temporary reduction in the capacities of roadways due to construction within the road right-of-way; increases in traffic safety hazards due to potential conflicts between large construction vehicles and other vehicles, bicyclists, and pedestrians; impaired emergency access, temporary disruptions to public transportation, bicycle, and pedestrian facilities; and wear and tear on smaller haul route roads caused by heavy trucks transporting equipment and material to and from construction work areas. The proposed project Transfer Pipeline would have LS impacts on parking interference. Mitigation Measures: 4.9-1: Traffic Control and Safety Assurance Plan. 4.9-6: Roadway Rehabilitation Program. ***Operations and Facility Siting:*** Long-term traffic increases from operation and maintenance of the proposed project Transfer Pipeline would be a LS impact. Mitigation Measures: None required.	***Construction Activities:*** **Similar** – Construction-related impacts to traffic and transportation would be the same as those of the proposed project Transfer Pipeline alignment and would have the same level of impact significance as the proposed project alignment. The alternative alignment would be installed along Auto Center Parkway, La Salle Avenue, Noche Buena Street, Hilby Avenue, and across General Jim Moore Boulevard. Because the alternative alignment is about the same length as the proposed project alignment, the number of constructed-related vehicle trips would be the same. Like the proposed project alignment, construction-related vehicle traffic could result in increased congestion and delays for vehicles resulting, a LSM impact. Construction activities occurring within vehicle travel lanes and road shoulders could require temporary lane closures and/or detours, also a LSM impact. The impact associated with impaired emergency access during project construction would be LSM. Construction activities associated with the alternative alignment could increase traffic safety hazards in the project area, a LSM impact. Pipeline installation activities could temporarily affect public transportation, bicycle travel, and pedestrian travel along affected roadways in the project area. This impact would be LSM. Like the proposed project Transfer Pipeline alignment, the impact related to increase wear-and-tear of haul routes would be LSM. The alternative alignment could temporarily displace parking spaces along the affected roadways mentioned above; however, the impact would be LS because the alternative alignment has less than-substantial demand for the available on street parking spaces and alternative parking spaces exist nearby. Mitigation Measures: 4.9-1: Traffic Control and Safety Assurance Plan.

TABLE 7-12 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS – ALTERNATIVE TRANSFER PIPELINE ALIGNMENT

Environmental Topic Area	Proposed Project Transfer Pipeline	Alternative Transfer Pipeline Alignment
Traffic and Transportation (cont.)		4.9-6: Roadway Rehabilitation Program. ***Operations and Facility Siting:*** **Similar** – Operations and facility siting impacts would be similar to those of the proposed project Transfer Pipeline alignment and would have the same level of impact significance as the proposed project alignment. Any increases in traffic generated by facility operations and maintenance would be negligible compared to existing conditions and would not result in a noticeable increase in traffic on adjacent streets. Therefore, the long-term increases in vehicle trips during operations and maintenance would result in a LS impact. Mitigation Measures: None required.
Air Quality	***Construction Activities:*** Generated emissions of criteria air pollutants and contribution to the violation of an ambient air quality standard during construction of the proposed project Transfer Pipeline (and all other proposed project components) would be LSM. The impacts of the proposed project Transfer Pipeline (and all other proposed project components) related to exposure of sensitive receptors to substantial pollutant concentrations and creation of objectionable odors affecting a substantial number of people during construction would be LS. Mitigation Measures: 4.10-1a: Construction Fugitive Dust Control Plan. 4.10-1c: Idling Restrictions. ***Operations and Maintenance:*** Operation and maintenance of the proposed project Transfer Pipeline would have no impact related to the increase of criteria pollutant emissions that could affect regional air quality. The proposed project Transfer Pipeline would result in no impacts related to the potential to expose sensitive receptors to substantial pollutant concentrations or create objectionable odors affecting a substantial number of people during operations. Mitigation Measures: None required.	***Construction Activities:*** **Similar** – Because the proposed project alignment and alternative alignment are of equal length (2.4 miles) and would be located in the same general neighborhood in Seaside, all construction-related air quality impacts of the alternative alignment would be the identical to those of the proposed project Transfer Pipeline alignment and would have the same level of impact significance. The Alternative Transfer Pipeline alignment would be located within the same proximity to sensitive receptors (receptors are roughly 50 feet away for the entire 2.4-mile alignment). Maximum daily emissions of PM_{10} would exceed the Monterey Bay Unified Air Pollution Control District (MBUAPCD) significance threshold of 82 pounds per day, a LSM impact. Construction activities would not expose sensitive receptors to substantial pollutant concentrations or create objectionable odors that would affect a substantial number of people (LS). Mitigation Measures: 4.10-1a: Construction Fugitive Dust Control Plan. 4.10-1c: Idling Restrictions. ***Operations and Maintenance:*** **Similar** – Operation and maintenance of the proposed project Transfer Pipeline would not result in the direct emissions of criteria pollutants. Therefore, no impact related to the long-term increase in criteria pollutants would result. The alternative alignment wouldn't include an on-site DPM emissions source; therefore, no impact related to the exposure of sensitive receptors to substantial pollutant concentrations would result. Implementation

TABLE 7-12 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS – ALTERNATIVE TRANSFER PIPELINE ALIGNMENT

Environmental Topic Area	Proposed Project Transfer Pipeline	Alternative Transfer Pipeline Alignment
Air Quality (cont.)		of the alternative alignment would not create a source of objectionable odors; no impact related to objectionable odors would result. Mitigation Measures: None required.
Greenhouse Gas Emissions	***Construction Activities:*** The contribution to climate change of GHG emissions from construction of the proposed project Transfer Pipeline, in conjunction with other project construction amortized over the 30 month construction period would have a SUM impact. Mitigation Measures: 4.11-1: Carbon Footprint Reporting and Offsets Plan. 4.18-1: Construction Equipment Efficiency Plan. ***Operations and Maintenance:*** The contribution to climate change of GHG emissions from operation and maintenance of the proposed project Transfer Pipeline, in conjunction with other project operations would be SUM because the proposed project would not be consistent with the GHG emission reduction goals for year 2020 identified in Executive Order S-3-05 and AB. The proposed project Transfer Pipeline, in conjunction with other project operations would result in a LS related to the conflict with AB 32 Climate change Scoping Plan. Mitigation Measures: 4.11-1: Carbon Footprint Reporting and Offsets Plan. 4.18-1: Construction Equipment Efficiency Plan.	***Construction Activities:*** **Similar** – The impacts associated with GHG emissions would be similar to those of the proposed project Transfer Pipeline alignment and would have the same level of impact significance. The Alternative Transfer Pipeline would be located within the same setting for GHG emissions as the proposed project. The GHG emissions and the total net operation emissions for the Alternative Transfer Pipeline (and all other project components) would exceed the land use development significance threshold of 2,000 metric tons CO2e per year. Therefore, the Alternative Transfer Pipeline (and all other proposed project components) short-term contribution to overall GHG emissions would be SUM. Mitigation Measures: 4.11-1: Carbon Footprint Reporting and Offsets Plan. 4.18-1: Construction Equipment Efficiency Plan. ***Operations and Maintenance:*** **Similar** – As for the proposed project alignment, impact related to long-term GHG emission during operation and maintenance of the Alternative Transfer Pipeline would be SUM. Mitigation Measures: 4.11-1: Carbon Footprint Reporting and Offsets Plan. 4.18-1: Construction Equipment Efficiency Plan.
Noise and Vibration	***Construction Activities:*** Construction of the proposed project Transfer Pipeline would result in a LS impact from a substantial temporary increase in daytime ambient noise levels. No impact related to exposure of people to construction-related noise levels in excess of established standards would result. Impacts related to structural damage and human annoyance from excessive groundborne vibration during construction would be LSM. The proposed project Transfer Pipeline would result in no impact associated with conflicts with local construction time limits.	***Construction Activities:*** **Similar** – Construction impacts associated with noise and vibration would be similar to those of the proposed project Transfer Pipeline alignment and would have the same level of impact significance. The Alternative Transfer Pipeline alignment would be located within the same distance to sensitive receptors as the proposed project Transfer Pipeline (50 feet for most of its length) and would be located in the same general neighborhood in Seaside. Like the proposed project Transfer Pipeline, construction would occur only during

TABLE 7-12 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS – ALTERNATIVE TRANSFER PIPELINE ALIGNMENT

Environmental Topic Area	Proposed Project Transfer Pipeline	Alternative Transfer Pipeline Alignment
Noise and Vibration (cont.)	Mitigation Measures: 4.12-3: Vibration Reduction Measures. ***Operations and Maintenance:*** The proposed project Transfer Pipeline would have no impact as a result of ambient noise or permanent noise increases. Mitigation Measures: None required.	daytime hours. During construction, the resultant daytime noise level at residential receptors could be as high as 79.2 dBA. Although construction noise at adjacent residences could exceed the speech interference threshold of 70 dBA L_{eq}, the impact would be LS because duration of the impact would be less than two weeks. The City of Seaside does not have established noise level limits for construction activities. Therefore, no impact would result with respect to the generation of noise in excess of regulatory noise standards established by the City of Seaside. Vibration levels from vibratory rollers for construction of the Alternative Transfer Pipeline would reach 0.21 in/sec PPV at a distance of 25 feet. Roller operations closer than 20 feet or jackhammer operations closer than 6 feet could generate vibrations in excess of 0.3 in/sec at a structure, resulting in a LSM impact related to building damage and human annoyance. No impact associated with conflicts with local construction time limits because the Alternative Transfer Pipeline would not require nighttime construction. Mitigation Measures: 4.12-3: Vibration Reduction Measures. ***Operations and Maintenance:*** **Similar** – Like the proposed project alignment, operation and maintenance of the Alternative Transfer Pipeline alignment would have no impact related to noise and vibration. Mitigation Measures: None required.
Public Services and Utilities	***Construction Activities:*** Installation of the proposed project Transfer Pipeline would result in a LSM impact related to disruption or relocation of regional or local utilities. The proposed project Transfer Pipeline (and all other proposed project components) would result in a LSM impact related to potential conflicts with federal, state, and local statutes and regulations related to solid waste diversion. 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.	***Construction Activities:*** **Similar** – Construction of the Alternative Transfer Pipeline would result in the same impacts to public services and utilities as the proposed project Transfer Pipeline alignment and would have the same level of impact significance. Like the proposed project Transfer Pipeline construction of the Alternative Transfer Pipeline could damage or interfere with existing water, sewer, stormwater drainage, natural gas, electric, or communication lines. Construction could require the permanent relocation of these utility lines, potentially interrupting service if the lines could not be avoided. Accidental rupture of or damage to utility lines during project construction could temporarily disrupt utility services and, in the case of high-risk utilities, such as high-pressure gas pipelines, could result in significant safety hazards for construction workers. For these reasons, impacts on existing utilities and utility services during construction

TABLE 7-12 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS – ALTERNATIVE TRANSFER PIPELINE ALIGNMENT

Environmental Topic Area	Proposed Project Transfer Pipeline	Alternative Transfer Pipeline Alignment
Public Services and Utilities (cont.)	4.13-1d: Emergency Response Plan. 4.13-1e: Notify Local Fire Departments. 4.13-1f: Ensure Prompt Reconnection of Utilities 4.13-2: Construction Waste Reduction and Recycling Plan. ***Operations and Maintenance:*** Operation of the proposed project Transfer Pipeline would result in a LS impact related to the potential to exceed landfill capacity and compliance with federal, state, and local statutes and regulations related to solid waste. The proposed project Transfer Pipeline would not result in the construction of new wastewater treatment or conveyance facilities, the expansion of existing facilities, exceed wastewater treatment requirements of the Central Coast RWQCB; therefore, no impact would occur. The proposed project Transfer Pipeline would not result in the increased corrosion of other utility lines (NI). Mitigation Measures: None required.	would be LSM. The alternative alignment is anticipated to generate an equal volume construction waste as the proposed project Transfer Pipeline as they are about the same length and would require about the same area of ground disturbance. The amount of waste by project construction would not exceed or substantially deplete the landfill capacity. However, failing to divert a substantial portion of the waste generated during project construction could conflict with county and local diversion goals and policies, and could adversely affect the jurisdictions' waste diversion rates, a LSM impact. 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. 4.13-1f: Ensure Prompt Reconnection of Utilities 4.13-2: Construction Waste Reduction and Recycling Plan. ***Operations and Maintenance:*** **Similar -** Operations and maintenance of the Alternative Transfer Pipeline alignment would be similar to those of the proposed project Transfer Pipeline alignment and would have the same level of impact significance as the proposed project alignment. The Alternative Transfer Pipeline would have limited potential to generate waste during operations and maintenance, and any waste generated would be nominal. The impact associated with landfill capacity and compliance with local, state, and federal regulations related to solid waste would be LS. Operation and maintenance of the Alternative Transfer Pipeline would not require additional employees; therefore, any increase in wastewater generated would be de minimus and would not exceed wastewater treatment capacity (NI). The Alternative Transfer Pipeline would not require the construction of wastewater treatment facilities or affect the treatment processes at the regional wastewater treatment plant. There would be no impact related to outfall capacity. The Alternative Transfer Pipeline would not result in the increased corrosion of the MRWPCA outfall and diffuser as a result of brine discharge associated with project operations. Mitigation Measures: None required.

TABLE 7-12 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS – ALTERNATIVE TRANSFER PIPELINE ALIGNMENT

Environmental Topic Area	Proposed Project Transfer Pipeline	Alternative Transfer Pipeline Alignment
Aesthetics	***Construction Activities:*** Construction of the proposed project Transfer Pipeline would result in a LS impact on scenic resources and the visual character of the project area and surroundings. The proposed project Transfer Pipeline would have no impact related to new sources of light and glare. Improvement Measures: 4.14-1: Maintain Clean and Orderly Construction Sites. Mitigation Measures: None required. ***Operations and Facility Siting:*** Once constructed the proposed project Transfer Pipeline would be underground and thus would have no permanent impacts on scenic resources or the visual character of the area. Mitigation Measures: None required.	***Construction Activities:*** **Similar** – Construction impacts to aesthetic resources would be similar to those of the proposed project Transfer Pipeline alignment and would have the same level of impact significance as the proposed project alignment. Like the proposed project Transfer Pipeline, installation of the alternative alignment would occur within the Urban and Built-up landscape unit and generally within road rights-of-way. No scenic resources would be affected by pipeline construction. Given the limited extent and temporary nature of pipeline construction, the impact to visual character would be LS. Construction would occur during daytime hours only. As a result, there would be no impact related to construction light and glare. Improvement Measures: 4.14-1: Maintain Clean and Orderly Construction Sites. Mitigation Measures: None required. ***Operations and Facility Siting:*** **Similar** – Like the proposed project Transfer Pipeline once constructed the Alternative Transfer Pipeline would be underground and thus would have no permanent impacts on scenic resources or the visual character of the area. Mitigation Measures: None required.
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 direct or indirect APE for the proposed project Transfer Pipeline. Therefore, no impact to historical resources would result from construction of the proposed Transfer Pipeline. The potential inadvertent discovery of archaeological resources and human remains during construction of the proposed project Transfer Pipeline is considered a significant impact, however could be mitigated to LSM. Construction of the proposed project Transfer Pipeline would result in a LS impact related to the direct or indirect destruction of a unique paleontological resource. Mitigation Measures: 4.15-2b: Inadvertent Discovery of Cultural Resources. 4.15-4: Inadvertent Discovery of Human Remains.	***Construction Activities:*** **Similar** – All construction impacts would be similar to those of the proposed project Transfer Pipeline and would have the same level of impact significance. Like the proposed project Transfer Pipeline alignment, the alternative alignment is not within the direct APE of historical or archaeological resources eligible for listing in the CRHR or the NRHP. Therefore, no impact to known historical or archaeological resources would result from construction of the alternative alignment. There is however the potential to uncover unknown archaeological resources during project construction, a LSM impact. Although the Monterey Formation is known to have vertebrate fossils that would qualify as a significant paleontological resource, the alternative alignment would be constructed within a limited extent of the Monterey Formation and within previously-disturbed road rights-of way. Therefore, the potential impact to paleontological resources would be LS. While no known human remains have

TABLE 7-12 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS – ALTERNATIVE TRANSFER PIPELINE ALIGNMENT

Environmental Topic Area	Proposed Project Transfer Pipeline	Alternative Transfer Pipeline Alignment
Cultural Resources (cont.)		been documented within the direct APE for the alternative alignment, the possibility of inadvertently uncovering human remains cannot be entirely discounted. The potential inadvertent discovery of human remains would result in an LSM impact. Mitigation Measures: 4.15-2b: Inadvertent Discovery of Cultural Resources. 4.15-4: Inadvertent Discovery of Human Remains.
Agriculture and Forest Resources	Construction of the proposed project Transfer Pipeline would have no impacts related to conversion of important farmland or land zoned for agriculture to non-agricultural uses because the pipeline is not located in an area mapped as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance or lands zoned for agricultural uses. Similarly, the proposed project alignment would have no impact related to conflicts Williamson Act contracts because the pipeline would not traverse land that is under a Williamson Act. Further, the proposed project alignment would not otherwise change the existing environment in a way that would result in the conversion of farmland to non-agricultural uses. No impact would result. Mitigation Measures: None required.	**Similar** – The impacts associated with agriculture and forest resources would be identical to those of the proposed project Transfer Pipeline alignment and would have the same level of impact significance (no impact). Mitigation Measures: None required.
Mineral Resources	Construction and operation of the proposed project Transfer Pipeline would have a LS impact on mineral resources. Mitigation Measures: None required.	**Similar** – Like the proposed project Transfer Pipeline alignment, installing the Alternative Transfer Pipeline within or immediately adjacent to existing road rights-of-way would minimize disturbance to nearby MRZ-2 land. Because the pipeline would have a limited footprint and would not be constructed across any active mining areas, it would not result in a significant reduction in the availability of mineral resources (primarily sand dunes). Therefore, construction and operation of the Alternative Transfer Pipeline alignment would result in a LS impact on mineral resources. Mitigation Measures: None required.

TABLE 7-12 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS – ALTERNATIVE TRANSFER PIPELINE ALIGNMENT

Environmental Topic Area	Proposed Project Transfer Pipeline	Alternative Transfer Pipeline Alignment
Energy Conservation	***Construction Activities:*** Construction of the proposed project Transfer Pipeline (and all other proposed 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 impact. Mitigation Measures: 4.18-1: Construction Equipment Efficiency Plan. 4.10-1c: Idling Restrictions. ***Operations and Maintenance:*** Operation and maintenance of the proposed project Transfer Pipeline would not use fossil fuels and electricity or have any effect on local or regional energy supplies. Mitigation Measures: None required.	***Construction Activities:*** **Similar** – The impacts associated with energy conservation would be similar to those of the proposed project Transfer Pipeline alignment and would have the same level of impact significance as the proposed project alignment. Construction activities for the Alternative Transfer Pipeline could result in the wasteful or inefficient use of energy if construction 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 for construction to use large amounts of fuel or energy in a wasteful or inefficient manner is considered a LSM impact. Mitigation Measures: 4.18-1: Construction Equipment Efficiency Plan. 4.10-1c: Idling Restrictions. ***Operations and Maintenance:*** **Similar** – Same as the proposed project Transfer Pipeline, operation and maintenance of the Alternative Transfer Pipeline alignment would not use fossil fuels and electricity or have any effect on local or regional energy supplies. Mitigation Measures: None required.
Population and Housing	Construction of the proposed project Transfer Pipeline would require up to 25 construction workers. The potential for project construction to induce substantial population growth as a result of construction would be LS as the proposed project Transfer Pipeline (and all other proposed project components) would not create employment opportunities substantially greater than would normally be available to construction workers in the area. Although up to 30 additional personnel would be needed to operate the MPWSP Desalination Plant, there would be no increase in staffing to operate and maintain the proposed project Transfer Pipeline. Overall, the direct growth-inducing impact of the proposed project Transfer Pipeline, and proposed project as a whole, would be LS. Mitigation Measures: None required.	**Similar** – The impacts to population and housing associated with implementation of the Alternative Transfer Pipeline alignment would be the same as those associated with the proposed project alignment (LS). Mitigation Measures: None required.

TABLE 7-13
COMPARISON OF ENVIRONMENTAL EFFECTS – ALTERNATIVE MONTEREY PIPELINE ALIGNMENT

Environmental Topic Area	Proposed Project Monterey Pipeline	Alternative Monterey Pipeline Alignment
Geology, Soils, and Seismicity	***Construction Activities:*** Construction of the proposed project Monterey Pipeline would have a LSM impact associated with increased loss of topsoil. Mitigation Measures: 4.6-2b: Avoid, Minimize, and Compensate for Direct Construction Impacts to Sensitive Communities. ***Operations and Facility Siting:*** The proposed project Monterey Pipeline alignment would result in a LS impact related to surface fault rupture. Operation and maintenance of the proposed project Monterey Pipeline would have a LS impact related to seismically-induced groundshaking, liquefaction, and lateral spreading. There would be no impact related to landslides, expansive and corrosive soils, and subsidence. The proposed project Monterey Pipeline would have LSM impacts from coastal retreat due to sea level rise. Mitigation Measures: 4.2-6b: Monterey Pipeline Deepening.	***Construction Activities:*** **Similar** – Construction-related soil erosion would be slightly greater due to the additional 1.8-mile increase in length and associated increase in ground disturbance but compliance with the requirements of the NPDES Construction General Permit and local grading and erosion control ordinances would avoid substantial adverse effects. Like the proposed project Monterey Pipeline alignment, the alternative alignment would disturb vegetated areas, including sensitive natural vegetation communities, and would result in a LSM impact related to loss of topsoil. Mitigation Measures: 4.6-2b: Avoid, Minimize, and Compensate for Direct Construction Impacts to Sensitive Communities. ***Operations and Facility Siting:*** **Decreased** – When compared to the proposed project, the Alternative Monterey Pipeline alignment would avoid the LSM impact related to coastal erosion and bluff retreat due to sea level rise because the alternative alignment is located outside of the 2030 to 2050 coastal erosion hazard zone. Therefore, no impact related to coastal erosion and bluff retreat would occur. All other operations and facility siting impacts would be similar to those of the proposed project Monterey Pipeline alignment and would have the same level of impact significance as the proposed project alignment. Like the proposed project alignment, the alternative alignment is intersected by faults that exhibit Holocene-age displacement. However, because these faults are buried and relatively short, the potential for surface fault rupture is very low and the impact related to surface fault rupture would be LS. The impact related to seismically-induced groundshaking, liquefaction, and lateral spreading would also be LS because the alternative pipeline would be designed in accordance with the recommendations of a design-level geotechnical investigation, the current California Building Code, and local ordinances regulating construction. Like the proposed pipeline alignment, the alternative alignment would have no impact related to landslides because it would be located in an area with relatively flat to gently-sloping topography that is not susceptible to landslides. There would be no impact related to expansive soils because the alternative alignment is located in soils with a low linear extensibility potential. There would be no impact related to subsidence because pipelines are not used to extract groundwater. There would be no impact related to corrosive soils because the alternative alignment would be located in soils with a low corrosivity potential. Mitigation Measures: None required.

TABLE 7-13 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS – ALTERNATIVE MONTEREY PIPELINE ALIGNMENT

Environmental Topic Area	Proposed Project Monterey Pipeline	Alternative Monterey Pipeline Alignment
Surface Water Hydrology and Water Quality	***Construction Activities:*** The proposed project Monterey Pipeline would have a LS impact related to degradation of water quality associated with increased soil erosion and sedimentation, and inadvertent releases of toxic chemicals during construction, and a LSM impact from construction-related discharges of dewatering effluent from open excavations. Mitigation Measures: 4.7-2b: Soil and Groundwater Management Plan. **Operations and Facility Siting:** Operation of the proposed project Monterey Pipeline would not violate water quality standards or waste discharge requirements or adversely affect water quality (no impact). Because the pipeline would be underground, there would be no impacts related to the alteration of drainage patterns. The proposed project Monterey Pipeline would result in a LS impact related to flooding due to sea level rise; impedance or redirection of flood flows due to the siting of the proposed project Monterey Pipeline in a 100-year flood hazard area; and exposure of people or structure to risk of loss, injury, or death from flooding due to a tsunami. Mitigation Measures: None required.	***Construction Activities:*** **Similar** – All construction impacts would be similar to those of the proposed project Monterey Pipeline alignment and would have the same level of impact significance as the proposed project alignment. The impact related to increased soil erosion and inadvertent releases of toxic chemicals during construction would be slightly greater due to the 1.8-mile increase in pipeline length and the associated increases in ground disturbance and overall construction area. However, the impact would remain LS because construction activities would be conducted in accordance with the NPDES General Construction Permit. Although it is anticipated that most dewatering effluent from open excavations would be disposed of in accordance with the General WDRs, if discharges of dewatering effluent were to exceed the water quality limitations in the General WDRs, a significant impact would result. Like the proposed project alignment, this analysis conservatively assumes the alternative alignment would result in a LSM impact related to discharges of dewatering effluent from open excavations. Like the proposed project alignment, the impact related to degradation of water quality from discharges of disinfectant from the newly installed pipeline would be LS with mandatory compliance with the General WDRs. Mitigation Measures: 4.7-2b: Soil and Groundwater Management Plan. ***Operations and Facility Siting:*** **Decreased** – When compared to the proposed project alignment, the Alternative Monterey Pipeline alignment would eliminate the LS impacts related to flooding due to a tsunami and impedance or redirection of flood flows due to the siting of project facilities within a 100-year flood hazard area because the alternative alignment would be located outside of the tsunami inundation zone and outside of the coastal flood zone, respectively (see **Figure 4.3-2**). No impact related to flooding due to a tsunami and impedance or redirection of flood flows due to the siting of project facilities within a 100-year flood hazard area would result. All other operations and facility siting impacts would be similar to those of the proposed project Monterey Pipeline alignment and would have the same level of impact significance as the proposed project alignment. The Alternative Monterey Pipeline alignment would have no impact related to discharges of brine or any other discharges associated with operations and maintenance. With the exception of a 400-foot-long segment of pipe that would be suspended along Fairgrounds Road/Mark Thomas Drive over the Highway 68 on- and off-ramps, once constructed, the Alternative Monterey Pipeline, would be located entirely underground and the surface along the pipeline alignment would be restored to

TABLE 7-13 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS – ALTERNATIVE MONTEREY PIPELINE ALIGNMENT

Environmental Topic Area	Proposed Project Monterey Pipeline	Alternative Monterey Pipeline Alignment
Surface Water Hydrology and Water Quality (cont.)		pre-construction conditions. Therefore, there would be no impacts related to long-term changes in drainage patterns. When compared to the proposed project alignment, the Alternative Monterey Pipeline alignment would remove all but one segment of the pipeline (the segment near Mark Thomas Drive/Aguajito Road) outside of the coastal flood zone. The impact related to flooding due to sea level rise would remain LS for the alternative alignment. Mitigation Measures: None required.
Groundwater Resources	***Construction Activities:*** Construction of the proposed project Monterey Pipeline alignment would have a LS impact related to substantial interference with groundwater recharge and depletion of groundwater supplies. Impact related to degradation of groundwater quality during pipeline installation activities would occur; impacts would be LS. Mitigation Measures: None required. ***Operations and Maintenance:*** Operation and maintenance of the proposed project Monterey Pipeline would not deplete groundwater supplies, interfere substantially with groundwater recharge, or degrade groundwater quality. The proposed project Monterey Pipeline alignment would have no impact on groundwater resources during operations. Mitigation Measures: None required.	***Construction Activities:*** **Similar** – Construction-related impacts to groundwater would be the same as those of the proposed project Monterey Pipeline alignment and would have the same level of impact significance as the proposed project alignment. Because temporary construction dewatering would occur only in isolated areas and if groundwater is encountered in the pipeline trench, installation of the Alternative Monterey Pipeline alignment would have a LS impact related to depletion of groundwater supplies. Like the proposed project, the impact related to degradation of groundwater quality during pipeline installation activities would be LS. Mitigation Measures: None required. ***Operations and Maintenance:*** **Similar** – Like the proposed project pipeline, operation and maintenance of the Alternative Monterey Pipeline would have no effect on groundwater resources, and no impact would result. Mitigation Measures: None required.
Marine Biological Resources	The proposed project Monterey Pipeline alignment would have no impact on marine biological resources. Mitigation Measures: None required.	**Similar** - Like the proposed project Monterey Pipeline alignment, the Alternative Monterey Pipeline alignment would have no impact on marine biological resources. Mitigation Measures: None required.

TABLE 7-13 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS – ALTERNATIVE MONTEREY PIPELINE ALIGNMENT

Environmental Topic Area	Proposed Project Monterey Pipeline	Alternative Monterey Pipeline Alignment
Terrestrial Biological Resources	***Construction Activities:*** Construction activities for the proposed project Monterey Pipeline alignment would result in LSM impacts related to: substantial adverse effects on species identified as candidate, sensitive, or special-status, either directly or through habitat modification; riparian habitat and other sensitive natural communities; substantial adverse effects on federal wetlands, federal other waters, and/or waters of the State; and conflicts with local tree ordinances. <u>Mitigation Measures:</u> 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. 4.6-1e: 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. 4.6-1i: Avoidance and Minimization Measures for Nesting Birds. 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. 4.6-2a: Consultation with Local Agencies and the California Coastal Commission regarding Environmentally Sensitive Habitat Areas. 4.6-2b: Avoid, Minimize, and Compensate for Construction Impacts to Sensitive Communities. 4.6-3: Avoid, Minimize, and or Mitigate Impacts to Wetlands. 4.6-4: Compliance with Local Tree Policies and Ordinances. 4.14-2: Site-Specific Construction Lighting Plan. ***Operations and Maintenance:*** No impact to species identified as candidate, sensitive, or special-status; riparian habitat, critical habitat, or other sensitive natural communities; and	***Construction Activities:*** **Similar** - Although the Alternative alignment would traverse through different areas and different types of habitats than the proposed project alignment, the construction-related impacts would be similar to those of the proposed project alignment and would have the same level of impact significance as the proposed project alignment; however, where different resources would be adversely affected, different mitigation measures would apply. Like the proposed project alignment, installation of the Alternative Monterey Pipeline would result in a LSM impact to candidate, sensitive, and special-status species. When compared to the proposed project alignment, the alternative alignment would eliminate impacts to Smith's blue butterfly but could impact other special-status species that the proposed project Monterey Pipeline would not impact, such as California red-legged frog, California tiger salamander, Monterey dusky-footed woodrat, Monterey shrew, and American badger. Construction of the Alternative Monterey Pipeline would result in a LSM impact to a sensitive natural community. When compared to the proposed project alignment, the Alternative Monterey Pipeline alignment would eliminate impacts to central dune scrub and oak woodland habitat along Del Monte Boulevard but would extend into central maritime chaparral east of General Jim Moore Boulevard. No critical habitat exists along the alternative alignment; therefore, no impact to critical habitat would result. Two potentially jurisdictional wetlands or other waters are located within the Alternative Monterey Pipeline alignment (Hartnell Gulch and unnamed intermittent creek) and could be adversely affected by installation of the Alternative Monterey Pipeline. The impact on federal wetlands, federal other waters, and/or waters of the State would be LSM. Like the proposed project alignment, tree removal or construction within the driplines of trees associated with installation of the alternative alignment could result in conflicts with the local tree ordinances of Seaside, Monterey, and Pacific Grove, a LSM impact. <u>Mitigation Measures:</u> 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.

TABLE 7-13 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS – ALTERNATIVE MONTEREY PIPELINE ALIGNMENT

Environmental Topic Area	Proposed Project Monterey Pipeline	Alternative Monterey Pipeline Alignment
Terrestrial Biological Resources (cont.)	federal wetlands, federal other waters, or waters of the State would result from operations and maintenance of the proposed project Monterey Pipeline. The operation of the MPSWP Monterey Pipeline would have no impact on conflicting with adopted habitat conservation plans or natural community conservation plans or other approved local, regional, or state habitat conservation plans. <u>Mitigation Measures:</u> None required.	4.6-1e: Avoidance and Minimization Measures for Special-status Plants. 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 4.6-2a: Consultation with Local Agencies and the California Coastal Commission regarding Environmentally Sensitive Habitat Areas. 4.6-2b: Avoid, Minimize, and Compensate for Construction Impacts to Sensitive Communities. 4.6-3: Avoid, Minimize, and or Mitigate Impacts to Wetlands. 4.6-4: Compliance with Local Tree Policies and Ordinances. 4.14-2: Site-Specific Construction Lighting Plan. ***Operations and Facility Siting:*** **Increased** – Similar to the proposed project, operations and maintenance of the Alternative Monterey Pipeline would have no impact on species identified as candidate, sensitive, or special-status; riparian habitat, critical habitat, or other sensitive natural communities; and federal wetlands, federal other waters, or waters of the State. Unlike the proposed project alignment, the Alternative Monterey Pipeline alignment would extend into the Ford Ord Habitat Management Plan (HMP) area to connect to the Terminal Reservoir and ASR Pump Station. The alternative alignment would be located within a Borderland Development Area along a Natural Resource Management Area (NRMA) Interface. Per the HMP, as these areas are developed, certain management requirements would be implemented,

TABLE 7-13 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS – ALTERNATIVE MONTEREY PIPELINE ALIGNMENT

Environmental Topic Area	Proposed Project Monterey Pipeline	Alternative Monterey Pipeline Alignment
Terrestrial Biological Resources (cont.)		which include invasive species control and the use of firebreaks. As no information has been provided by the project applicant indicating that the pipeline would include invasive species control or the use of firebreaks, this analysis assumes the alternative alignment would conflict with this HMP management measure. The conflict with the HMP is a LSM impact. Mitigation Measures: 4.6-8: Management Requirements within Borderland Development Areas along Natural Resource Management Area Interface.
Hazards and Hazardous Materials	***Construction Activities:*** Installation of the proposed project Monterey Pipeline would result in a LS impact associated with the potential to create a hazard to the public through the routine transport, use, and disposal of hazardous materials. The proposed project Monterey Pipeline would have a LSM impact associated with the potential to release hazardous materials to the environment. The impact related to increased risk of fire during proposed project Monterey Pipeline construction would be a LS impact. There would be no impact from siting the proposed project Monterey Pipeline on a known hazardous materials site. Installation of the proposed project Monterey Pipeline would result in a LS impact from the handling of hazardous materials and generation of hazardous emissions within 0.25 mile of a school. Mitigation Measures: 4.7-2a: Health and Safety Plan. 4.7-2b: Soil and Groundwater Management Plan. ***Operations and Maintenance:*** Operations and maintenance associated with the proposed project Monterey Pipeline alignment would have no impacts related to the routine transport, use, and disposal of hazardous materials, and handling hazardous materials or generating hazardous emissions within 0.25 mile of a school. The proposed project alignment would have a LS impact related to airport safety hazards. Mitigation Measures: None required.	***Construction Activities:*** **Similar** – The portion of the Alternative Monterey Pipeline alignment located east of General Jim Moore Boulevard would also be within the Seaside MRA. This is a known hazardous materials site and is identified on the National Priorities List. Construction activities within this area have the potential to encounter unexploded ordnance which, if not identified and properly handled, could cause injury or death to construction workers. However, compliance with the applicable regulations for construction work at the former Fort Ord military base (discussed under Impact 4.7-3 in Section 4.7, Hazards and Hazardous Materials) would address the potential impact of encountering unexploded ordnance during project construction. This is the same for the proposed project Transfer Pipeline that would be required for connection with the proposed project Monterey Pipeline. Therefore, the impact associated with siting the pipeline on a known hazardous materials site would be LS. All other construction-related impacts to hazards and hazardous materials would be the same as those of the proposed project Monterey Pipeline alignment and would have the same level of impact significance as the proposed project alignment. Because construction activities would comply with numerous hazardous materials and stormwater regulations designed to ensure that hazardous materials are transported, used, stored, and disposed of in a safe manner, the impact related to the routine transport, use, and disposal of hazardous materials during pipeline installation activities would be LS. Similar to the proposed project alignment, sites with known soil and/or groundwater contamination are located within 0.25 mile of the Alternative Monterey Pipeline alignment (SWRCB, 2015a) and, like the proposed project alignment, past releases may have affected subsurface conditions at various locations along the alternative pipeline alignment. Therefore, the impact associated with the potential to release hazardous materials to the environment during construction would be LSM. Although Santa Catalina School (1500 Mark Thomas Drive, Monterey) and San Carlos Elementary School (450 Church Street, Monterey) are located within

TABLE 7-13 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS – ALTERNATIVE MONTEREY PIPELINE ALIGNMENT

Environmental Topic Area	Proposed Project Monterey Pipeline	Alternative Monterey Pipeline Alignment
Hazards and Hazardous Materials (cont.)		0.25 mile of the Alternative Monterey Pipeline alignment, based on a screening-level analysis discussed in Section 4.10, Air Quality, construction-related DPM emissions would be less than the Monterey Bay Unified Air Pollution Control District's increased cancer risk threshold. Therefore, the impact related to handling hazardous materials and emitting hazardous emissions within 0.25 mile of a school during pipeline installation activities would be LS. The alternative pipeline alignment would not be located within an area classified by CAL FIRE as a High or Very High Fire Hazard Severity Zone (see **Figure 4.7-2**) (CAL FIRE, 2007); however, construction activities could temporarily increase fire risk. Although the risk of fire during pipeline installation would be slightly greater due to the additional 1.8-mile increase in pipeline length and the associated increase in the pipeline construction duration and overall ground disturbance, the impact related to wildfires would remain LS because construction would be comply with applicable California fire code regulations. Mitigation Measures: 4.7-2a: Health and Safety Plan. 4.7-2b: Soil and Groundwater Management Plan. ***Operations and Maintenance:*** **Similar** – All operations and maintenance impacts related to hazards and hazardous materials would be similar to those of the proposed project Monterey Pipeline alignment and would have the same level of impact significance as the proposed project alignment. Pipeline operations and maintenance would not involve the routine storage or use of hazardous materials. Therefore, no impact related to inadvertent releases of hazardous materials during pipeline operations would result. Similarly, pipeline operations would not involve the routine handling of hazardous materials or generate hazardous emissions, so no impact related to handling hazardous materials or generating hazardous emissions within 0.25 mile of a school would result. Like the proposed project alignment, the alternative alignment is located within an airport land use plan area but is outside of the runway safety area (Monterey County Airport Land Use Commission, 1987). Further, with the exception of the 400-foot-long segment of pipe that would be supported on a pipe bridge alongside and at the same height as an existing road bridge, the pipeline would be underground. Therefore, it would not create an obstruction and the impact related to airport safety hazards would be LS. Mitigation Measures: None required.

TABLE 7-13 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS – ALTERNATIVE MONTEREY PIPELINE ALIGNMENT

Environmental Topic Area	Proposed Project Monterey Pipeline	Alternative Monterey Pipeline Alignment
Land Use, Land Use Planning, and Recreation	Construction of the proposed project Monterey Pipeline would involve construction activities within and/or alongside the Monterey Peninsula Recreational Trail, a popular bicycle and pedestrian path along the shoreline, as well as along designated bike routes downtown Monterey. Temporary closure of segments of the recreational trail and bicycle lanes during pipeline installation could directly affect recreational activities. However, such disruptions would be temporary and limited to the project's construction phase. Upon completion of construction, the disturbed areas would be returned to their approximate pre-construction condition. Implementation of the proposed project Monterey Pipeline would have no long-term effect on recreational resources. The plans, policies, and regulations related to land use and recreation in **Table 4.8-2** reflect the long-term visions of the respective jurisdictions with respect to land use and development and are not directly relevant to temporary construction activities. Therefore, the proposed project alignment would not substantially conflict with plans, policies, or regulations that were adopted for the purpose of avoiding or mitigating an adverse environmental effect related to land use or recreation. The impact would be LS. Mitigation Measures: None required.	**Similar** - The construction-related direct effects of the alternative alignment on use of recreational facilities (e.g., bicycle and pedestrian pathways) would be reduced when compared to the effects of the proposed project Monterey Pipeline alignment because the alternative alignment is further inland, and would not involve any construction within or alongside the Monterey Peninsula Recreational Trail. However, the alternative alignment would involve construction along other designated bicycle and pedestrian paths. Although the effect on recreational resources would be slightly reduced when compared to the proposed project alignment, the impact significance determination would be the same. The impact would be LS. Mitigation Measures: None required.
Traffic and Transportation	***Construction Activities:*** The proposed project Monterey Pipeline would result in a LSM impact from construction-related traffic increases on local and regional roadways; temporary reductions in roadway capacities of roadways and traffic delays due to construction within vehicle travel lanes and road shoulders; increased traffic safety hazards; impaired emergency access; and temporary disruptions to public transportation, bicycle, and pedestrian facilities; increased wear-and-tear on smaller roadways and residential streets that are used as haul routes by heavy trucks transporting equipment and material to and from construction work areas; and parking interference in downtown Monterey. Mitigation Measures: 4.9-1: Traffic Control and Safety Assurance Plan. 4.9-6: Roadway Rehabilitation Program. 4.9-7: Construction Worker Parking Requirements. ***Operations and Maintenance:*** Long-term traffic increases from operation and maintenance of the proposed project Monterey Pipeline would be LS.	***Construction Activities:*** **Similar** – The construction-related traffic and transportation impacts of the alternative alignment would be similar, albeit slightly greater, than those of the proposed project Monterey Pipeline alignment and would have the same level of impact significance as the proposed project alignment. Unlike the proposed project alignment, of which 3 of the 5.4 miles of pipeline would be installed along the TAMC rights-of-way and Monterey Peninsula Recreational Trail, virtually all of the 7.2-mile-long Alternative Monterey Pipeline alignment would be installed "curb to curb" within road rights-of-way. Construction-related traffic increases on local and regional roadways would fall within the daily fluctuations of traffic volumes for the regional highways and arterial roadways in the area and would continue to be within the carrying capacities of the two-lane roads but could result in substantial adverse effects on traffic conditions along lower-volume local streets in downtown Monterey. The impact from construction-related traffic increases would be LSM. Since most of the Alternative Monterey Pipeline is aligned "curb to curb" within road rights-of-way, it is assumed that most of the alternative alignment would require construction within or adjacent to vehicle travel lanes and would require temporary lane closures and/or detours. In particular, construction of the 40-foot-long pipe bridge over Highway 68 and alongside the Fairgrounds Road/Mark

TABLE 7-13 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS – ALTERNATIVE MONTEREY PIPELINE ALIGNMENT

Environmental Topic Area	Proposed Project Monterey Pipeline	Alternative Monterey Pipeline Alignment
Traffic and Transportation (cont.)	Mitigation Measures: None required.	Thomas Drive road bridge would result in 5 to 6 days of detours over a 6-month period. Impacts on roadway capacities and traffic flow related to pipeline installation in the road right-of-ways would be LSM. Since the alternative alignment would not be installed within or alongside the Monterey Peninsula Recreational Trail, potential traffic safety hazards for bicyclists and pedestrians would be decreased when compared to the proposed project alignment but the overall impact related to increased traffic safety hazards would remain LSM, and temporary disruptions to bicycle and pedestrian facilities would be slightly decreased when compared to the proposed project alignment but the overall impact to public transportation, bicycle, and pedestrian facilities would remain LSM. Impacts related to impaired emergency access; increased wear-and-tear on smaller roadways and residential streets that are used as haul routes; and parking interference in downtown Monterey would be about the same as the proposed project alignment (LSM). Mitigation Measures: 4.9-1: Traffic Control and Safety Assurance Plan. 4.9-6: Roadway Rehabilitation Program. 4.9-7: Construction Worker Parking Requirements. ***Operations and Maintenance:*** **Similar** – As for the proposed project alignment, long-term traffic increases during operation and maintenance of the Alternative Monterey Pipeline would be LS. Mitigation Measures: None required.
Air Quality	***Construction Activities:*** The proposed project Monterey Pipeline (and all other project components) would result in a LSM impact related to emissions of criteria air pollutants and contribution to the violation of an ambient air quality standard during construction. The impact related to the exposure of sensitive receptors to substantial pollutant concentrations and the creation of objectionable odors affecting a substantial number of people during construction would be LS. Mitigation Measures: 4.10-1a: Construction Fugitive Dust Control Plan. 4.10-1c: Idling Restrictions.	***Construction Activities:*** **Similar** – All construction-related air quality impacts and would have the same level of impact significance as the proposed project alignment. Installation of the Alternative Monterey Pipeline alignment would result in similar, albeit greater, emissions of criteria pollutants due to the additional 1.8-mile in pipe length. However, when compared to the proposed project Monterey Pipeline alignment, the Alternative Monterey Pipeline alignment would not substantially affect the "worst case" estimated maximum daily construction emissions for the project as a whole. Maximum daily emissions of PM_{10} would remain at roughly 23 pounds per day and would exceed the Monterey Bay Unified Air Pollution Control District (MBUAPCD) significance threshold of 82 pounds per day, and the impact would be LSM. Ozone precursor emissions (ROG and NO_X) associated with non-typical

TABLE 7-13 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS – ALTERNATIVE MONTEREY PIPELINE ALIGNMENT

Environmental Topic Area	Proposed Project Monterey Pipeline	Alternative Monterey Pipeline Alignment
Air Quality (cont.)	***Operations and Maintenance:*** No impact related to the long-term increase in criteria pollutants, exposure of sensitive receptors to substantial pollutant concentrations, and objectionable odors would result from operation and maintenance of the proposed project Monterey Pipeline. Mitigation Measures: None required.	construction equipment would be roughly the same as for proposed pipeline alignment, and would not contribute to an exceedance of a state or federal standard for ozone (LS). Pipeline installation activities would generate an average of less than 2 pounds per day of $PM_{2.5}$ emissions within 50 to 100 feet of sensitive receptors; however, because the exposure of any one receptor would be limited to 3 to 4 days, DPM emissions would not exceed the MBUAPCD TAC significance threshold and the impact would be LS. Same as the proposed project, impacts related to objectionable odors from diesel-fueled construction equipment would also be LS. Mitigation Measures: 4.10-1a: Construction Fugitive Dust Control Plan. 4.10-1c: Idling Restrictions. ***Operations and Maintenance:*** **Similar** – Operation and maintenance of the proposed project Monterey Pipeline would not result in the direct emissions of criteria pollutants. Therefore, no impact related to the long-term increase in criteria pollutants would result. The proposed alignment wouldn't include an on-site DPM emissions source; therefore, no impact related to the exposure of sensitive receptors to substantial pollutant concentrations would result. Implementation of the alternative alignment would not create a source of objectionable odors; no impact related to objectionable odors would result. Mitigation Measures: None required.
Greenhouse Gas Emissions	***Construction Activities:*** The contribution to climate change of GHG emissions from construction of the proposed project Monterey Pipeline, in conjunction with other project construction amortized over the 30 month construction period would have a SUM impact. Mitigation Measures: 4.11-1: Carbon Footprint Reporting and Offsets Plan. 4.18-1: Construction Equipment Efficiency Plan. ***Operations and Maintenance:*** The contribution to climate change of GHG emissions from operation and maintenance of the proposed project Monterey Pipeline, in conjunction with	***Construction Activities:*** **Similar** – The impacts associated with GHG emissions would be similar to those of the proposed project Monterey Pipeline alignment and would have the same level of impact significance. The Alternative Monterey Pipeline would be located within the same setting for GHG emissions as the proposed project. The GHG emissions and the total net operation emissions for the Alternative Monterey Pipeline (and all other project components) would exceed the land use development significance threshold of 2,000 metric tons CO2e per year. Therefore, the Alternative Monterey Pipeline (and all other proposed project components) short-term contribution to overall GHG emissions would be SUM. Mitigation Measures: 4.11-1: Carbon Footprint Reporting and Offsets Plan.

TABLE 7-13 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS – ALTERNATIVE MONTEREY PIPELINE ALIGNMENT

Environmental Topic Area	Proposed Project Monterey Pipeline	Alternative Monterey Pipeline Alignment
Greenhouse Gas Emissions (cont.)	other project operations would be SUM because the proposed project would not be consistent with the GHG emission reduction goals for year 2020 identified in Executive Order S-3-05 and AB. The proposed project Monterey Pipeline, in conjunction with other project operations would result in a LS related to the conflict with AB 32 Climate change Scoping Plan. Mitigation Measures: 4.11-1: Carbon Footprint Reporting and Offsets Plan. 4.18-1: Construction Equipment Efficiency Plan.	4.18-1: Construction Equipment Efficiency Plan. ***Operations and Maintenance:*** **Similar** – As for the proposed project alignment, impact related to long-term GHG emission during operation and maintenance of the Alternative Source Water Pipeline would be SUM. Mitigation Measures: 4.11-1: Carbon Footprint Reporting and Offsets Plan. 4.18-1: Construction Equipment Efficiency Plan.
Noise and Vibration	***Construction Activities:*** Construction of the proposed project Monterey Pipeline would have a LS and SUM impact associated with temporary increases in daytime and nighttime ambient noise levels during construction, respectively. No impact associated with exposure of people to noise levels in excess of local noise standards would result because none of the local jurisdictions have established quantitative noise standards for construction noise. Excessive groundborne vibration during construction would result in LSM impacts to historic properties and human annoyance. Nighttime construction, if required, would result in a LS impact related to conflicts with local noise ordinance time limits because nighttime construction would occur only with prior approval from the local jurisdictions. Mitigation Measures: 4.12-1a: Neighborhood Notice. 4.12-1b: General Noise Controls for Construction Equipment. 4.12-1c: Noise Control Plan for Nighttime Pipeline Construction. 4.12-3: Vibration Reduction Measures. 4.15-1a: Avoidance and Vibration Monitoring for Pipeline Installation in the Presidio of Monterey Historic District, Downtown Monterey, and the Lapis Sand Mining Plant Historic District. ***Operations and Maintenance:*** Operation and maintenance of the proposed project Monterey Pipeline would have no impact related to noise and vibration. Mitigation Measures: None required.	***Construction Activities:*** **Similar** – All construction-related noise and vibration impacts would be similar to those of the proposed project Monterey Pipeline alignment and would have the same level of impact significance as the proposed project alignment. The alternative alignment would result in construction activities within 50 feet of residences along Hillby Avenue, Airport Road, and along various streets in downtown Monterey and Pacific Grove (Hartnell Street, Madison Street, Monroe Street, High Street, Stillwell Avenue, Lily Street, Withers Avenue, Filmore Street, etc.). Like the proposed project alignment, daytime construction noise at adjacent residences could exceed the speech interference threshold of 70 dBA but the impact would be LS because the duration of daytime noise increases at any one receptor would be less than two weeks. If nighttime construction is required through residential areas, nighttime noise levels are expected to range from 74 to 79.2 dBA, L_{eq}, which is above the sleep interference threshold of 60 dBA and would result in a SUM impact. For the same reason as the proposed project alignment, there would be no impact related to exposure of people to noise levels in excess of local noise standards. Groundborne vibration from open trench construction would result in LSM impacts to historic properties and human annoyance. Trenchless construction (jack-and-bore) is anticipated beneath Highway 218 along Fremont Street but, because there are no fragile or historic buildings in the immediate vicinity and because the closest residences are located over 300 feet away, is not anticipated to result in structural damage or human annoyance. As for the proposed project alignment, the impact related to conflicts with local noise ordinance time limits would be LS. Mitigation Measures: 4.12-1a: Neighborhood Notice. 4.12-1b: General Noise Controls for Construction Equipment.

TABLE 7-13 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS – ALTERNATIVE MONTEREY PIPELINE ALIGNMENT

Environmental Topic Area	Proposed Project Monterey Pipeline	Alternative Monterey Pipeline Alignment
Noise and Vibration (cont.)		4.12-1c: Noise Control Plan for Nighttime Pipeline Construction. 4.12-3: Vibration Reduction Measures. 4.15-1a: Avoidance and Vibration Monitoring for Pipeline Installation in the Presidio of Monterey Historic District, Downtown Monterey, and the Lapis Sand Mining Plant Historic District. (this mitigation measure would be applied to historic resources adjacent to the Alternative Monterey Pipeline) ***Operations and Maintenance:*** **Similar** – Like the proposed project alignment, operation and maintenance of the Alternative Monterey Pipeline alignment would have no impact related to noise and vibration. Mitigation Measures: None required.
Public Services and Utilities	***Construction Activities:*** Construction of the proposed project Monterey Pipeline, and all other proposed project components, would result in a LSM impact related to the disruption or relocation of regional or local utilities. Installation of the proposed project Monterey Pipeline would generate approximately 2,700 cubic yards of the total 35,225 cubic yards of excess spoils that would be generated by the proposed project as a whole. The Monterey Peninsula Landfill has sufficient capacity to accept the construction waste generated by the proposed project. However, the potential to conflict with federal, state, and local statutes and regulations related to the diversion of solid waste from landfills is a LSM impact. 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. 4.13-1f: Ensure Prompt Reconnection of Utilities. 4.13-2: Construction Waste Reduction and Recycling Plan.	***Construction Activities:*** **Similar** – The impacts of the Alternative Monterey Pipeline alignment related to public services and utilities would be similar to those of the proposed project alignment and would have the same level of impact significance as the proposed project alignment. The impacts related to the potential relocation or disruption of local or regional utilities would be slightly greater due to the additional 1.8 miles of pipe; however, the impact would remain LSM. Assuming all other pipelines stay the same, installation of the Alternative Monterey Pipeline would generate approximately 4,900 cubic yards of a total 37,425 cubic yards of excess spoils that would be generated by the proposed project as a whole. Similar to the proposed project, the landfill has sufficient capacity to accept the construction waste but the impact is considered LSM due to the potential for project construction to conflict with federal, state, and local statutes and regulations related to the diversion of solid waste from landfills. 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.

TABLE 7-13 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS – ALTERNATIVE MONTEREY PIPELINE ALIGNMENT

Environmental Topic Area	Proposed Project Monterey Pipeline	Alternative Monterey Pipeline Alignment
Public Services and Utilities (cont.)	***Operations and Maintenance:*** Operation and maintenance of the proposed project Monterey Pipeline would have a 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. No impact related to wastewater treatment, conveyance, or capacity would result. No impact related to corrosion of other utilities would result. Mitigation Measures: None required.	4.13-1f: Ensure Prompt Reconnection of Utilities. 4.13-2: Construction Waste Reduction and Recycling Plan. ***Operations and Maintenance:*** **Similar** – The operations and maintenance impacts of the Alternative Monterey Pipeline alignment related to public services and utilities would be same as those of the proposed project alignment and would have the same level of impact significance as the proposed project alignment. Mitigation Measures: None required.
Aesthetics	***Construction Activities:*** Construction of the proposed project Monterey Pipeline would have a LS impact on scenic resources the visual character of the project area and surroundings. Although not required for to reduce the visual character impact to a less-than-significant level, implementation of Improvement Measure 4.14-1 is recommended to address the short-term effects. The proposed project Monterey Pipeline would have result in LSM impacts from temporary light and glare, as a result of nighttime construction lighting. Improvement Measures: 4.14-1: Maintain Clean and Orderly Construction Sites. Mitigation Measures 4.14-2: Site-Specific Construction Lighting Measures. ***Operations and Facility Siting:*** The proposed project Monterey Pipeline would have no impact on aesthetics resources relative to operations and facility siting. Mitigation Measures: None required.	***Construction Activities:*** **Similar** – All construction-related aesthetics impacts would be the same as those of the proposed project Monterey Pipeline alignment and would have the same level of impact significance as the proposed project alignment. Because construction-related disturbance would be temporary and the construction corridor would be restored to its approximate pre-construction condition upon completion of construction, the temporary impact to scenic resources and visual character would be LS. As for the proposed project pipeline alignment, implementation of Improvement Measure 4.14-1 is recommended to address the short-term visual effects. Because pipeline installation may require nighttime construction, the impact related to temporary sources of light and glare during construction would be LSM. Improvement Measures: 4.14-1: Maintain Clean and Orderly Construction Sites. Mitigation Measures: 4.14-2: Site-Specific Construction Lighting Measures. ***Operations and Facility Siting:*** **Similar** – The approximately 400-foot-long segment of the alternative alignment at the Fairgrounds Road/Mark Thomas Drive bridge over the Highway 68 on- and off-ramps, would be would be supported on a metal truss pipe bridge that would visible to motorists traveling under the bridge at that location on Highway 68. Although Highway 68 is a designated scenic roadway east of Highway 1, the pipe truss pipe bridge would not substantially affect the scenic resources within the scenic highway segment of Highway 68. Because the metal truss pipe bridge would be located on one side of the bridge at the same height as the bridge

TABLE 7-13 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS – ALTERNATIVE MONTEREY PIPELINE ALIGNMENT

Environmental Topic Area	Proposed Project Monterey Pipeline	Alternative Monterey Pipeline Alignment
Aesthetics (cont.)		structure under the railing, it would not substantially contrast with the reinforced concrete road bridge and would not result in blocking any views beyond those already blocked by the bridge itself. Therefore, impacts related to scenic vistas and visual character would be LS. All other portions of the alternative alignment would be underground and would have no effect on scenic resources or visual character. Like the proposed project alignment, the Alternative Monterey Pipeline would not result in additional sources of permanent light and glare; therefore, no impact related to light and glare would result. Mitigation Measures: None required.
Cultural Resources	***Construction Activities:*** Construction of the proposed project Monterey Pipeline could directly and indirectly impact historical resources due to construction vibration, including through the use of vibratory rollers, which could cause structural damage to adjacent historical resources. This impact would be LSM. The impacts related to the potential inadvertent discovery of archaeological resources and human remains during construction of the proposed project Monterey Pipeline would be LSM. Construction of the proposed project Monterey Pipeline would result in a LS impact related to the direct or indirect destruction of a unique paleontological resource. Mitigation Measures: 4.15-1a: Avoidance and Vibration Monitoring for Pipeline Installation in the Presidio of Monterey Historic District, Downtown Monterey, and the Lapis Sand Mining Plant Historic District. 4.15-2a: Establish Archaeologically Sensitive Areas. 4.15-2b: Inadvertent Discovery of Cultural Resources. 4.15-4: Inadvertent Discovery of Human Remains.	***Construction Activities:*** **Increased** – When compared to the proposed project Monterey Pipeline alignment, the Alternative Monterey Pipeline alignment would have an increased potential to impact historical and archaeological resources and an equal potential to impact on paleontological resources and human remains. Installation of the Alternative Monterey Pipeline could directly impact the entrance monument at the Presidio of Monterey, a LSM impact. The Alternative Monterey Pipeline would pass adjacent to the Spanish Royal Presidio and through the Monterey Old Town National Historic Landmark District, adjacent to the Stokes Adobe, the Gabriel de la Torre Adobe, the Fremont Adobe, Colton Hall, and Friendly Plaza. The Alternative Monterey Pipeline would also extend through the Presidio of Monterey Historic District along Stillwell Avenue. Potential direct and indirect impacts on these historical resources would be LSM. Potential impacts to historic-era archaeological resources in the Monterey Old Town National Historic Landmark District and the Presidio of Monterey during construction of the Alternative Monterey Pipeline would be LSM. The Alternative Monterey Pipeline passes adjacent to five previously recorded prehistoric archaeological sites (CA-MNT-377, CA-MNT -467, CA-MNT -915, CA-MNT -955, and Presidio #2). The results of a surface survey were inconclusive as to whether these sites would extend into the Alternative Monterey Pipeline direct APE. Additional subsurface investigations may be necessary to determine the presence or absence of prehistoric archaeological resources. The potential impacts to archaeological resources would be LSM. The potential inadvertent discovery of archaeological resources and human remains during construction of the proposed project Monterey Pipeline are considered LSM impacts.

TABLE 7-13 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS – ALTERNATIVE MONTEREY PIPELINE ALIGNMENT

Environmental Topic Area	Proposed Project Monterey Pipeline	Alternative Monterey Pipeline Alignment
Cultural Resources (cont.)		Construction of the proposed project Monterey Pipeline would result in a LS impact related to the direct or indirect destruction of a unique paleontological resource. Mitigation Measures: 4.15-1a: Avoidance and Vibration Monitoring for Pipeline Installation in the Presidio of Monterey Historic District, Downtown Monterey, and the Lapis Sand Mining Plant Historic District. (this mitigation measure would be applied to historic resources adjacent to the Alternative Monterey Pipeline) 4.15-2a: Establish Archaeologically Sensitive Areas. 4.15-2b: Inadvertent Discovery of Cultural Resources. 4.15-4: Inadvertent Discovery of Human Remains.
Agriculture and Forest Resources	Construction of the proposed project Monterey Pipeline would have no impacts related to: the conversion of Prime Farmland, Farmland of Statewide Importance, and Unique Farmland to non-agricultural uses, conflicts with agricultural zoning or Williamson Act contracts; and other changes to the existing environment that would result in the conversion of farmland to non-agricultural use. Mitigation Measures: None required.	**Similar** – Same as the proposed project Monterey Pipeline, the Alternative Monterey Pipeline alignment would not be located: in an area mapped as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance; on land under a Williamson Act contract; or on land zoned for agricultural uses. Therefore, no impacts to these lands would result. Mitigation Measures: None required.
Mineral Resources	Construction and operation of the proposed project Monterey Pipeline would have a LS impact on mineral resources. Mitigation Measures: None required.	**Similar** – Like the proposed project Monterey Pipeline alignment, installing the Alternative Monterey Pipeline within or immediately adjacent to existing road rights-of-way would minimize disturbance to nearby MRZ-2 land. Because the pipeline would have a limited footprint and would not be constructed across any active mining areas, it would not result in a significant reduction in the availability of mineral resources (primarily sand dunes). Therefore, construction and operation of the Alternative Monterey Pipeline alignment would result in a LS impact on mineral resources. Mitigation Measures: None required.

TABLE 7-13 (Continued)
COMPARISON OF ENVIRONMENTAL EFFECTS – ALTERNATIVE MONTEREY PIPELINE ALIGNMENT

Environmental Topic Area	Proposed Project Monterey Pipeline	Alternative Monterey Pipeline Alignment
Energy Conservation	***Construction Activities:*** Construction of the proposed project Monterey Pipeline (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. Mitigation Measures: 4.18-1: Construction Equipment Efficiency Plan. 4.10-1c: Idling Restrictions. ***Operations and Maintenance:*** Operation and maintenance of the proposed project Monterey Pipeline would not use fossil fuels and electricity or have any effect on local or regional energy supplies. Mitigation Measures: None required.	***Construction Activities:*** **Similar** – The construction-related impact related to energy conservation associated with installation of the Alternative Monterey Pipeline alignment would be similar to the proposed project pipeline; however, due to the additional 1.8 miles of pipe, construction energy demand would be slightly greater than the proposed project pipeline alignment and there would be a greater potential to use fuels and electricity inefficiently. The impact would be LSM. Mitigation Measures: 4.18-1: Construction Equipment Efficiency Plan. 4.10-1c: Idling Restrictions. ***Operations and Maintenance:*** **Similar -** Same as the proposed project Monterey Pipeline, operation and maintenance of the Alternative Monterey Pipeline alignment would not use fossil fuels and electricity or have any effect on local or regional energy supplies. Mitigation Measures: None required.
Population and Housing	Construction of the proposed project Monterey Pipeline would require up to 28 construction workers. The impact related to the potential for pipeline installation, and construction of the proposed project as a whole, to induce substantial population growth would be LS as the proposed project Monterey Pipeline (and all other project components) would not create employment opportunities substantially greater than would normally be available to construction workers in the area. Although up to 30 additional personnel would be needed to operate the MPWSP Desalination Plant, there would be no increase in staffing to operate and maintain the proposed project Monterey Pipeline. Overall, the direct growth-inducing impact of the proposed project Monterey Pipeline, and proposed project as a whole, would be LS. Mitigation Measures: None required. Mitigation Measures: None required.	**Similar** – The impacts to population and housing associated with implementation of the Alternative Monterey Pipeline alignment would be the same as those associated with the proposed project alignment (LS). Mitigation Measures: None required.

7.9.3 Conclusions for Alternative Pipeline Configurations

As shown in the tables above, the individual alternative pipeline alignments do not result in new impacts than those of the proposed project's pipeline routes. While there are increases noted for impacts to biological resources, cultural resources, and noise and vibration, those impacts could be more severe than those identified for the proposed project. However, these impacts and all others for the alternative pipeline alignments would be mitigated to less-than-significant levels with mitigation measures of the proposed project as identified in the previous tables.

The alternative pipeline segments could be used together in lieu of the proposed project's pipeline route or in combination with some of the proposed project's pipeline segments. The first workable combination (Alternative Pipeline Configuration 1) could be composed of the Alternative Source Water, Alternative Desalinated Water, and Alternative Transmission Main, Alternative Transfer Pipeline combined with the proposed project's Monterey Pipeline. Alternative Pipeline Configuration 1 would result in an increase in impacts on aesthetics, air quality, and noise and vibration related to construction impacts on additional sensitive receptors in proximity of the alternative pipeline routes. Construction impacts from the slight increase in the overall length of pipeline constructed (0.2 mile longer) for Alternative Pipeline Configuration 1 would be relatively minor. Because Alternative Pipeline Configuration 1 would include the same 1,300-foot-long segment of pipeline east of General Jim Moore Boulevard to connect with the Terminal Reservoir and ASR Pump Station, it would have the same level of impacts related to hazards from unexploded ordinance located within the Seaside MRA and to biological resources as the proposed project. Alternative Pipeline Configuration 1 would reduce impacts to traffic, recreation, and biological resources through use of the alternative pipeline routes. The only impact that would not be mitigated to less-than-significant levels is from the short-term and temporary construction noise impacts of the proposed Monterey Pipeline on residents in the City of Monterey if nighttime work is required; this impact would remain significant and unavoidable.

A second alternative pipeline configuration (Alternative Pipeline Configuration 2) could be composed of the Alternative Source Water, Alternative Desalinated Water, Alternative Transmission Main and Alternative Monterey Pipeline (no Transfer Pipeline). Alternative Pipeline Configuration 2 would result in reduced environmental impacts overall, due to its shorter length (0.4 mile less than the proposed project), and reduced logistics and costs compared with the proposed project. Likewise, Alternative Pipeline Configuration 2 would also have reduced environmental impacts overall, and reduced logistics and costs from the shorter length of pipeline installation (0.6 mile shorter), when compared to Alternative Pipeline Configuration 1. Use of Alternative Pipeline Configuration 2 would result in a decrease in construction impacts (e.g., air quality emissions, reduction in traffic conflicts, etc.) compared to the proposed project's pipeline configuration. Implementation of the Alternative Monterey Pipeline would eliminate impacts associated with the proposed project's Monterey Pipeline on the recreation trail. Because Alternative Pipeline Configuration 2 would include the same 1,300 foot-long segment of pipeline east of General Jim Moore Boulevard to connect with the Terminal Reservoir and ASR Pump Station, it would have the same level of impact related to hazards from unexploded ordinance located within the Seaside MRA and to biological resources as the proposed project.

While Alternative Pipeline Configuration 2 would have a few impacts that would be increased when compared to the proposed project pipeline configuration, mitigation for the proposed project would reduce those impacts to less-than-significant levels. In addition, Alternative Pipeline Configuration 2 would provide additional benefits. Alternative Pipeline Configuration 2 would simplify the Coastal Development Permit process because there would be a significant decrease in pipeline length located within the coastal development zone. Further, Alternative Pipeline Configuration 2 would eliminate the need for the proposed project's Transfer Pipeline, thus eliminating all impacts from construction along that route that are different from the Alternative Pipeline Configuration 2 alignment. As explained above, Alternative Pipeline Configuration 2 would provide the most benefits through reduction of some impacts, elimination of some impacts, a reduction in the complexity of permitting requirements, and a reduction in cost compared to the proposed project's pipeline configuration. Thus, Alternative Pipeline Configuration 2 would outweigh the use of the proposed project's pipelines and is the environmentally superior pipeline alternative. For these reasons, Alternative Pipeline Configuration 2 will be brought forward for use in analyzing the whole alternatives in Section 7.10, below.

7.10 Salinas Valley Return Options

In addition to the four basic elements that apply to all desalination projects (i.e., intakes, desalination plant, outfall, and pipelines), the proposed project (and alternatives that use subsurface intakes) would draw a portion of its source water from the inland Salinas Valley Groundwater Basin (SVGB). CalAm proposes to return this volume of water to the SVGB by placing it in the CSIP pond each year, as described in Chapter 3, Project Description. Three alternative options for returning flows to the SVGB are considered here. The options include:

1. conveying the return flows from the desalination plant in a pipeline line connected directly to the CSIP system pipeline, approximately 1,300 feet north of the desalination plant (see **Figure 7-7**);
2. constructing two injection wells on the desalination plant property and injecting the return flows directly into the SVGB (see **Figure 7-7**); or,
3. constructing two injection wells at the CEMEX active mining site and injecting return flows at the nearshore boundary of the SVGB (see **Figure 7-7**).

7.10.1 Alternative Salinas Valley Return Flow Pipeline

The conveyance of Salinas Valley Return Flow directly to the CSIP system would require the construction of a new 1,300-foot-long pipeline that would deliver water from the Desalination Plant site at Charles Benson Road north to the CSIP system pipeline, downstream of the existing CSIP Pond and upstream of the first CSIP turnout. The construction of this pipeline connection to the CSIP system would require the same construction techniques and the same diameter pipeline as the proposed project return pipeline to the CSIP pond, but it would be considerably shorter (1,300 feet versus 1.2 miles). The Alternative Return Flow Pipeline would be located north of the desalination plant, and would follow along the boundary between two properties; an easement would be required. The operations and maintenance of the Alternative Return Flow Pipeline would be the same as the proposed project.

SOURCE: ESA, 2014

205335.01 Monterey Peninsula Water Supply Project

Figure 7-7

Salinas Valley Return Flow Injection Options

7.10.2 Alternative Salinas Valley Return Flow Injection Wells

Construction activities associated with the installation of new injection wells at either the proposed MPWSP Desalination Plant site or at CEMEX would include grading; installation and removal of temporary noise attenuators (sound walls); well drilling; installation of pipeline connections to the proposed project Desalinated Water Pipeline; and installation of electrical equipment and pumps. Construction equipment would include drill rigs, water tanks, pipe trucks, flatbed trucks, and several service vehicles. The new injection wells would be drilled using the reverse rotary drilling method. Bentonite drilling fluids would not be used during well drilling; however, non-corrosive, environmentally inert, biodegradable additives might be used to keep the borehole open. Construction activities would take approximately 12 months, but would be completed within the construction period of the proposed project.

Water produced during development of the injection wells, if located on the proposed Desalination Plant site, would be placed into temporary percolation pits used for the development water only. The temporary percolation pits would be backfilled and compacted in accordance with the applicable geotechnical guidelines or converted to a backflush settling basin described below.

Water produced during development of the injection wells, if located at the CEMEX site, would be placed into baker tanks until sediment-free and then discharged through the existing MRWPCA outfall. Any waste material generated during construction of the injection wells that requires offsite disposal would be transported to an approved landfill facility.

The new injection wells would be constructed to a depth of approximately 350 feet below ground surface and screened in both the Dune Sand Aquifer and the 180-Foot Aquifer. Each well would be equipped with a permanent 10 to 20 horsepower multi-stage vertical turbine pump, Supervisory Control and Data Acquisition controls for remote operation, and various pipes and valves. Each well pump and electrical control system could be housed in a 400-square-foot pump house. Electrical power would be supplied to the injection wells through power lines at the Desalination Plant or power sources for the slant wells at the CEMEX site. Security fencing would encompass an approximately 400-square-foot area around the well sites.

The wells would each be designed to inject from 1.1 mgd (approximately 800 gpm) to 1.6 mgd (approximately 1,200 gpm). The system would allow for continuous injection operation to allow for the maintenance of one well at a time, or well failure. The wells would be constructed with a 14-inch diameter well casing and screen. During operations, approximately four to seven percent of water pumped at the CEMEX slant well site (up to 1,889 afy for the proposed project and up to 1,215 afy for the smaller Desalination Plant under the MPWSP Variant) would be injected back into the Dune Sand Aquifer and 180-Foot Aquifer between May and October of each year.

Routine maintenance of the injection wells would involve backflushing sediment and turbid water when injection pressures increase 50 percent above initial operating pressures. The backflush system would include an 800-square-foot, 6-foot-deep backflush settling basin located on the proposed MPWSP Desalination Plant site. If the injection wells are located on the CEMEX site,

arrangements would be made with the MRWPCA to discharge water into the existing ocean outfall after sediment is removed. An 8-inch-diameter pipeline would extend between the injection wells and the backflush system and would be required at either injection well location. Effluent containing elevated levels of sediment and turbidity would be conveyed through the backflush system pipeline to the backflush settling basin at the proposed Desalination Plant site or to temporary storage tanks at the CEMEX site sized to accept the volume of water from backflush operations. The water discharged to the backflush settling basin would infiltrate into the ground. Sediment laden water from the initial backflush would be collected and appropriately disposed of using a vacuum truck at the CEMEX site before discharge into the MRWPCA outfall. The proposed backflush settling basin at the proposed Desalination Plant site would have a capacity of 0.5 af, which would allow for backflush discharges of up to 500 gpm for 4 hours. The sediment in the settling basin would periodically need to be removed and disposed of at an appropriate disposal site.

7.10.3 Comparison of the Alternative Salinas Valley Return Flow Options to the Proposed Project

The alternative return flow options described above could be implemented in lieu of the proposed project return option. The following discussion compares the impacts of the alternative return options with the impacts of the proposed project return option to the CSIP pond.

Pipeline installation activities for the alternative return options would entail the same kinds of construction equipment and techniques as the proposed project return pipeline. However, construction of the Alternative Return Flow Injection Wells would entail additional construction equipment, additional length of pipeline, an increase in area of disturbance for construction of the well sites and backflush system if located at the CEMEX site, and an increase in operations and maintenance activities, including pumps, power lines, and maintenance of the backflush system. The following is a summary of the impacts for each Alternative Return Flow option compared to the proposed project.

7.10.3.1 Alternative Salinas Valley Return Flow Pipeline

The Alternative Return Flow Pipeline would result in the construction of approximately 0.25 mile of pipeline, which is approximately 0.75 mile shorter than the proposed project return pipeline to the CSIP pond, and over half of it would be constructed within the footprint of the construction of the proposed Desalination Plant site. Therefore, impacts related to construction activities would be decreased for this alternative. However, none of the levels of significance would be altered as compared to the project. As with the proposed project return of water to the CSIP pond, direct connection to the CSIP supply line would require CPUC approval of an expansion of CalAm's service territory.

7.10.3.2 Injection Wells at the Proposed Desalination Plant Site

The Alternative Return Flow Injection Wells at the proposed Desalination Plant site would result in increased construction impacts because there would be more construction equipment and pipeline connection required for construction of the two injection wells on the proposed Desalination Plant

site. Operation of the Alternative Return Flow Injection Wells would result in an increase in impacts related to noise and energy from the well pumps and the backflush system. Further, operation and maintenance of the injection wells would result in an increase in activities for the removal of sediments from backflush activities. These impacts would be mitigated to less-than-significant levels using the mitigation measures provided in Chapter 4. Finally, operation of the Alternative Return Flow Injection Wells at the proposed Desalination Plant site would result in direct injection of desalinated (i.e., potable) water into the brackish and degraded SVGB. Returning water through the Alternative Return Flow Injection Wells at the proposed Desalination Plant site would reduce the maximum distance inland that would experience a decline in water levels of one foot by approximately 0.3 to 0.8 mile compared to the proposed project.

As explained in Section 2.7, Water Rights, injection of fresh, desalinated water into the degraded SVGB would conflict with law and policy regarding the "waste" of developed water. As stated in the California Constitution, "…the general welfare requires that the water resources of the State be put to beneficial use to the fullest extent of which they are capable…and that the conservation of such water is to be exercised with a view to the reasonable and beneficial use thereof." (SWRCB, 2013) Essentially, use of the Alternative Return Flow Injection Wells would result in the loss of the beneficial use of the desalinated and potable water that would otherwise be provided to the CSIP pond by the proposed project. Therefore, the Alternative Return Flow Injection Wells would appear to be infeasible from a legal and policy perspective if the water returned through the injection wells were desalinated water. As noted in Section 2.7, Water Rights, this option could prove feasible if the water returned to the SVGB through the injection wells were the brackish supply water withdrawn by the intake wells, either blended with desalinated product water or treated to some degree to ensure that the return water quality were such that the SVGB water would not be degraded in any respect. The details and mechanisms of this possible approach to making the Alternative Return Flow Injection Wells a feasible option have not been developed and are not analyzed in this EIR.

7.10.3.3 Injection Wells at the Proposed CEMEX Site

The Alternative Return Flow Injection Wells at the proposed CEMEX site would result in an increase in construction impacts because there would be longer segments of pipeline constructed to connect the proposed Desalination Plant with the CEMEX location, in addition to the footprint impacts associated with the wells and backflush system. Operation of the Alternative Return Flow Injection Wells would result in an increase in impacts related to noise and energy from the well pumps and the backflush system. Further, operation and maintenance of the Alternative Return Flow Injection Wells would result in an increase in activities for the removal of sediments from backflush activities. These impacts would be mitigated to less-than-significant levels using the mitigation measures provided in Chapter 4.

Operation of the Alternative Return Flow Injection Wells at the CEMEX site would result in direct injection of desalinated (i.e., potable) water into the brackish and degraded SVGB. Returning water through Alternative Return Flow Injection Wells at the CEMEX Site would reduce the maximum distance inland that would experience a decline in water levels of one foot by approximately 0.1 to 0.5 mile compared to the proposed project. In addition, the drawdowns at

the slant well location would be slightly reduced. According to the SWRCB (July 2013) the injection wells would have to be designed to ensure water is injected in areas not already degraded since this would result in a direct conflict with statute, case law, and the California Constitution regarding the "waste" of developed water. As stated in the California Constitution, "…the general welfare requires that the water resources of the State be put to beneficial use to the fullest extent of which they are capable…and that the conservation of such water is to be exercised with a view to the reasonable and beneficial use thereof." (SWRCB, 2013) Essentially, use of the Alternative Return Flow Injection Wells would result in significant and unavoidable loss of the beficial use of the desalinated and potable water that would otherwise be provided to the CSIP pond by the proposed project.

7.10.4 Conclusions on Salinas Valley Return Flow Options

As noted above, the Alternative Salinas Valley Return Flow options of injection wells at either the CEMEX site or the Desalination Plant site may not be feasible due to direct conflict with statute, case law, and the California Constitution regarding the "waste" of developed water. The Alternative Salinas Valley Return option connection directly to the CSIP pipeline would not result in direct conflict with statute, case lase, and the California Constitution and would result in a decrease in construction related impacts; it is the superior option for the proposed project. Because the MPWSP Variant would preclude delivery of return flows to the CSIP from CalAm's Desalination Plant, another option would be required to return pumped water to the Basin. CalAm has not proposed to, but could possibly provide the return water to a direct user or to a local agency for use on land that overlies the SVGB in lieu of an equal amount of groundwater pumping. Such an overlier has not yet been identified, nor has the infrastructure necessary to deliver the return water to an overlier. If and when such a solution is proposed and defined, additional environmental documentation may be required to complete the transaction. In order to ensure that return of water to a direct user or provider of water would not result in growth-inducing effects, any arrangement would need to verifiably reduce an equal amount of existing groundwater pumping from the SVGB. This latter option could also be applied to return flows for the proposed project.

7.11 Analysis of CEQA Alternatives

This section describes alternatives to the entirety of the proposed project, including two "no project" alternative scenarios and two proposed project variant alternatives. Consistent with the CEQA Guidelines, the analysis considers the ability of the alternatives to meet all or most of the basic project objectives and to reduce or avoid environmental impacts of the proposed project.

7.11.1 No Project Alternatives

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 alternative analysis is not the baseline for determining whether the proposed project's environmental impacts may be significant, unless it is identical to the existing environmental setting analysis, which does establish that baseline.
- 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.

This analysis considers two no project alternatives, as described below.

7.11.1.1 No Project Alternative 1 – "No Build"

Under No Project Alternative 1 – No Build, no new potable water system facilities would be developed and CalAm would be obligated to adjust operations to comply with the SWRCB Cease and Desist Order (CDO) and the Seaside Groundwater Basin adjudication. By ending diversions from the Carmel River in excess of its legal rights in compliance with SWRCB Order 95-10 and the CDO, CalAm would avoid financial penalties associated with violation of the CDO. Similarly, under this alternative, CalAm would limit pumping from the Seaside Groundwater Basin to its adjudicated right of 1,474 afy. This scenario assumes that there would be no "payback" to the Seaside Groundwater Basin of the amount of water CalAm previously pumped in excess of its adjudicated right. That is, given that the current payback schedule is tentative,[29] it is assumed that under this alternative, the payback would need to be delayed indefinitely due to the lack of sufficient supply.

Under this scenario, CalAm would divert 3,376 afy from the Carmel River system and pump 1,474 afy from the Seaside Groundwater Basin and would continue to use other existing legal supplies consisting of 230 afy (near-term supply)[30] of desalinated Sand City water and 1,300 afy from the existing Phase I and II projects of the ASR system. This scenario also assumes that the City of Pacific Grove would implement its Local Water Project and the Monterey-Pacific Grove Area of Special Biological Significance (ASBS) Stormwater Management Project (described below in Section 7.9.1.2), which would offset approximately 236 afy of demand.[31] The aforementioned projects would thus offset potable demand by about 6,616 afy. CalAm and

[29] As discussed in Chapter 2, Section 2.2.3, CalAm is required to replenish the quantity of groundwater that CalAm has produced in excess of its adjudicated right in the period since the groundwater basin was adjudicated. CalAm and the Seaside Groundwater Basin Watermaster have tentatively agreed to a replenishment schedule of 25 years at a replenishment rate of 700 afy. 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 No Project Alternative 1.

[30] While CalAm's long term supply from the Sand City desalination plant is 94 afy, in the near term, before Sand City needs the balance of production from the 300-afy plant to which Sand City has rights, more supply would be available for use in CalAm's distribution system. The near-term supply assumed here is based on the amount assumed for year 2016-2017 in the SWRCB CDO.

[31] This estimate assumes that the Demand Group II project of the Local Water Project would receive project level review and that the Demand Group II project and the ASBS project would be approved and implemented. Although these projects are not yet approved, it is reasonable to expect that the water supply shortage that would result under No Project Alternative 1 could accelerate approval and implementation of these projects. (See Section 7.11.1.2 for more information on these projects.)

MPWMD would continue to implement conservation programs to achieve additional water savings. As discussed in more detail below in Section 7.11.1.2, additional conservation savings could offset demand by about 224 afy (assuming the current effectiveness of quantifiable conservation programs), and therefore is assumed to offset demand when the CDO takes effect. A total of approximately 6,840 afy of supply would thus be provided or made available (by offsetting potable demand) from these sources.

Available supply under No Project Alternative 1 (6,840 afy) represents 51 percent of the existing average annual demand CalAm identified in its application for the MPWSP, 13,291 afy (the average of years 2007-2011, shown in **Table 2-2** of Chapter 2), and 60 percent of the average annual demand (11,467 afy) based on more recent data (the average for years 2010-2014). The reduction of available water supply by almost half that would result under the No Project Alternative 1 scenario would lead to water shortages throughout the CalAm Monterey District service area, would trigger rigorous water rationing, could jeopardize public health and safety, and may severely impact the local economy.

It is assumed that the reduction of available supply under No Project Alternative 1 would trigger MPWMD's Stage 7 water rationing. Pursuant to MPWMD's Regulation XV, Rule 167, Stage 7 water rationing will be enforced when legal requirements (e.g., the requirement to comply with the CDO, the Seaside Watermaster or any other final court order) reduces available supply by 50 percent or more from the pre-1995 production level of 16,806 afy in the Main CalAm system. Rule 167 establishes a water use reduction goal of at least 50 percent in each user category (i.e., residential single-family and multi-family, commercial, industrial, public authority, golf course, other use, non-revenue metered uses, and reclaimed water users). Pursuant to Rule 167, CalAm would implement a CPUC-approved rationing rate schedule and the MPWMD General Manager would determine water rations for each user category using the process established in MPWMD's Rule 165, which requires that priority water rations be given to residential water needs to ensure health, safety, and welfare and specifies that "[r]esidential water rations shall under no circumstances be less than 35 gallons per person per day." Among other provisions, Rule 167 requires that the MPWMD Board of Directors adopt by resolution additional restrictions on outdoor water use. The Board of Directors may adopt any or all of the restrictions listed (which include limiting outdoor watering and irrigation to one day per week or one day every other week, or prohibiting outdoor watering and irrigation with water from the affected water resources system; the discontinuation of irrigation of public landscaped areas; reduced golf course irrigation; and the prohibition of the use of water from hydrants for construction purposes or any other purposes other than fire fighting) or other conservation methods deemed feasible. The use of recycled water, when available, is not restricted by this requirement.

Ability to Meet Project Objectives

The No Project Alternative 1 scenario would fail to meet almost all of the key objectives of the proposed project. This alternative would achieve compliance with the CDO and Seaside Basin Adjudication, but would not provide a replacement water supply in order to do so. Instead it is assumed that stringent rationing measures would be implemented. This alternative would not provide supply to allow for "repayment" 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 the development of legal lots of record or additional tourism demand resulting from economic recovery.

Environmental Effects

Implementation of the No Project Alternative 1 - No Build scenario would avoid the construction-related and operational impacts of the proposed project identified in Chapter 4. However, the water shortage that would result and associated water rationing under this alternative would incur a different set of environmental effects and would fail to address adverse conditions relating to groundwater. The inability to restore to the Seaside Groundwater Basin the quantity of water CalAm has previously produced in excess of its adjudicated right would not constitute a new physical impact compared to baseline conditions, but would fail to address the contribution of previous excessive withdrawals to potential salt water intrusion within the basin and associated adverse impacts on groundwater quality and availability. The limited water supply under this alternative could exacerbate existing potential for exposure of people or structures to wildland fires. This alternative would severely impact CalAm's ability to provide water service to service area customers.

Given the Stage 7 rationing that would result, along with potential threats to public health, safety, and welfare, and the adverse impact on the economy and quality of life on the Monterey Peninsula that could occur under the No Action Alternative 1-No Build scenario, this alternative is not considered a realistic long term alternative to the proposed project. If the proposed project were not approved, it can reasonably be expected that CalAm, MPWMD, MPRWA and others would undertake various actions to alleviate and address the water shortage that would otherwise result. Possible actions, including negotiation with the SWRCB to revise CDO timelines and implementation of conservation measures, are described under No Action Alternative 2,-No Build Plus Interim SWRCB Agreement.

7.11.1.2 No Project Alternative 2 – No Build + Interim SWRCB Agreement

The No Project Alternative 2 - No Build Plus Interim SWRCB Agreement scenario includes most of the assumptions described above under No Project Alternative 1 but assumes there would be an interim agreement with the SWRCB to revise and extend the CDO's schedule of reductions in Carmel River diversions and includes additional demand management strategies to reduce service area demand. As under No Project Alternative 1, no potable water system facilities would be constructed, CalAm would limit pumping in the Seaside Groundwater Basin to its adjudicated right of 1,474 afy, and there would be no "payback" to the groundwater basin of the amount of water that CalAm previously pumped in excess of its adjudicated right. Likewise, this scenario assumes that 230 afy (near-term supply) would be provided by the Sand City desalination plant, 1,300 afy would be provided by the existing ASR system, and that the City of Pacific Grove would implement its Local Water Project and the Monterey-Pacific Grove ASBS Stormwater Management Project (described below), which would offset approximately 236 afy of potable demand. Together, these sources and demand offsets total 3,240 afy.

Unlike No Project Alternative 1, however, in light of the severe rationing that would be required under No Project Alternative 1, No Project Alternative 2 assumes that CalAm would enter into an interim agreement with the SWRCB to revise the CDO schedule of when CalAm's withdrawals from the Carmel River would be limited to CalAm's right to 3,376 afy established in Order 95-10. Under this alternative, it is assumed that the timeline established in the CDO would be extended for another five years (ending in Water Year 2021-2022 rather than 2016-2017), during which CalAm would be permitted to divert up to a total of 8,570 afy from the river. This corresponds to the level of diversions[32] and length of the extension period proposed by the MPRWA in its draft proposal to the SWRCB to amend the CDO (MPRWA, 2015) and is 5,194 afy in excess of CalAm's rights under SWRCB Order 95-10. During the period in which the CDO would be extended, Carmel River water and the supply and demand offsets assumed above would total 11,810 afy. This is slightly more (3 percent) than CalAm's total production in 2014 (10,250 af).

This alternative assumes that while the CDO extension was in effect, CalAm would implement programs to achieve additional water conservation and water system improvements to reduce water loss; the potential for water recycling programs to offset service area demand would also be pursued. The potential for conservation, system improvements and recycled water to offset the Carmel River diversions in excess of CalAm's legal right is discussed below.

Demand Reduction: Water Conservation, Demand Management, and Recycling

This section discusses the potential for conservation programs, plumbing code savings, system improvements, and water recycling to offset water demands. To the extent that estimated water savings resulting from such programs over the CDO extension period can be quantified, the potential savings are summarized at the conclusion of each program discussion.

Water Conservation and Demand Management

Existing Water Conservation Programs

Water conservation programs can reduce the quantity of physical water needed to meet a given level of demand. CalAm and MPWMD implement numerous water conservation and demand management programs within CalAm's Monterey District service area. Promotion of water conservation, as well as water reuse and reclamation, has been part of MPWMD's core purpose since it was established in 1978. SWRCB's 1995 Order 95-10 and 2009 CDO, which mandate specific and ongoing reductions in diversions from the Carmel River, and the 2006 Seaside Groundwater Basin adjudication, which requires CalAm to reduce pumping from the groundwater basin, have spurred additional efforts. Conservation programs have been critical to meeting the reduction mandates included in these orders and decisions.

MPWMD's water conservation regulations require that low-water-use fixtures and appliances be used in new construction; that faucets and toilets in commercial and industrial land uses be retrofitted with low-water use fixtures; and that all residential, commercial, and industrial

[32] The level of diversions corresponds to that proposed by MPRWA except for the final year before the end of the MPRWA-proposed extension (2020-2021), during which the level of diversions proposed by MPRWA would be reduced from 8,570 to 4,675 afy.

properties that have not already been retrofitted be retrofitted upon change of ownership. In 1998, MPWMD expanded its conservation efforts with the adoption of its Regulation XV, Expanded Water Conservation and Standby Rationing Plan. Regulation XV was adopted to respond to both legal and physical circumstances (including Order 95-10) that constrain the availability of water supply on the Monterey Peninsula. Order 95-10 required CalAm, while it sought a replacement water supply, to institute additional conservation measures to reduce demand by 15 percent by 1996 and by 20 percent thereafter, relative to CalAm's historic usage cited in Order 95-10 (14,106 afy). MPWMD's expanded conservation regulation includes seven successive stages of conservation (Stages 1-3) and rationing (Stages 4-7) to respond to supply constraints. Stage 1 requirements are currently in effect. The 2009 CDO required CalAm to immediately reduce diversions from the Carmel River by another 5 percent, or 549 afy, starting in October 2009, and achieve further annual reductions starting in October 2011 and continuing until all CalAm diversions from the river in excess of CalAm's established rights are terminated. The CDO specifies that this endpoint be achieved by water year 2016-2017. The CDO prohibits CalAm from diverting water from the Carmel River for new service connections or intensified water use at existing connections.

Conservation programs being implemented by CalAm and/or MPWMD include incentive-based billing rates, a restricted irrigation schedule, free water audits, free water-saving devices, rebates on high-efficiency plumbing fixtures and appliances, rebates for turf removal and its replacement by drought-tolerant landscaping, and educational programs that encourage water conservation. **Table 7-14** summarizes key CalAm and MPWMD conservation programs and estimated water savings for those that are quantifiable, for years 2010 through 2013. Reductions in demand achieved by these programs in 2010 and 2011 (and earlier) would be reflected in CalAm's estimate of existing service area demand for the MPWSP (which averaged years 2007-2011). As the table shows, the programs that can be quantified are estimated to save from 220 to 370 afy, and over the last three of the four years to save 220 to 230 afy.

These programs to promote conservation and reduce service area demand have contributed (with other factors such as the mild climate) to the Monterey Peninsula having among the lowest residential per capita water use rates in the state. Conservation reporting in 2014, provided in response to the state's emergency drought regulations, shows that CalAm's Monterey District was among a handful of water districts whose average monthly residential per capita water use for the months reported (June through December 2014) was less than 50 gallons per capita per day (gpcd). In the Central Coast and San Francisco Bay Hydrologic Regions (which have generally similar weather conditions), of 80 water districts reporting, the average monthly per capita use rate of five districts was less than 50 gpcd (SWRCB, 2015b).[33] It should be noted that this per capita use information was collected in the context of the severe drought the state is currently experiencing and associated emergency drought regulations. For most if not all of the reporting districts, the reported use levels reflect actions and requirements to curtail use in

[33] The five water districts with the lowest average water use were: San Francisco Public Utilities Commission, 44.20 gpcd; City of Santa Cruz, 46.07 gpcd; California Water Service Company South San Francisco District, 46.21 gpcd; CalAm Monterey District, 47.24 gpcd, and Cambria Community Services District 48.95 gpcd.

TABLE 7-14
SUMMARY OF EXISTING SERVICE AREA CONSERVATION PROGRAMS

Program	Description	Promotion/Implementation	Estimated Savings (AF)			
			2010	2011	2012	2013
Residential Audits	CalAm offers free residential audits, called Water Wise House Calls, for single- or multi-family homes; the audits are conducted by CalAm conservation staff to identify ways to save water indoors and out.	The program is promoted through bill inserts, newspaper and radio ads, rebate brochures, by offering the service to customers who visited the office to make payments, and by targeting customers who had received high water bills due to CalAm's tiered rate structure which began in February 2010.	5.15	4.20	6.77	8.20
Residential Plumbing Retrofit	CalAm provides residential customers with various free water savings devices including showerheads, bathroom and kitchen faucet aerators, leak detection tablets/kits, and outdoor water saving tools, such as hose nozzles that automatically shut off when not in use.	Devices are distributed to CalAm customers at community events, at the CalAm office front desk (to walk-in customers), at on-site audits, upon customer request, and at the office front desk for special giveaway offers advertised in residential customers' monthly water bills.	5.16	19.24	19.24	28.57
Large Landscape Audits and Water Budgets	CalAm and MPWMD work together to complete landscape water audits and budgets required by MPWMD's Rule 172. Each year CalAm identifies new customers who require landscape water audits and budgets. These are customers whose water use averages at least 320 units (24,000 gallons) per month or whose property has a separate irrigation meter or is 3 acres or more.	Certified landscape irrigation auditors contracted by MPWMD carried out 230 audits in 2010. The program was essentially on hold for three years due to budget constraints and in 2013 a problem updating the auditing software. Over a three-year period (2010 through 2012) 410 audits were completed. Audits will proceed in 2014.	123.00	2.93	2.93	0
Rebates	The rebate program provides customers incentives to upgrade to high efficiency/water saving fixtures and appliances. Rebates for various appliances are available to residential and CII customers.	Rebate applicants learn about the rebate program primarily through newspaper advertising, direct-mail rebate brochures sent to CalAm customers, and staff contacts at local outreach events.	62.21	25.01	2.59	57.38
Public Outreach and Education	CalAm and MPWMD implement a joint campaign to promote awareness about water-saving programs and the need for water conservation.	Outreach includes class and assembly presentations at local schools, maintenance of a conservation website for the Monterey area, print and television ads, radio announcements, mailed brochures and bill inserts about the rebate program, booths at community events, televised reports, and conservation classes.	Not quantifiable	Not quantifiable	Not quantifiable	Not quantifiable
Commercial, Institutional & Industrial (CII) Audits	Water use surveys, including audit of water fixtures and water use patterns and behavior. Customers are provided with audit report that includes findings, recommendations on applicable water saving devices and, and expected payback periods for recommended upgrades.	CalAm selects potential candidates with the greatest need for water savings, determined in part by identifying customers with no previous conservation retrofit requirements. The audits are conducted by a contractor with follow-up by CalAm conservation staff.	47.17	43.00	60.00	9.00

TABLE 7-14 (Continued)
SUMMARY OF EXISTING SERVICE AREA CONSERVATION PROGRAMS

Program	Description	Promotion/Implementation	Estimated Savings (AF)			
			2010	2011	2012	2013
Rain Sensor Installation Program	The program provides direct installation of rain sensors for residential, commercial and public authority customers. The rain sensor is a device that automatically signals an irrigation controller to stop watering when it rains, and allows watering to resume when needed.	CalAm began the program in October of 2011. Four hundred letters were sent to customers requiring large landscape water audits and budgets.	-	2.37 [a]	6 [a]	Not yet quantified for 2013
Free Water Usage	CalAm has 14 customers who receive "free water" in exchange for rights-of-way and/or transfer of riparian water rights to the Carmel River. The Free Water Usage program is part of CalAm's effort to limit free water customers' usage to the amount of water that is legally available under deeds and/or contracts and to determine whether CalAm can negotiate a termination of free service. This program is not listed in the 2013 annual conservation report.	Cal Am reviewed the deeds and contracts of customers receiving free water. In 2010, all such customers were mailed a letter and survey regarding the number of residents in the home, lot size, and number of large animals. Four residential landscape audits and one non-residential audit were performed. In 2012 CalAm started sending monthly statements to enable the free water customers to monitor their usage.	3.00	6.00	6.00	-
Landscape Grant Program	Provides grants for the replacement of turf on city property with low-water-use landscaping or synthetic grass and/or for the installation of water saving irrigation technology. Provides funding for demonstration projects with high visibility, water savings, exemplary landscaping, and/or use of water saving-irrigation technology. CalAm began implementing the program in 2010.	CalAm sent letters about the program to the service area cities and the Presidio of Monterey in 2010 and 2013. In 2011 CalAm awarded grants for projects in the City of Monterey and the City of Seaside that together are expected to save 4 af. The projects were completed by the end of 2012. In 2013 CalAm awarded grants for projects in the City of Monterey and the City of Pacific Grove that are expected to save 3 af.	-	-	4.0	3.0
Conservation Intern(s)	Internship position to assist with a variety of tasks relating to the conservation programs; tasks include assisting with regulatory reporting requirements; planning, creating, and implementing conservation programs; processing audits; and assisting customers.	In December 2009 CalAm hired a conservation intern to assist with conservation program implementation; funding for one or more interns has been listed in the goals for the following year reported in each annual conservation report.	Not quantifiable	Not quantifiable	Not quantifiable	Not quantifiable
Water Conservation Representative	Staff position to perform water waste enforcement and follow-up, participate in public outreach events, perform property inspections and audits.	Maintain one staff position that focuses on water waste enforcement and water efficiency and conservation.	Not quantifiable	Not quantifiable	Not quantifiable	Not quantifiable
Water Conservation Seminars	Provide education hands on learning with focus on reducing outdoor and CII water use.	MPWMD's training agenda focuses on providing gardeners, landscapers, builders, homeowners, plumbers and others the tools necessary to maximize water efficiencies and include workshops on rainwater harvesting and graywater use.	Not quantifiable	Not quantifiable	Not quantifiable	Not quantifiable

TABLE 7-14 (Continued)
SUMMARY OF EXISTING SERVICE AREA CONSERVATION PROGRAMS

Program	Description	Promotion/Implementation	Estimated Savings (AF)			
			2010	2011	2012	2013
Water Wise Gardening for Monterey County	Monterey area-specific gardening software program designed to assist customers with water-efficient plant choices for landscaping.	MPWMD licenses the product for web use, which the agency has done since 2009, when the software program became available as a web application. (Before that MPWMD had reprinted CDs for distribution.)	Not quantifiable	Not quantifiable	Not quantifiable	Not quantifiable
Linen/Towel Reuse Program	The linen/towel reuse program provides cards notifying customers of the option to either reuse or obtain new linens and towels in hotel rooms, provides conservation message mirror clings, and provides "drinking water served only on request" tent cards for restaurants.	Reprints cards for placement in hotels and restaurants. The program is mandatory within the MPWMD.	up to 101 afy at 60% occupancy	up to 101 afy at 60% occupancy	up to 101 afy at 60% occupancy	up to 101 afy at 60% occupancy
California Irrigation Management Information System (CIMIS) Station Maintenance	CIMIS data are used by weather-based irrigation controllers to schedule irrigation times. MPWMD sponsors three CIMIS stations on the Monterey Peninsula. The three locations provide full coverage reference evapotranspiration (ETo) data for the Monterey Peninsula.	MPWMD staff coordinate with California Department of Water Resources staff and local golf course operators to maintain locations for CIMIS stations in ETo Zones 2 and 3. MPWMD staff maintain the stations by cleaning the devices periodically and in 2012 purchased and installed bird deterrent.	Not quantifiable	Not quantifiable	Not quantifiable	Not quantifiable
Conservation Devices	MPWMD provides CalAm customers with various free water-savings devices including showerheads, bathroom and kitchen faucet aerators, leak detection tablets/kits, and outdoor water saving tools.	MPWMD distributes devices at community events, at the MPWMD front desk (to walk-in customers), at on-site inspections, upon customer request, during presentations, and during water waste enforcement visits.	18.94	24.31	25.26	14.48
Conservation Printed Material	The printed material program updates and distributes water conservation materials to the public via local retailers, organizations, and other means.	MPWMD prepares and distributes pertinent print material promoting water conservation, including brochures about the rebate program (drafted with CalAm), and rainwater harvesting and use of graywater, and a postcard distributed to CII water users about water efficiency requirements.	Not quantifiable	Not quantifiable	Not quantifiable	Not quantifiable
Water Waste Prohibitions	The water waste prohibition program seeks to eliminate water running to waste and other forms of water waste.	Notification to property occupant and follow up to ensure corrections as needed. The water conservation representative has primary responsibility for water waste enforcement.	Not quantifiable	Not quantifiable	Not quantifiable	Not quantifiable

TABLE 7-14 (Continued)
SUMMARY OF EXISTING SERVICE AREA CONSERVATION PROGRAMS

Program	Description	Promotion/Implementation	Estimated Savings (AF)			
			2010	2011	2012	2013
Water Rate Structure	CalAm employs tiered water rate structures for residential and non-residential customers specifically designed to promote conservation: a five-tiered rate structure for residential customers, a two-tiered structure for dedicated irrigation meters, and, since 2013, a four-tiered structure for non-residential customers that relates the rate tiers to the degree of compliance with water conservation best management practices and how much of the property is irrigated.	A water rate increase affecting all accounts and dramatically increasing the fourth and fifth tiers of the residential rate structure took effect in February 2010. Analysis of a sample of customers who received a large landscape audit indicated that some of the 123 afy savings reported for the landscape audits in 2010 was attributable to the rate increase. A large increase in residential tiered rates n 2012 prompted an upsurge in demand for residential water audits.	see note b	see note b	see note b	see note b
Total of Quantifiable Estimated Savings			366	228	230	219

[a] Actual savings reported in the following year's annual conservation report.

[b] The annual conservation reports generally do not quantify savings from the tiered rate structures but indicate that the rate structures are assumed to encourage participation in, and contribute to water savings reported for, other conservation programs that are quantified (such as the large landscape audit program and rain sensor installation program). The 2013 conservation report states that fifth tier residential water usage dropped from 598 acre feet in 2007 to 212 acre feet in 2013.

SOURCES: CalAm and MPWMD, 2011; CalAm and MPWMD, 2012; CalAm and MPWMD, 2013; CalAm and MPWMD, 2014.

response to the drought. Past experience shows that when a drought period ends, water use typically rebounds over time to pre-drought levels. Therefore, per capita usage under non-drought conditions can be expected to be higher than these reported levels. However, it is reasonable to assume that water use rates on the Monterey Peninsula would continue to be among the lowest in the state given the Monterey Peninsula's history of water shortages and drought and the many years of implementing conservation programs outlined above.

Additional Conservation Under No Action Alternative 2

Under this alternative, CalAm and MPWMD would continue, and endeavor to expand, mandatory and voluntary conservation and demand management programs in the service area to lower demand in all water use sectors. Given the existing aggressive conservation program in the service area and the high level of saturation of past and existing programs to replace and retrofit plumbing fixtures and appliances and replace turf with drought tolerant landscaping, and the fact that a sharply tiered rate structure was adopted in 2010, the feasibility of achieving substantial additional water savings through conservation is highly uncertain. Assuming that the conservation programs summarized in **Table 7-14** continue to be as effective in reducing demand as they were estimated to be in 2012 and 2013, continuation of these programs would result in estimated conservation savings of approximately 224 afy (the average of the last two years), which would result in a cumulative reduction in demand over the nine years the CDO deadline is envisioned under the alternative to be extended of approximately 2,020 afy. More likely, however, the savings that can be achieved each additional year will decrease as more businesses and residents undertake such retrofits and replacements, leaving fewer inefficient water uses in the service area from which potential additional conservation savings could be derived. (Refer to the discussion under "Feasibility Issues" below.) Assuming for this analysis that the effectiveness of the conservation programs decreases by 5 afy between 2014 and 2022, the cumulative conservation savings would be approximately 1,740 afy. In reality, the reduction in effectiveness may be more pronounced in future years considering existing conservation program saturation levels.

To summarize, based on the assumptions described above, the continuation of the programs shown in **Table 7-14** could optimistically yield conservation savings of about 224 afy, although annual decreases in conservation savings can be expected as the saturation of these programs in the service area increases. Over the nine years from 2014 to 2022, the year to which the CDO deadline would be extended under this No Project scenario, continuation (and expansion to the extent feasible) of existing programs could thus theoretically reduce service area demand by 1,740 to 2,020 af. Further investigation would be needed before such savings could reliably be quantified and assumed to offset estimated demand.

Potential Savings: 1,740 to 2,020 af, or an average of 1,880 af, by 2022.

Plumbing Code Savings

Water savings from plumbing code requirements accrue over time as water fixtures are replaced due to failure, aging, or remodeling, and must be replaced by more efficient models, pursuant to the state plumbing code (part of the state building code). As discussed above, CalAm and MPWMD have been implementing rebate and retrofit programs that encourage or require

replacement or retrofitting of fixtures with more efficient models. MPWMD staff estimate that 75-80 percent of residential housing has been retrofitted with water efficient toilets and that most visitor-serving commercial uses (e.g., hotels, motels, restaurants and gas stations), which were required to have low flow toilets, faucets and showerheads by 2000, have complied. The non-residential sector was required to meet stringent water efficiency standards by January 1, 2014; however, the rate of compliance with that requirement is as yet unknown because MPWMD has not yet undertaken compliance verification (Locke, 2015). Nevertheless, considering MPWMD's past and current requirements and the aforementioned programs, this analysis assumes that a substantial portion of the savings that would be gained by plumbing code requirements has already been realized within the CalAm Monterey District service area and would largely be reflected in existing service area demand.

Potential savings: Not quantified.

Non-Revenue Water Reduction

Another element of demand management is reduction in non-revenue water. Non-revenue water (also referred to as unaccounted-for water) represents the difference between total water produced in a system (e.g., from CalAm's wells and distribution facilities) and total water billed to customers (i.e., water consumed). Reduction of system losses through maintenance and repair can make available for other uses water that was formerly lost in the system. As described in Chapter2, Section 2.6.3, CalAm has undertaken efforts to reduce non-revenue water in its Monterey District, and CalAm's annual reports to the CPUC of district water system operations for 2012 and 2013 (CalAm 2014b, 2014c) show that non-revenue water represented 6 percent and 11percent of system production, respectively. Non-revenue water representing 6 percent of system production is below the industry standard of 10 percent (as cited in the CDO), below the 9percent established by the CPUC for the Monterey Main and Bishop subsystems in a 2012 rate case, and below MPWMD's requirement that CalAm reduce non-revenue water to 7 percent. The average for the two years (8 percent) is 1 percent higher than MPWMD's requirement, while non-revenue water in 2013 was 4 percent higher. Assuming for this analysis that additional system improvements could reduce non-revenue water losses by an additional 2 percent, such improvements would result in additional savings of about 265 afy based on the existing average annual demand of 13,291 afy. Further investigation would be needed before such savings could reliably be quantified and assumed as an offset of estimated demand.

Potential savings: 265 afy

Water Recycling

Existing Recycled Water Supply and Facilities

Water recycling involves treating wastewater to a quality that is suitable for use for irrigation and other non-potable uses. In the Monterey area, wastewater is currently recycled by the MRWPCA, and through the Carmel Area Water District/Pebble Beach Community Services District (CAWD/PBCSD) Project, which is operated by CAWD. MRWPCA's Regional Treatment Plant is capable of producing an average of 29.6 million gallons of recycled water per day (91 af per day or roughly 33,000 afy) for use as irrigation water in the northern Salinas Valley (MRWPCA,

2013). MRWPCA currently recycles 60 percent of the incoming wastewater (MRWPCA, 2015). While the Regional Treatment Plant has a dry weather design capacity of 29.6 mgd, it currently receives and treats approximately 20 mgd of wastewater and therefore has capacity to treat additional flows (MRWPCA, 2012).

The CAWD/PBCSD Project recycles roughly 1,000 afy of wastewater (Stoldt, 2011),[34] which is used to meet 100 percent of the irrigation needs of all of the golf courses in the Del Monte Forest,[35] thereby offsetting the equivalent amount of potable water demand. Reductions in potable water demand resulting from CAWD/PBCSD Project would largely be reflected in CalAm demand figures used for the MPWSP. (Because the second phase of the CAWD/PBCSD Project was not completed until 2009, however, the offset of potable water demand would not be fully reflected in all five years of demand that were used, 2007-2011.)

Proposed Recycled Water Supplies and Facilities

The City of Pacific Grove is in the process of developing a recycled water project, the Pacific Grove Local Water Project, and a stormwater recycling project (with the City of Monterey as a co-sponsor), the Monterey-Pacific Grove ASBS Stormwater Management Project.

The primary goal of the Local Water Project is to provide high quality recycled water to replace the use of potable water for non-potable water demands such as landscaping. The project consists of three components or phases that are considered in terms of the "Demand Groups" that would be served by each phase. Demand Group I would involve construction of a new Satellite Recycled Water Treatment Plant (SRWTP) on City of Pacific Grove property at Point Pinos and would provide 125 afy of recycled water to serve irrigation needs at the Pacific Grove Golf Links and the El Carmelo Cemetery, as well as water for toilet and urinal flushing at the golf links restrooms. Demand Group II includes expansion of the SRWTP and the recycled water distribution system to serve numerous small irrigation sites (such as schoolyards, parks and playfields) throughout Pacific Grove, and would provide 99 afy. Demand Group III would involve expansion of the SRWTP and would serve larger demand sites east and west of Pacific Grove. Demand Group III would connect to the CAWD/PBCSD recycled water system to the east and the Presidio of Monterey to the west, and would have the potential to meet 376 afy of recycled water demand. An EIR prepared for the Local Water Project (Brezack and Associates Planning, 2014a, 2014b), which was completed and certified in November 2014, evaluates Demand Group I project elements at a project level of detail and evaluates Demand Groups II and III elements at a programmatic level. The Demand Group 1 (125-afy) project (identified in the City Council resolution as the Pacific Grove Local Water Project) was approved at the same time the EIR was certified (City of Pacific Grove, 2014a). Construction of Demand Group I elements is expected to begin in 2015. Construction of Demand Groups II and III elements would begin following completion of project-level CEQA analysis and regulatory approval. Project level analysis of Demand Groups II or III would begin when the recycled water is needed due to a shortage in potable water supply availability or to increased cost of potable water (Brezack and

[34] CAWD/PBCSD sold 977 af of recycled water in 2012 and 965 af in 2013 (CAWD/PBCSD, 2013).

[35] The golf courses are Pebble Beach Golf Links, Spyglass Hill, The Links at Spanish Bay, Peter Hay, Cypress Point, Monterey Peninsula Country Club, and Poppy Hills (CAWD, 2013).

Associates Planning, 2014a). This alternatives analysis assumes that 224 afy from implementation of Demand Groups I and II[36] would be available from the Local Water Project to offset potable demand.

The Monterey-Pacific Grove ASBS Stormwater Management Project involves construction of a stormwater treatment plant at Point Pinos (near the proposed SRWTP described above) and multiple conveyance and storage structures, including restoration of the David Avenue Reservoir, construction of a new underground storage facility under a local school playfield that could potentially be used for irrigation during the dry season, and diversion structures that would direct runoff to MRWPCA's Regional Treatment Plant. An EIR on the project (Rincon Consultants, Inc., 2014) was certified in June 2014 (City of Pacific Grove, 2014b). The goal of this project is primarily to reduce the amount of polluted runoff entering the Pacific Grove Area of Special Biological Significance (ASBS) and secondarily to provide non-potable supply for irrigation or for the Groundwater Replenishment Project (GWR). While the project would prevent substantial quantities of untreated stormwater runoff from entering the ASBS, the FEIR identifies only a limited quantity – 12.3 afy – that is expected to specifically offset existing potable demand. Water from this project is expected to be used for irrigation at the Robert Down Elementary School (5 afy), at Caledonia Park (1 afy), and at Point Pinos for the golf links or cemetery (6.3 afy). This alternatives analysis therefore assumes that implementation of the Monterey-Pacific Grove ASBS Stormwater Management Project would offset 12.3 afy of potable demand.[37] Therefore, this analysis assumes that the Pacific Grove projects could offset potable water demand of about 236 afy (224 afy plus 12.3 afy).

Potential savings: 236.3 afy. An additional 376 afy may be available to offset potable demand in the long term.

Water Supply Availability

As described above, under the No Project Alternative 2 scenario, CalAm would pump 1,474 afy from the Seaside Groundwater Basin, would continue to use other existing legal supplies consisting of 230 afy (near-term supply) of desalinated Sand City water and 1,300 afy from the existing Phase I and II projects of the ASR system. Implementation of the City of Pacific Grove Local Water Project and the Monterey-Pacific Grove ASBS Stormwater Management Project would offset approximately 236 afy of potable demand, and until 2022 an agreement (were one to be reached) with the SWRCB to extend the CDO deadline to 2022 would allow CalAm to divert 8,570 afy from the Carmel River for customer use. Thus, during the CDO extension period, supply and demand offsets would total 11,810 afy. (This estimate does not include savings from continued implementation of CalAm and MPWMD conservation programs which could provide additional conservation savings on the order of 220 afy per year.)

[36] Although the Demand Group II project would require project-level CEQA review and project approval, this analysis assumes that such review and approval would be achieved, and the project implemented, within the CDO extension period assumed under this alternative.

[37] The June 18, 2014, City Council resolution concerning this project certified the EIR and adopted findings; this analysis assumes that the project would be approved and implemented during the CDO extension period assumed under this alternative.

An available supply of 11,810 afy during the CDO extension period would represent 89 percent of the existing average annual demand that CalAm identified in its application for the MPWSP, 13,291 afy (the average of years 2007-2011, shown in **Table 2-2** of Chapter 2) and slightly more (3 percent more) than the average annual demand based on more recent data, 11,467 afy (the average of years 2010-2014 shown in **Table 2-7** of Chapter 2, Water Demand, Supplies, and Water Rights). It is assumed that during the CDO extension period, the moratorium on issuance of new water permits would continue, consistent with the terms of the CDO and given that diversions from the Carmel River in excess of CalAm's legal right would continue during this period.

At the end of the CDO extension period, if additional supplies (unforeseen in this alternative scenario) were not developed, the quantity of available supply would be 6,616 afy, not including accrued water savings (demand reductions) from conservation programs implemented during the intervening years or reduction in non revenue water losses achieved by system repairs and upgrades, and assuming the continued near-term availability of 230 afy from the Sand City desalination plant. Annual demand reductions from ongoing conservation programs would potentially offset demand by a total of approximately 1,880 acre feet by the year 2022, as discussed above. The reduction in non-revenue water losses assumed to be achieved from system repairs and maintenance would save approximately 265 afy. Factoring in these savings, available supply as of 2022 would be about 8,748 afy. This level of supply represents 66 percent of the existing average annual demand CalAm identified in its application for the MPWSP, 13,291 afy (the average of years 2007-2011, shown in **Table 2-2** of Chapter 2, Water Demand, Supplies, and Water Rights), and 76 percent of the average annual demand based on more recent data, 11,467 (the average of years 2010-2014 shown in **Table 2-7** of Chapter 2, Water Demand, Supplies, and Water Rights). The 24 to 34 percent reduction of available water supply that would result by 2023 under the No Project Alternative 2 scenario would lead to water shortages throughout the CalAm Monterey District service area, albeit less drastic shortages than under No Project Alternative 1. Such shortages would likely trigger Stage 6 rationing, could jeopardize public health and safety, and could severely impact the local economy.

Supply that would be available under this scenario after 2022 (8,748 afy) represents 52 percent of pre-1995 production (16,806 afy) in the Main CalAm water system referenced in MPWMD's Regulation XV. It is therefore assumed that the reduction of available supply under No Project Alternative 2 would trigger MPWMD's Stage 6 water rationing. Pursuant to MPWMD's Rule 166, Stage 6 water rationing will be enforced when legal requirements (e.g., the requirement to comply with the CDO, the Seaside Watermaster or any other final court order) reduce available supply by at least 35 percent but less than 50 percent from the pre-1995 production level of 16,806 afy in the Main CalAm system.

Rule 166 establishes a water use reduction goal of 35 to 49 percent in each user category (i.e., residential single-family and multi-family, commercial, industrial, public authority, golf course, other use, non-revenue metered uses, and reclaimed water users). Provisions in Rule 166 are similar to those in Rule 167 for Stage 7 rationing discussed under No Project Alternative 1, except that the reduction goal is lower (i.e., 35 to 49 percent). Pursuant to Rule 166, CalAm

would implement a CPUC-approved rationing rate schedule and the MPWMD General Manager would determine water rations for each user category using the process established in MPWMD's Rule 165, which requires that priority water rations be given to residential water needs to ensure health, safety, and welfare and specifies that "[r]esidential water rations shall under no circumstances be less than 35 gallons per person per day." Among other provisions, Rule 166 requires that the MPWMD Board of Directors adopt by resolution additional restrictions on outdoor water use. The Board of Directors may adopt any or all of the restrictions listed (which include limiting outdoor watering and irrigation to one day per week or one day every other week, or prohibiting outdoor watering and irrigation with water from the affected water resources system; the discontinuation of irrigation of public landscaped areas; reduced golf course irrigation; and the prohibition of the use of water from hydrants for construction purposes or any other purposes other than fire fighting) or other conservation methods deemed feasible. The use of recycled water, when available, is not restricted by this requirement.

Potential increase in recycled water supply. If during the CDO extension period, the third phase of the Pacific Grove Local Water Project (Demand Group III) could be implemented, that project could offset an additional 376 afy. This component of the Pacific Grove project was not assumed in the total from recycled water projects considered to be reasonably foreseeable above because it is the longest range of the Pacific Grove projects and therefore assumed to be least certain. It would require institutional agreements between Pacific Grove and CAWD/PBCSD and the Presidio of Monterey, as well as the identification of suitable sites and customers able to use recycled water to replace potable supply. Assuming implementation of this project and the others previously discussed, the resulting total supply at the end of the CDO extension would be 9,124 afy. This level of supply represents 69 percent of the existing average annual demand CalAm identified in its application for the MPWSP (13,291 afy) and 80 percent of the average annual demand based on more recent data (11,467, for years 2010-2014). This level of available supply represents 54 percent of pre-1995 production (16,806 afy) in the Main CalAM water system referenced in MPWMD's Regulation XV; it is therefore assumed this level of supply would also trigger MPWMD's Stage 6 water rationing. Refer to the discussion of Stage 6 rationing above.

Feasibility Issues

At the conclusion of the CDO extension period assumed under No Project Alternative 2, this alternative would raise questions regarding the ability of CalAm to fulfill its basic mission to provide reliable, dependable water service. It is expected that No Project Alternative 2 would increase supply shortages on a day-to-day basis, as well as result in service disruptions, due to inadequate operational flexibility. Depending on the quantity of water supply and demand offset achieved and the baseline against which a rationing goal was set (e.g., one of two existing demand estimates or pre-1995 production), this alternative would require rationing to reduce consumption by 20 to 48 percent. Relative to existing demand estimates, rationing would be required to reduce consumption by 20 to 34 percent.[38] Rationing typically is part of a water

[38] A supply of 9,124 afy would require rationing cuts of 20 to 31 percent relative to five-year existing demand averages or cuts of 46 percent relative to the pre-1995 production level cited in MPWMD's Rule XV. A supply of 8,748 afy would require rationing cuts of 24 to 34 percent relative to five-year existing demand averages or cuts of 48 percent relative to pre-1995 production levels.

agency's water supply contingency planning and intended to address water emergencies or prolonged drought, but is not used as a long term water supply strategy. CalAm, MPWMD, MPRWA and others would likely seek alternatives, and it is unlikely that the public would support this alternative.

The feasibility of rationing at levels of 20 to 34 percent or more and the effects of such rationing are key issues raised by No Project Alternative 2. Residential, commercial and industrial sectors have reduced water demand in the service area through conservation, and to a lesser extent, water recycling.[39] To the extent that water conservation is already being practiced and will increase as CalAm's and MPWMD's programs continue to be implemented, it will be more difficult to implement adequate cutbacks in water use in the future to achieve the rationing that would be required to meet demand during normal conditions at the end of the CDO extension period, and it would be more difficult still to achieve additional rationing that would be required during a future drought period. The increasing difficulty and expense of achieving short-term water conservation levels during shortages as more long-term conservation measures are implemented and water-use efficiency is maximized is referred to as "demand hardening."

Ability to Meet Project Objectives

As described above, No Project Alternative 2 would provide sufficient supply during the CDO extension period to meet most existing service area demand (e.g., 89 percent of the average demand for years 2007-2011 and 103 percent of the average demand for years 2010-2014). However, while this alternative would achieve compliance with the Seaside Basin Adjudication, it would fail to meet most of the primary objectives of the MPWSP. Notably, it would fail to develop alternative water supplies to replace existing Carmel River supply diverted in excess of CalAm's legal rights under Order 95-10, and excess diversions would continue during the CDO extension period. This alternative also would not provide supply to allow for "repayment" of water 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 the development of legal lots of record or additional tourism demand resulting from economic recovery. At the end of the CDO extension period, this alternative would fail to meet existing demands without substantial water rationing and water rates could be increased as one means to achieve rationing goals.

Environmental Effects

Implementation of No Project Alternative 2 would avoid the construction related impacts and operational impacts of the MPWSP identified in Chapter 4, but would incur a different set of environmental effects and fail to address existing adverse conditions relating to riparian biological resources and groundwater. During the CDO extension period, this alternative would not achieve the environmental benefit to the Carmel River of the proposed project, although the effect on the Carmel River and associated species of continuing withdrawals in excess of

[39] In addition, the lower rationing levels indicated in this discussion may be deceptive, since they are relative to the most recent demand figures, which reflect additional drought-related measures that have been undertaken by residents and businesses in the service area in response to the current drought. At least some of such measures may not be sustainable over the long term.

CalAm's legal rights (which were established in Order 95-10 to protect the river and associated protected species) would not constitute a new impact compared to baseline conditions. Similarly, the inability to restore to the Seaside Groundwater Basin the quantity of water CalAm has previously produced from the basin in excess of its adjudicated right would not constitute a new physical impact compared to baseline conditions, but would fail to address the contribution of previous excessive withdrawals to potential salt water intrusion within the basin and associated adverse impacts on groundwater quality and availability. During the CDO extension period, this alternative could adversely affect CalAm's ability to meet peak water service demands; at the end of the extended CDO period, this alternative would more severely impact CalAm's ability to provide water service to service area customers.

7.11.2 Project Alternatives

This section presents alternatives to the proposed project by using the components previously screened in Section 7.6, and those evaluated against the proposed project components in Section 7.7. The following alternatives are comprised of those alternative components that could feasibly meet most of the basic project objectives and would lessen or avoid one or more of the significant effects of the project. The alternatives in this section are analyzed for impacts from the whole of the action and compared to the proposed project to determine if the impacts of the alternatives are less severe, similar to, or more severe than the proposed project. The following analysis will ultimately determine which alternative, as a whole, is the environmentally superior alternative as required by the CEQA Guidelines to be identified.

Alternative pipeline routes were compared with the proposed project's pipeline routes in Section 7.9. Those analyses concluded that alternative pipeline options were feasible and reduce at least one significant impact of the proposed pipeline routes. As explained in Section 7.9.3, the alternative pipeline alignments would be used together and not separately for any segment of the proposed project's pipeline segments because together, as a whole, the alternative pipeline alignments provide an alternative pipeline route that reduces and eliminates some project impacts, and reduces construction costs, permitting complexity, and logistics. Because the whole alternatives analyzed below include the same ASR facilities south of Reservation Road as the proposed project, the evaluation of alternatives below includes the same impacts from the ASR facilities as those of the proposed project.

The alternatives analyzed below were selected based on the guidelines discussed above in Section 9.3. In addition to assessing the potential for an alternative to meet most of the MPWSP objectives while avoiding or reducing any of the proposed project's significant impacts, consideration was also given to other desalination proposals along the Central Coast. In developing the alternatives to be evaluated in this EIR, the CPUC sought and received input from various local, federal, and state agencies and stakeholders to ascertain which alternative water supply projects could potentially be incorporated into or executed in coordination with the MPWSP. Consultation with agencies and stakeholders included the CEQA scoping process (including public scoping meetings and receipt of scoping comments), and meetings and discussions with various regulatory agency staff. The CPUC staff also participated in meetings

with, and presentations from, commercial desalination proponents not regulated by the CPUC. While the Moss Landing Peoples' Project (proposed by Moss Landing Commercial Business Park, LLC) and the Monterey Regional Water Project (proposed by DeepWater Desal, LLC) were not considered as whole alternatives, their components (intake, plant location, and outfall) were considered as options, and were compared against the components of the proposed project in Section 7.6.

Following an evaluation of component options (intakes, plant locations and outfalls), the whole alternatives analyzed below were developed and are here compared to the proposed project.

7.11.2.1 Alternative 1

Alternative 1 would consist of the installation of 10 subsurface slant wells at Potrero Road with a Source Water Pipeline located within existing rights-of-way to convey seawater to the desalination plant at Charles Benson Road, and brine would be discharged through the existing MRWPCA discharge pipeline and outfall. The main features that comprise Alternative 1 were previously described in Section 7.6 for the subsurface intakes (Intake Option 3), in Chapter 3, Project Description for the desalination plant and outfall, and in Section 7.12 below for the slant wells installed under the proposed test well. **Figure 7-8** illustrates the layout of the main features of Alternative 1. The Source Water Pipeline route from the subsurface slant well intake installation site, at the California Department of Parks and Recreation Potrero Road parking lot, would extend directly east and parallel to Potrero Road, then south along Highway 1, then south/southeast along Molera Road, then southwest along Monte Road, then to the desalination site on Charles Benson Road. Alternative 1 would require the use of HDD techniques to install pipeline underneath the Old Salinas River, Tembladero Slough, and the Salinas River. The Source Water Pipeline for Alternative 1 would result in approximately 5.2 miles of additional pipeline installation compared to the proposed project. Other than the Source Water Pipeline route, all other pipeline routes would be the same as Pipeline Configuration 2 analyzed previously in Section 7.9.

Ability to Meet Project Objectives

Alternative 1 contains all of the same elements as the proposed project and would develop an alternate water supply. However, the volume of developed water would be smaller than the proposed project and would therefore only partially meet the basic project objectives. This is because, as discussed below, a greater percentage of inland water would need to be returned to the SVGB (to be consistent with CalAm's proposal to do so), leaving a smaller percentage available for distribution to CalAm customers.

Alternative 1 would construct the slant wells only within the Dune Sand Aquifer, as discussed in Section 4.4, Groundwater Resources. The North Marina Groundwater Model (NMGWM), also described in Section 4.4, Groundwater Resources, simulated the aquifer response to pumping under a number of scenarios. Because the slant wells for Alternative 1 would extend offshore beneath the ocean floor, the majority of the source water would originate from the infiltration of seawater through the ocean floor sediments. However, as shown on **Figure 7-9**, although the majority of flow paths of water originate from the ocean, there would be a small wedge of area

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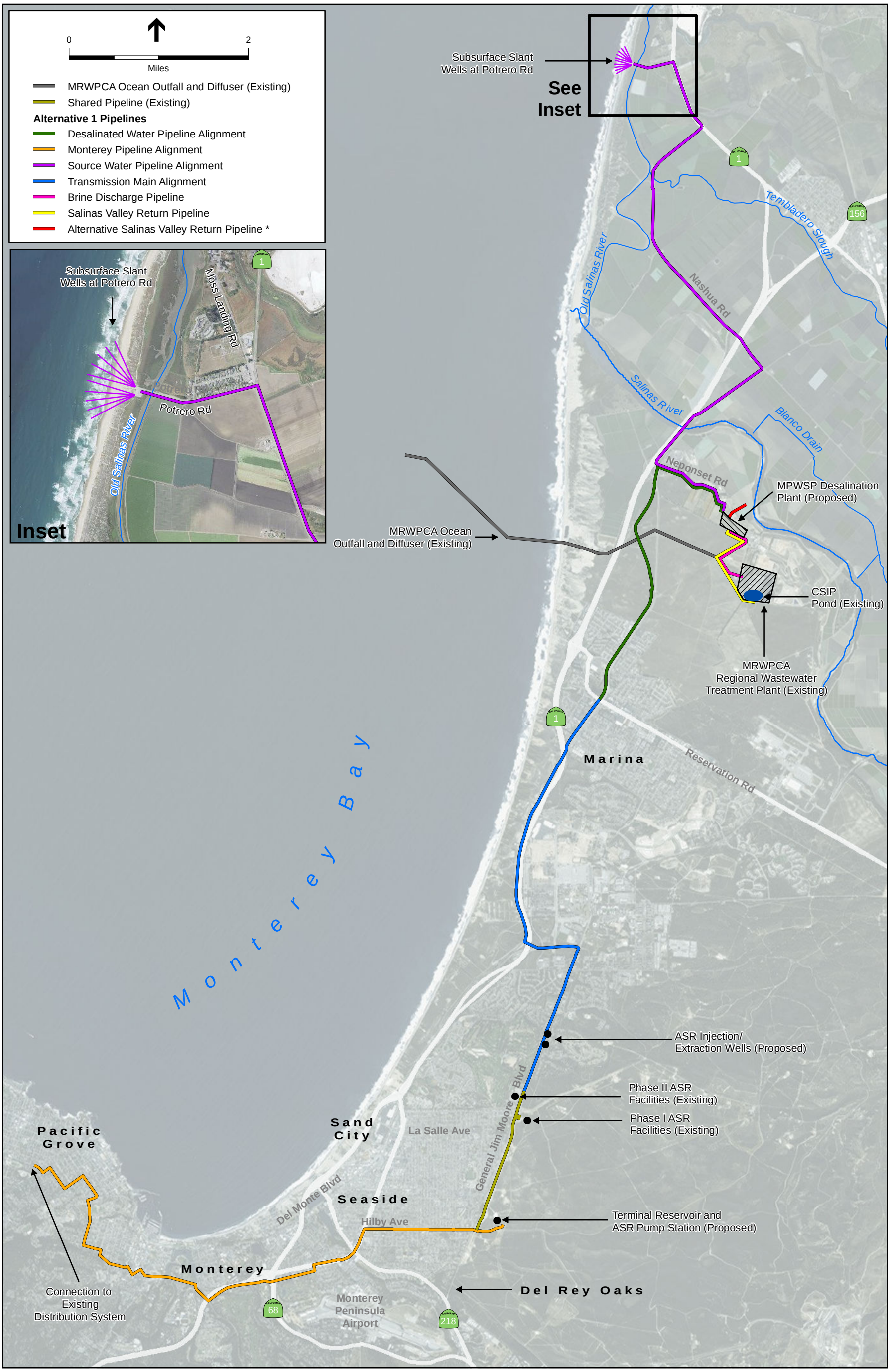


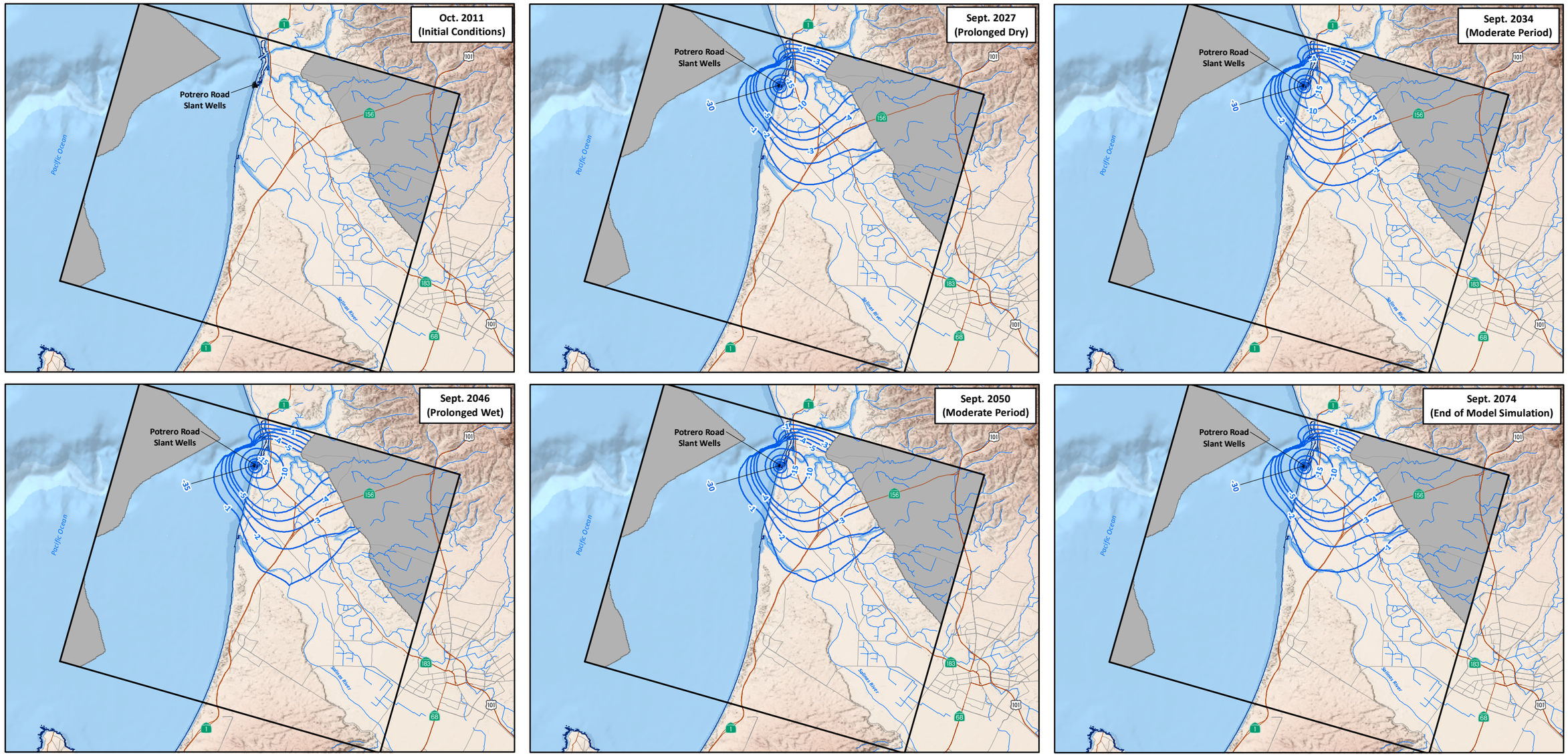
NOTES:
* See Subsection 7.10 for a description and analysis of this Alternative Salinas Valley Return option.

SOURCE: ESA, 2015

205335.01 Monterey Peninsula Water Supply Project

Figure 7-8

Alternative 1 Potrero Road



SOURCE: Geoscience, 2015c

205335.01 Monterey Peninsula Water Supply Project

Figure 7-9

Changes in Groundwater Elevations for Dune Sand Aquifer between Alternative 1 and No Project (Scenarios 6sn vs. 1n)

east of the slant wells from which groundwater is anticipated to originate from inland water sources. The NMGWM estimates this volume of inland water at about 17 percent of the source water or about 4,589 afy.

Because of the proximity to the ocean and the existing conditions of seawater intrusion, groundwater along the coast is brackish to saline and is not used as a groundwater supply. CalAm has proposed that the volume of source water derived from inland water sources would be returned to the SVGB, either by the proposed project return flow to the CSIP or by other means. In light of the higher percentage of inland water that is projected to be withdrawn under Alternative 1, the return of water to the SVGB under this alternative would result in a deficit in water supply required for meeting CalAm's proposed water demands of approximately 3,778 afy.

As a consequence, Alternative 1 would not fully develop sufficient alternative water supplies to completely replace the existing Carmel River supply diverted in excess of CalAm's legal rights under Order 95-10, would not entirely provide supply to allow for "repayment" of water CalAm previously pumped from the Seaside Basin in excess of CalAm's adjudicated right, would not completely provide water supply reliability, and would not provide supply for Pebble Beach, for the development of legal lots of record or additional tourism demand resulting from economic recovery. In addition, CalAm does not currently have rights to construct and operate slant wells at the Potrero Road location such that Alternative 1 faces feasibility issues due to lack of site control.

Environmental Effects

Compared to the Proposed Project

Alternative 1 would use construction techniques and operational procedures similar to the proposed project, except where HDD techniques would be used to install pipeline under the Old Salinas River, Salinas River, and Tembladero Slough, as noted previously. Due to the distance from the Potrero Road subsurface intake site to the desalination plant, Alternative 1 would result in a considerable increase in construction impacts to air quality, noise and vibration, aesthetics, cultural resources, recreation, and traffic from approximately 5.2 miles more Source Water Pipeline than the proposed project and location relative to residences and recorded cultural resources. The Potrero Road slant well construction site and the Source Water Pipeline along Potrero Road would expose a greater number of sensitive receptors to construction noise and vibration compared with the proposed project Source Water Pipeline. Construction of the Source Water Pipeline from the Potrero Road slant wells to the Desalination Plant site would result in impacts on wetland and riparian habitat at a HDD bore pit that would be located west of Molera Road and south of Tembladero Slough on Monterey County Water Resources Control land. On the other hand, construction of subsurface slant wells at Potrero Road would result in a significant reduction in and elimination of some direct impacts on biological resources (see below). Further, construction of the Source Water Pipeline from the subsurface slant wells at Potrero Road would result in impacts to different recorded historical resources than those identified at the CEMEX site, and potentially more impacts to different recorded archeological resources located adjacent to pipeline route from Potrero Road to the Desalination Plant site.

The following analysis provides more detail on impacts from construction and operation of Alternative 1 on terrestrial biological resources, land use, noise and vibration, and groundwater. These resources were selected based on the differences between Alternative 1 and the proposed project; namely, the slant wells at Potrero Road and the Source Water Pipeline from the slant wells to the Desalination Plant site. For all other resource areas, impacts from Alternative 1 would be similar in magnitude and duration to those of the proposed project as presented in Chapter 4, Environmental Setting, Impacts, and Mitigation Measures, of this EIR. Although impacts from the increased distance of the Source Water Pipeline for Alternative 1 would be greater than the proposed project, the resulting increased construction impacts would be mitigated to less-than-significant levels by implementing the same mitigation measures prepared for the proposed project's construction and operational impacts for proposed pipelines, and the levels of significance would be the same as for the project. The discussion below expands on the information provided in **Table 7-5** for those impacts that warrant more detailed discussion.
Terrestrial Biology

Interfere substantially with the movement of native fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites. (No Impact)

Unlike the proposed project impacts at the CEMEX site, implementation of slant wells at Potrero Road would result in no impact relative to this criterion because the alternative would not result in the construction of structures within creeks, rivers, or other waterways. Construction and operation of slant wells at Potrero Road would occur within a graveled/dirt parking lot, which currently does not serve as a migratory wildlife corridor or wildlife nursery site. Thus, Alternative 1 would result in a substantial decrease in impacts compared to proposed project's less than significant with mitigation impact for the slant wells at the CEMEX site.

Result in substantial adverse effects on candidate, sensitive, or special-status species; riparian habitat, critical habitat, or other sensitive natural communities; or federal wetlands, federal other waters, and waters of the State during project operations. (No Impact)

Following construction, slant wells at Potrero Road would be buried below the parking lot and would be monitored through electronic sensors. Operations would not disturb any new ground surface and would not be expected to impact candidate, sensitive, or special-status species; riparian habitat, critical habitat, or other sensitive natural communities; or federal wetlands, federal other waters, and waters of the State; no impact. Therefore, Alternative 1 would result in a substantial decrease in impacts compared to the less than significant with mitigation impact of the proposed project slant wells at the CEMEX site.

Result in substantial adverse effects on species identified as candidate, sensitive, or special-status, either directly or through habitat modification, during construction. (Less than Significant with Mitigation)

Slant wells at Potrero Road would be constructed within a graveled/dirt parking lot that does not provide habitat for special-status species.[40] However, the parking lot is surrounded by central

[40] As defined in Section 4.6.1.8, special-status species include candidate and sensitive species.

dune scrub on the west and salt marsh on the north, east, and south. Many special-status species are known, or have potential, to occur in the habitats immediately surrounding the parking lot. These species include Monterey spineflower, robust spineflower, Seaside bird's-beak, Menzies' wallflower, sand gilia, Smith's blue butterfly, western snowy plover, Hooker's manzanita, Toro manzanita, sandmat manzanita, Monterey Coast paintbrush, Monterey ceanothus, branching beach aster, Eastwood's goldenbush, sand-loving wallflower, Kellogg's horkelia, south coast branching phacelia, Michael's rein orchid, black legless lizard, silvery legless lizard, coast horned lizard, and special-status nesting birds. As described in "*Overview of Potential Construction Effects on Plants*" and "*Overview of Potential Construction Effects on Wildlife*" in Section 4.6.3.4 Construction Impacts and Mitigation Measures, these special status species, if present within the vicinity of the project site, could be indirectly impacted by construction, which would be a significant impact. Therefore, although Alternative 1 would result in a decrease in direct impacts compared to the proposed project's direct impacts from the slant wells at the CEMEX site, these impacts would also require mitigation to ensure less than significant impacts.

Implementation of the following mitigation measures would reduce impacts to less than significant:

- 4.6-1a: Retain a Lead Biologist;
- 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;
- 4.6-1i: Avoidance and Minimization Measures for Nesting Birds;
- 4.6-1n: Habitat Mitigation and Monitoring Plan;
- 4.12-1b: General Noise Controls for Construction Equipment; and
- 4.14-2: Site-Specific Construction Lighting Measures

Result in substantial adverse effects on riparian habitat, critical habitat, or other sensitive natural communities during construction. (Less than Significant with Mitigation)

Construction of slant wells at Potrero Road would not occur within any riparian habitat, critical habitat, or other sensitive natural community. However, central dune scrub and salt marsh, two sensitive natural communities, are located immediately adjacent to the parking lot. These sensitive natural communities may also be considered environmentally sensitive habitat areas (ESHA) under the North County Land Use Plan Local Coastal Program and by the California Coastal Commission. Additionally, Monterey spineflower critical habitat is located immediately west of the parking lot. Central dune scrub, salt marsh, and Monterey spineflower critical habitat could be indirectly impacted by worker traffic or construction related-trash, which would be a significant impact. Western snowy plover critical habitat is located approximately 170 feet west of the parking lot and would not be impacted by construction. Therefore, although Alternative 1

would result in a decrease in direct impacts compared to the proposed project's direct impacts from the slant wells at the CEMEX site, these impacts would also require mitigation to ensure less than significant impacts.

Implementation of the following Mitigation Measures would reduce impacts to less than significant:

- 4.6-1a: Retain a Lead Biologist;
- 4.6-1b: Construction Worker Environmental Awareness Training and Education Program;
- 4.6-1c: General Avoidance and Minimization Measures;
- 4.6-1n: Habitat Mitigation and Monitoring Plan;
- 4.6-2a: Consultation with Local Agencies and the California Coastal Commission regarding Environmentally Sensitive Habitat Areas; and
- 4.6-2b: Avoid, Minimize, and Compensate for Direct Construction Impacts to Sensitive Communities

Result in substantial adverse effects on federal wetlands, federal other waters, and/or waters of the State during construction. (Less than Significant with Mitigation)

Construction of slant wells at Potrero Road would not occur within any federal wetlands, federal other waters, and/or waters of the State. However, the Old Salinas River (a potential federal other water/water of the State) and its associated salt marsh wetlands is located within 25 feet of the parking lot. Mandatory compliance with the NPDES Construction General Permit, including implementation of the project SWPPP, would protect water quality. However, due to proximity, construction worker foot traffic could extend beyond the designated construction work area and into these features, which would be a significant impact. Therefore, Alternative 1 would result in similar indirect impacts compared to the proposed project's slant wells at the CEMEX site for different water resources, and impacts would also require mitigation to ensure less than significant impacts.

Implementation of the following Mitigation Measures would reduce impacts to less than significant:

- 4.6-1a: Retain a Lead Biologist;
- 4.6-1b: Construction Worker Environmental Awareness Training and Education Program;
- 4.6-1c: General Avoidance and Minimization Measures;

Land Use

Substantial disruption of established recreational land uses or closure of a designated recreational facility during construction. (Less than Significant with Mitigation)

The slant wells at Potrero Road would be located in the parking lot of the Salinas River State Beach. All construction-related disturbances would be limited to the parking lot but would also require the temporary closure of the parking lot and access to the beach for about up to 2 years.

However, recreationists can access the beach from points approximately 1 mile south at the parking lot at the end of Marina Dunes Way and approximately 0.5 mile north at the parking lot at Sandholdt Road. The construction activities associated with the slant wells at Potrero Road would not restrict lateral public access along the shoreline and the construction activities would not be visible from the beach.

Construction-related air quality and exhaust emission, and increase of noise levels associated with construction work and stating areas, could also temporarily degrade the recreational experience along the shoreline immediately west of the Potrero Road parking lot. In addition, construction would impede roadway access to nearby recreational facilities and uses. These impacts would be temporary. The impact on recreational resources and facilities would be significant. However, implementation of **Mitigation Measures 4.9-1 (Traffic Control and Safety Assurance Plan),** and **4.12-5 (Stationary-Source Noise Controls)** would reduce this impact to a less-than-significant level by ensuring that sufficient noise insulation or sound absorbing material is provided to the existing enclosure to provide additional noise attenuation. Therefore, Alternative 1 would result in an increase in impacts to recreation that would not occur under the proposed project's construction of slant wells at the CEMEX site.

Consistency with applicable plans, policies, and regulations related to land use and recreation that were adopted for the purpose of mitigating an environmental effect. (Less than Significant)

Given the underground location, adjacent land uses, and nature of the facility, the slant wells at Potrero Road would not substantially conflict with plans, policies, or regulations that were adopted for the purpose of avoiding or mitigating an adverse environmental effect related to land use or recreation. As a result, the slant wells at Potrero Road would have a less-than-significant effect with respect to land use and recreational policy conflicts. Therefore, Alternative 1 would have the same level of impact as the proposed project.

Compatibility with adjacent land uses during project operations. (Less than Significant)

The slant wells at Potrero Road would be completely buried beneath the ground surface. The electrical controls would be housed in an above-ground electrical control panel located adjacent to the wellhead vault. Neither the slant wells at Potrero Road nor the electrical control panel would restrict recreational access to the beach. For these reasons, the slant wells at Potrero Road would have a less-than-significant impact with respect to land use compatibility. Therefore, Alternative 1 would have the same level of impact as the proposed project.

Noise and Vibration

Cause a substantial temporary or periodic increase in ambient noise levels in the project vicinity during construction. (Less than Significant with Mitigation)

Construction of the slant wells could occur anytime during the 30-month construction period and would occur 24 hours a day, 7 days a week. The closest sensitive receptors to the slant wells at Potrero Road would be residences located approximately 1,000 feet east of the parking lot. Slant well construction is expected to involve the use of a drilling rig, mobile crane, pipe trailers, baker

tanks, haul trucks, a flatbed truck, pumps, and air compressors. Construction workers would use a dual-wall, reverse-circulation, "Barber"-type drilling rig to drill the slant well.

As discussed in Section 4.12, Noise and Vibration, the incremental noise increases from well drilling and development activities would be attenuated because of the significant distance to sensitive receptors and would not be perceptible at these receptors during daytime hours. Noise monitoring conducted during installation of the test well demonstrated that drill rig motor for slant wells generate 82 dBA at 50 feet with no shielding and 71 dBA at 50 feet with a noise barrier in front of the engine compartment. Although the slant wells at Potrero Road would be closer to sensitive land uses than at the CEMEX site, the attenuated construction equipment noise level at the nearest residential receptors would be 58 dBA Leq without shielding and 47 dBA Leq with shielding. Because construction-related noise increases at sensitive receptors would not exceed the speech interference threshold of 70 dBA, daytime noise impacts related to test slant well construction would be less than significant. At night, drilling noise could be perceptible during breaks in traffic along Highway 1 and in wave action. However, because of the significant distance to sensitive receptors, noise increases generated by nighttime well drilling and development activities would not exceed the sleep interference threshold of 60 dBA. Therefore, impacts related to nighttime noise level increases from slant well construction would be less than significant.

The closest sensitive receptors to the Source Water Pipeline from the slant wells along Potrero Road would be primarily those on the north side within 50 feet of the pipeline alignment. All of these receptors are located in unincorporated Monterey County. During construction, the resultant daytime noise level at residential receptors could be as high as 79.2 dBA. Based on a pipeline installation rate of 250 feet per day, the maximum amount of time that any one receptor would be exposed to these noise levels would be limited to 1 to 3 days. Although construction noise at adjacent residences could exceed the speech interference threshold of 70 dBA L_{eq}, the duration of the impact would be less than two weeks and thus the construction noise impact associated with increases in daytime noise levels would be less than significant. If pipeline construction work were to occur during nighttime hours, such work could exceed the sleep interference threshold of 60 dBA at the receptors, and impacts related to nighttime noise level increases pipeline construction would be significant. This impact could be reduced to a less than significant level by implementation of **Mitigation Measure 4.12-1c (Noise Control Plan for Nighttime Pipeline Construction).** Therefore, Alternative 1 would result in a significant increase in impacts from construction noise compared to the proposed project's less than significant impact.

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. (Less than Significant)

The slant wells at Potrero Road would be located in the parking lot at the west end of Potrero Road. The slant wells at Potrero Road would be constructed 24-hours per day throughout the 30-month construction duration. The closest sensitive receptors to the slant wells at Potrero Road would be residences approximately 1,000 feet to the east in the jurisdiction of Monterey County and subject to the *Monterey County General Plan*. Policy S-7.9 of the Monterey County General

Plan restricts construction activities within 500 feet of a sensitive land use. Policy S-7.10 requires that construction equipment be muffled.

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 certain hours. Because the slant wells at Potrero Road would be greater than 500 feet from the nearest receptors, construction activities would be consistent with this policy.

Monterey County Code Section 10.60.030 limits the operation of machinery or equipment that produces a noise level exceeding 85 dBA at 50 feet from the source, but does not apply to any such noise source that is operated farther than 2,500 feet from an occupied dwelling. None of the equipment proposed would operate at levels exceeding 85 dBA. Therefore, the impact of construction noise from the slant wells at Potrero Road related to generation of noise in excess of regulatory noise standards would be less than significant. Therefore, Alternative 1 would result in similar impacts from construction noise compared to the proposed project.

Exposure of people to or generation of excessive groundborne vibration during construction. (Less than Significant)

The only substantive sources of vibration during construction would be drill rigs used for drilling and development of the slant wells. Substantial groundborne vibration can damage nearby structures or buildings. This analysis uses a 0.12-in/sec PPV vibration threshold for damage to historic buildings (Wilson, Ihrig, & Associates et al., 2012) and a 0.3-in/sec PPV threshold for all other structures. Substantial vibration levels can also result in sleep interference or annoyance impacts at residences or other land uses where people sleep, such as hotels and hospitals. For adverse human reaction, this analysis uses the Caltrans (2004) vibration annoyance threshold of 0.1 in/sec PPV, which corresponds with vibration levels that are "strongly perceptible".

Structural Damage. Drill rigs can result in vibration measuring 0.089 in/sec PPV at a distance of 25 feet (FTA, 2006). The nearest structure to the slant wells at Potrero Road would be the residence located approximately 1,000 feet east of the slant well drilling area. However, at 1,000 feet, vibration levels from slant well drilling and development activities would be attenuated to less than 0.0004 in/sec PPV, which is below the threshold for structures, resulting in a less-than-significant impact related to damage to this building. Further, there are no historic buildings within distance from the slant well drilling that would be affected by groundborne vibration.

Human Annoyance. The nearest sensitive receptor to the slant wells at Potrero Road area would be residences located approximately 1,000 feet east of the test slant well drilling area. At 1,000 feet, vibration levels from slant well drilling and development activities would be attenuated to background levels and would be below the "strongly perceptible" threshold of 0.1 in/sec PPV, resulting in a less-than-significant impact related to human annoyance. Therefore, Alternative 1 would result in similar impacts from groundborne vibration compared to the proposed project.

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. (Less than Significant)

The pumps for the slant wells at Potrero Road would be located in the screen section of the well below the dunes and ocean floor. The operation of the pumps would not be perceptible in the vicinity of the slant wells at Potrero Road. The closest sensitive receptors to the slant wells at Potrero Road are residences approximately 1,000 feet to the east in the jurisdiction of Monterey County and subject to the *Monterey County General Plan*.

Monterey County Code Section 10.60.030 limits the operation of machinery or equipment that produces a noise level exceeding 85 dBA at 50 feet from the source, but does not apply to any such noise source that is operated farther than 2,500 feet from an occupied dwelling. None of the equipment proposed would operate at levels exceeding 85 dBA. Therefore, the impact of noise from the slant wells at Potrero Road related to generation of noise in excess of regulatory noise standards would be less than significant. Therefore, Alternative 1 would result in similar impacts from operational noise compared to the proposed project.

Groundwater

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. (Less than Significant)

The proposed slant wells at Potrero Road would be constructed using a dual-wall, reverse circulation rotary drill rig.[41] In some large-scale drilling projects, similar to the proposed drilling and construction of the wells proposed under this project, large volumes of water may be required during the well drilling to reduce friction in the drill casing and to help flush rock fragments and pulverized material (cuttings) generated from drilling out of the borehole. The volume of water used for the well construction of the slant wells could be between 4 to 5 million gallons but could be much less and perhaps none depending on how the drilling proceeds (Geoscience, 2014c). Providing water to the slant well drilling project could be a significant impact if the water were drawn from local groundwater wells and that withdrawal caused local groundwater levels to decrease, thereby damaging or decreasing the well yields in neighboring groundwater supply wells. For the slant wells at Potrero Road, if well drilling water is necessary, it would be purchased by an outside water purveyor and delivered to the drill site when needed by truck; water would not be extracted from local groundwater sources. This impact is less than significant because water needed for construction of wells would not deplete local groundwater supplies; the same as the proposed project impact for slant well construction at the CEMEX site.

[41] Dual-wall, reverse circulation rotary drilling uses a drilling rig with two rotary drives. One drive rotates the outer drilling casing into the subsurface with a hardened drive or cutting shoe, while the other drive rotates an inner drill pipe and cutting bit. In reverse circulation, air or water is pumped under pressure down between the outer drill casing and inner drill pipe, and air, water, and cuttings are returned to the surface in the inner drill pipe. Upon reaching the desired depth, the inner drill string is removed and the well casing, filter pack, and surface seal is constructed inside the outer casing, allowing the well to be constructed while holding the native formation materials back from the borehole. Upon completion, the outer casing is withdrawn, leaving the constructed well in place.

Violate any water quality standards or otherwise degrade groundwater quality during construction. (Less than Significant)

The ten slant wells at Potrero Road would be constructed at depths that would extend through the Dune Sand Aquifer, which is not used for irrigation or drinking water supplies. Well drillers commonly add substances that assist in reducing friction on the drill casing or flushing drill cuttings back to the surface. These drilling fluids can consist of bentonite mud[42], foams, or other additives that may contain chemicals that could degrade groundwater quality immediately surrounding the well borehole. The slant wells would be constructed using a dual rotary drill rig that would not use drilling fluids. Instead, the dual rotary method uses air, the water already in the geologic materials, and when necessary, additional potable water to circulate the drill cuttings. If potable water were added, the quality of that water would be better than the underlying brackish water, and therefore, would not result in groundwater degradation. Considering the drilling method and the use of only air and water to assist in drilling, there is no potential for groundwater degradation and the impact would be less than significant; the same as the proposed project impact for slant well construction at the CEMEX site.

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. (Less than Significant)

Operation of Alternative 1 Slant Wells. At any given time, eight slant wells would be operational and two slant wells would be on standby or undergoing routine maintenance. These slant wells would be designed to collectively operate at an average pumping rate of approximately 24.1 mgd in order to provide a sufficient volume of feedwater such that the MPWSP Desalination Plant can produce the required 9.5 mgd of product water. The slant wells would be screened across the Dune Sand Aquifer.

Depletion of Groundwater Supply to Neighboring Production Wells. Operation of the slant well at the proposed pumping rate could draw groundwater levels down to a point where neighboring wells could become damaged or not operate. In accordance with the significance criteria (Section 4.4.3.1), a significant impact could occur if the operation of the proposed slant wells substantially lowered groundwater elevations in neighboring wells, exposing wells screens or well pumps.

Impacts from groundwater pumping at the proposed slant wells were analyzed by reviewing the modeling output from the NMGWM. This analysis compared the modeling output of the Potrero Road Alternative 1 scenario (Scenario 6sn) to the No Project (baseline) condition (Scenario 1n). The modeling shows that project pumping from the slant wells would cause a response in the Dune Sand Aquifer and a smaller response in the 180-foot Equivalent Aquifer. The model outputs are presented as maps and are provided in **Figures 7-9,** which presents the anticipated changes in groundwater elevations in the Dune Sand Aquifer and **Figure 7-10**, which presents the anticipated changes in groundwater elevations in the 180-Foot Equivalent Aquifer.

[42] Bentonite muds are clay slurry compounds containing bentonite clay which is used to seal and strengthen the sides of a borehole during well drilling.

As shown on the figures, project-related groundwater pumping from the slant wells would form a cone of depression, with the area of influence extending outwards from the slant wells. The corresponding reductions in groundwater elevations are shown on the contour lines within the area of influence. The NMGWM estimates that the maximum extent of localized drawdown would be 30-35 feet in the Dune Sands Aquifer (compared to 10-15 feet for the proposed project) and 4-5 feet in the 180 foot Aquifer (compared to 30 feet for the proposed project). The smaller effect in the 180-Foot Equivalent Aquifer (compared to the project) is because the Salinas Valley Aquitard separates the Dune Sand Aquifer from the 180-Foot Equivalent Aquifer in this area, restricting flow from the 180-Foot Equivalent Aquifer. With distance away from the pumping wells, the magnitude of drawdown would be progressively reduced until the edge of the area of influence is reached. The edge of the area of influence, or the l-foot contour line furthest out, marks the area where the NMGWM calculates the groundwater elevation decline of only one foot. The geographic extent of the area that would experience a drawdown of up to one foot would be up to 4.8 miles in the Dune Sand Aquifer (compared to up to 5 miles for the proposed project) and 4.3 miles in the 180-Foot Aquifer (compared to 5 to 7 miles for the proposed project) (see **Table 7-15**).

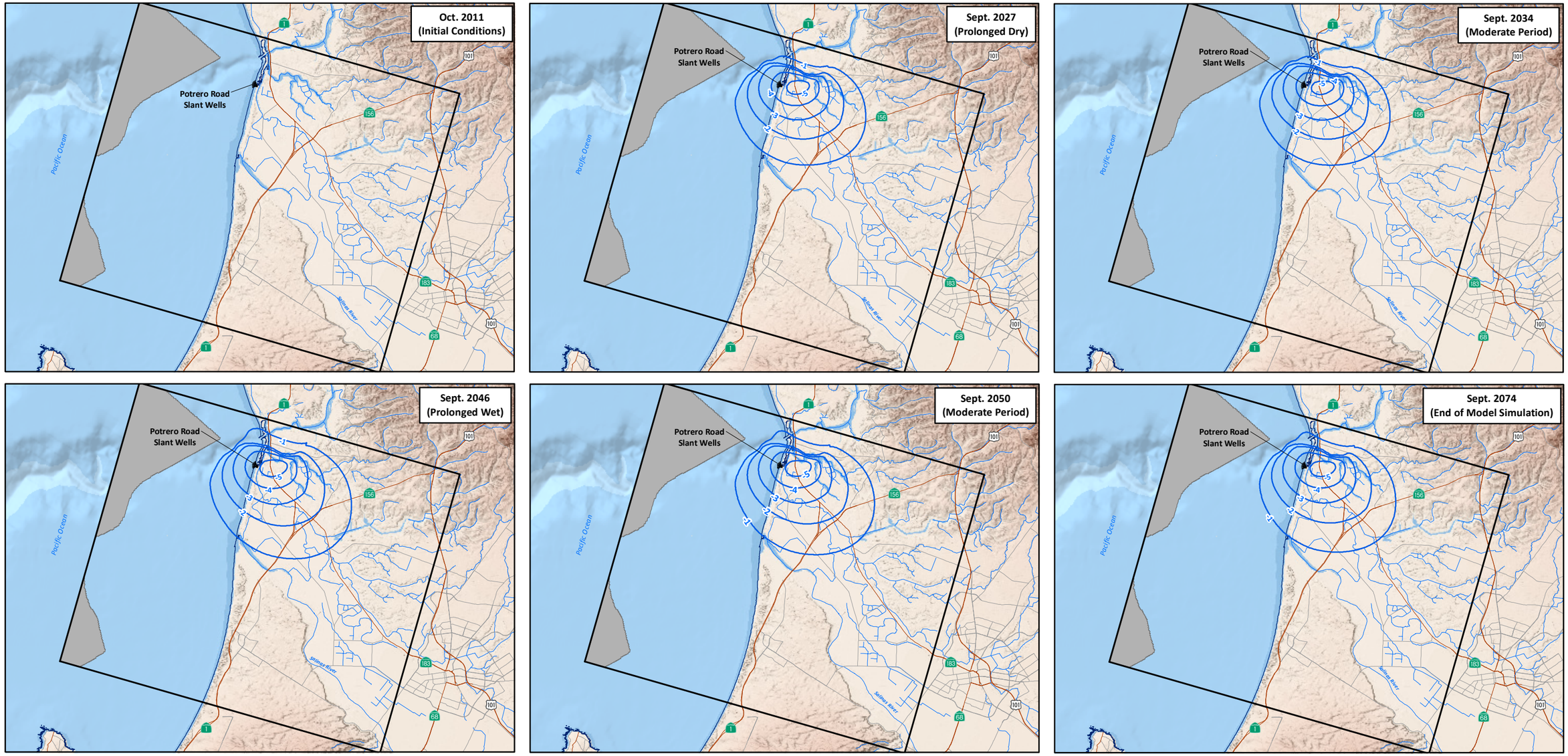
Table 7-15 shows the maximum distance that the radius of influence would extend inland with a one foot groundwater level decrease from the slant wells given different types of climate conditions. As indicated on the table, the largest area of influence would be generated from the slant well pumping response in the Dune Sand Aquifer during the 2046 and 2050 modeled periods, which would occur after a period of lower than normal rainfall (the modeled 2027 dry period). Note that the aquifer recovery would not occur until the relatively wetter time period of 2046 to 2050. This is because there is a time lag between when the drier conditions begin and when the aquifer has fully responded to those drier conditions and the smaller volume of rainfall infiltration to the aquifer at depth. Once the aquifer has responded to the drier conditions with lower groundwater levels, there is a subsequent time lag for the aquifer to recover when the climate becomes wetter.

TABLE 7-15
MAXIMUM DISTANCE INLAND FROM THE PROPOSED SLANT WELLS WITH WATER LEVEL DECLINE OF ONE FOOT

Aquifer	Maximum Distance Inland in Miles from the Slant Wells with Water Level Decline of One Foot				
	September 2027 (Prolonged Dry)	September 2034 (Moderate Period)	September 2046 (Prolonged Wet)	September 2050 (Moderate Period)	September 2074 (End of Model Simulation)
DSA	4.4	4.4	4.8	4.8	4.5
180	3.7	3.6	4.3	4.1	4.0

NOTES:
DSA = Dune Sand Aquifer
180 = 180-Foot Equivalent Aquifer or 180-Foot Aquifer

SOURCE: Geoscience, 2015.



North Marina Groundwater Model Boundary

No Flow Cell

Mean High Tide (DOC, NOAA et al., 2011)

-5 Change in Groundwater Elevation (ft)

Potrero Road Slant Wells - Configuration A (Feedwater Supply of 24.1 MGD)

Run 1n - Baseline (No Project) 2012 Land Use

Run 6sn - Project 2012 Land Use (Dune Sand)

NORTH

0 2 4 8 Miles

SOURCE: Geoscience, 2015c

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Figure 7-10

Changes in Groundwater Elevations for 180-Foot Equivalent Aquifer between Alternative 1 and No Project (Scenarios 6sn vs. 1n)

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Survey of Known Groundwater Production Wells within the Radius of Influence. As shown on **Figures 4.4-9** and **4.4-10**, the 180-Foot Aquifer and the 400-Foot Aquifer have been intruded by seawater in coastal areas since at least 1944, with the intrusion currently extending up to 8 and 3.5 miles further inland, respectively. Consequently, wells that are located within the radius of influence and screened in the 180-Foot and 400-Foot Aquifers have been brackish-to-saline for years, and are no longer able to serve irrigation or potable uses. For this reason, there are no known active wells within the Dune Sand Aquifer or the 180-Foot Equivalent Aquifer that are within the area that could experience a decrease in groundwater elevation of one feet or more (Geoscience, 2015).

Conclusion of Impact Analysis – Groundwater Supply to Neighboring Production Wells. The NMGWM model results indicate that project-related pumping at the slant wells would elicit a response in the groundwater in the Dune Sands Aquifer and the 180-Foot Equivalent Aquifer, resulting in a cone of depression with an area of influence that extends outward from the wells up to about 4.8 miles (Dune Sand Aquifer after a dry period). The survey of local groundwater wells indicate no known active wells located in the area of influence would be adversely impacted by the drawdown caused by project pumping. Consequently, Alternative 1 would have no impact on neighboring local groundwater wells. Therefore, Alternative 1 would result in a decrease in impact on local groundwater wells compared to the proposed project's less than significant impact.

Depletion of Groundwater Supply from the SVGB. Operation of the slant wells at Potrero Road at the proposed pumping rate could cause changes in the groundwater flow direction such that groundwater from inland groundwater sources in the SVGB would be captured and drawn into the seawater intake system. In accordance with the significance criteria (Section 4.4.3.1), a significant impact could occur if the operation of the proposed slant wells would substantially deplete the groundwater supply from inland sources within SVGB. This impact reflects the SWRCB concern that groundwater users could be harmed by the project's use of water from inland areas of the SVGB (see Section 4.4.3.2, Approach to Analysis for further discussion).

This impact was analyzed by using particle tracking maps developed through the NMGWM to illustrate the source of water entering the slant wells. The modeling results assess whether and how much water might be drawn from inland water sources and plot the predicted pathway of water entering the slant wells before and during operations. **Figure 7-11** illustrates the water particle flow paths at the Potrero Road site in the Dune Sand Aquifer where the water particles are reverse tracked starting from the slant wells and moving upgradient along the flow path back toward the source of the water. As shown on **Figure 7-11**, the majority of water entering the slant wells is anticipated to originate from west of the slant wells, ultimately from the ocean by infiltration through the ocean floor. A much smaller volume of water would originate within a narrow flow path originating from inland areas.

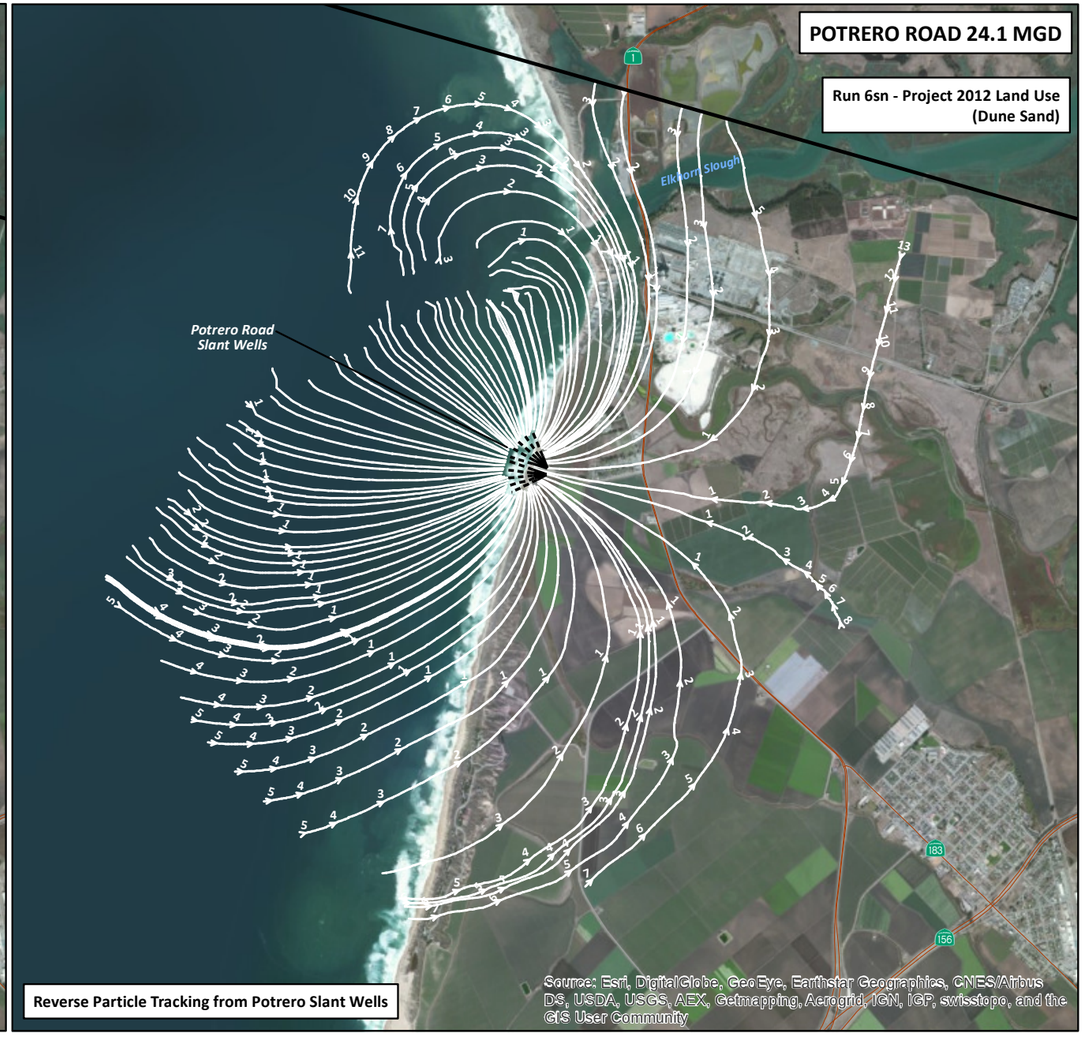
The NMGWM estimated the volume of inland water under Alternative 1 would be about 17 percent under 2012 land use conditions after the pumping has started and the cone of depression has stabilized after a few months. Based on the feedwater supply of 24.1 mgd, this would be about 4,589 afy. Over time, the land use conditions would change as projected by the county and

city general plans. By the time 2060 land use conditions have occurred, the percentage of inland water would have decreased to an average of about 14 percent or about 3,779 afy, in response to the combined changes in land use in the inland areas. Over the life of the proposed project, this would be an average of about 15.5 percent or about 4,184 afy. Alternative 1 would include the return of this volume of water to the basin. Ongoing sampling of water in the monitoring wells and slant wells would further quantify with increased accuracy the actual return volume.

Conclusion of Impact Analysis - Depletion of Groundwater Supply from the SVGB. The NMGWM was used to estimate the volume of inland water drawn to the slant wells at Potrero Road and to simulate the pathways of water particles to assess whether the proposed groundwater extraction from the slant wells at the Potrero Road site would deplete groundwater supplies from inland sources within the SVGB. Particle tracking indicated that a portion of the feedwater to the slant wells would be drawn from inland groundwater sources. The modeling results estimated that the slant wells would draw an average of about 15.5 percent or 4,184 afy of the feedwater from inland SVGB water sources. As part of Alternative 1, the inland water drawn from the SVGB would not be depleted but would be returned to the SVGB as in-lieu groundwater recharge to the CSIP pond, to an overlying user not currently identified, or to one of the other return options previously described in Section 7.10. Since Alternative 1 would return the percentage of groundwater that is extracted from the SVGB to the SVGB through in-lieu groundwater recharge, pumping at the slant wells would not deplete groundwater resources in the SVGB and therefore, this impact would be less than significant, which is the same level of impact for the proposed project.

Conclusion to Impacts to Groundwater Supplies. The impact analysis of the slant wells at Potrero Road was based on the NMGWM model simulations. There are no known active supply wells located in the area of influence that would be adversely impacted by the drawdown caused by Alternative 1 pumping and the impact is less than significant. Since Alternative 1 would return the percentage of groundwater that is extracted from the SVGB pumping at the slant wells, Alternative 1 would not deplete groundwater resources in the SVGB and the impact would be less than significant.

Recognizing the long-term nature of the proposed project and the need to provide continued verification that the project would not contribute to lower groundwater levels in neighboring wells or to seawater intrusion within the SVGB, the project applicant has proposed as part of the project to expand the existing regional groundwater monitoring program to include the area where groundwater elevations are anticipated to decrease by one or more feet in the Dune Sand Aquifer and the 180-Foot Equivalent Aquifer (see **Figures 7-9** and **7-10**). The Applicant Proposed Mitigation Measure, included in this EIR as **Applicant Proposed Mitigation Measure 4.4-3** (discussed in Section 4.4, Groundwater Resources) would ensure that a groundwater monitoring program is in place before and during groundwater pumping operations in the affected area to verify that the seawater intake system performs as expected. The monitoring program proposed under **Applicant Proposed Mitigation Measure 4.4-3** would detect changes to local groundwater elevations and quality, and evaluate whether those changes could damage neighboring active wells. Implementation of **Applicant Proposed Mitigation Measure 4.4-3** is



EXPLANATION

white line — Particle Travel Path

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

Slant Wellhead
Blank Casing
Well Screen

Potrero Road Slant Wells - Configuration A
(Feedwater Supply of 24.1 MGD)

NORTH

0 3,500 7,000 Feet

Run 1n - Baseline (No Project)
2012 Land Use

Run 6sn - Project 2012 Land Use
(Dune Sand)

SOURCE: Geoscience, 2015c

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Figure 7-11

Particle Tracking near Potrero Road
No Project (Scenario 1n) and Alternative 1 (Scenario 6sn)

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not necessary to address any significant project effect, but instead further bolsters the conclusion that the impact of the Alternative 1 on nearby active wells would be less than significant. These impact conclusions are the same as those for the proposed project.

Impacts to Groundwater Recharge

Alternative 1 could interfere with groundwater recharge by decreasing groundwater elevations from groundwater pumping, thereby disrupting the existing surface water–groundwater interaction on the Salinas River or creating additional impervious surfaces through the construction of project facilities. Impervious surfaces reduce the volume of rainwater that infiltrates down to the aquifer. In accordance with the Significance Criteria (see Section 4.4.3.1) a significant impact would occur if Alternative 1 were to 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. Alternative 1's contribution to alteration of the surface water-groundwater interaction and the increase in impervious surfaces is discussed below.

Impacts of the Project on the Surface Water-Groundwater Interaction at the Salinas River. As a river flows over the land surface, it may lose water to the subsurface or gain water by intersecting groundwater from the underlying water table[43], depending on the depth to groundwater relative to the level of the river bed. This surface water-groundwater interaction causes groundwater to discharge to streams in some areas and surface water to infiltrate to the subsurface aquifers in others. The two conditions are referred to as a gaining stream (the river gains water from the aquifer) or a losing stream (the river loses water to the aquifer). In the case of Alternative 1, the Salinas River, (located about 3 miles to the south) and the Elkhorn Slough (located about one mile to the north) could be affected because some portions of the river and slough overlie the area where the pumping from the slant wells would decrease water levels by one foot or more. Alternative 1 pumping would affect the water level in the Dune Sand Aquifer because this unit is unconfined and shallow. If groundwater elevations were lowered beneath the river or the slough, the surface water-groundwater interaction between the river or slough, and underlying aquifer would adjust and the losing stream section of the river would increase in length. This additional length of losing stream would increase recharge from the surface water to groundwater.

As shown on **Figure 7-9**, the area where groundwater levels in the Dune Sand Aquifer are anticipated to decrease by one foot or more beneath the Salinas River extends from the coastline to a maximum of about 3 miles inland under simulated drought conditions. However, most of the area beneath the Salinas River that would be affected would only experience a decrease of about one foot or less. For the Elkhorn Slough, the area where groundwater levels in the Dune Sand Aquifer are anticipated to decrease by one foot or more beneath the Elkhorn Slough extends from the coastline to a maximum of about 3 miles inland under simulated drought conditions and could experience a groundwater level decrease of up to 10 feet close to the coast at the slant wells at

[43] The water table is the surface of the shallowest aquifer that is unconfined and open to the overlying atmosphere. In this case, the groundwater surface of the Dune Sand Aquifer or the inland Perched A Aquifer would be the water table.

Potrero Road and up to a 3 foot decrease at Elkhorn Slough. However, the Elkhorn Slough is a tidal slough and estuary and is directly connected to the ocean for much of its water source.

Where the Salinas River is currently a gaining stream, the elevation of the water table would be equal to or higher than the elevation of the river water surface and recharge from the water table to the river would occur. The NMGWM estimates that the average annual increase of surface water loss to the underlying aquifer, as a result of the proposed project, would be about 37 afy (Geoscience, 2015). Considering that the volume of water flowing to the ocean by the Salinas River in 2012 was about 250,000 afy, the change of 37 afy or 0.01 percent is considered minor. Alternative 1 would cause a small increase in the amount of surface water loss to the underlying aquifer, however, it is not considered a substantial interference to groundwater recharge of either Elkhorn Slough or the Salinas River, and impacts would be less than significant; the same level of significance as for the proposed project.

Impacts from Impervious Surfaces

Seawater Intake System. The completed seawater intake system at Potrero Road would consist of ten subsurface slant wells and associated pipelines, an aboveground electrical control panel, and an aboveground electrical control building. The well heads and pipelines would be completed below ground. Precipitation would continue to infiltrate into the subsurface sands and flow around the buried well head structure to the water table or migrate to the ocean. The electrical panel and electrical control building would create about 56 square feet of impervious surfaces within the coastal sand dunes, where the surrounding and underlying soil is loose sand. This minor amount of added impervious surface would not reduce potential recharge area of the shallow aquifer; the same level of significance as for the proposed project.

Conclusion to Impacts to Groundwater Recharge – Operational. Alternative 1 would cause a minor increase in the amount of water surface water lost to the underlying aquifer on the Salinas River, however, it is not considered a substantial interference to groundwater recharge and would be a less than significant impact. Impacts associated with changes to groundwater recharge during the operation of slant wells at Potrero Road would be less than significant, the same level of significance as for the proposed project.

Violate any water quality standards or otherwise degrade groundwater quality during operations. (Less than Significant)

Water quality considerations associated with Alternative 1 operations include the exacerbation of sea water intrusion and the potential for the project to cause new contamination or extend the limits of existing groundwater contamination through pumping at the seawater intake system and through the source water pipeline. The slant wells would extract water from the Dune Sands Aquifer of the SVGB.

Impact of Alternative 1 on Seawater Intrusion. As shown on **Figures 4.4-9** and **4.4-10**, the current location of the seawater/freshwater interface is about 8 miles inland in the 180-Foot Aquifer and 3.5 miles inland in the 400-Foot Aquifer. Once operational, the slant wells at Potrero Road would extract 24.1 mgd from the subsurface. This extraction would be an adverse impact if

it were to cause the seawater/freshwater interface to migrate further inland causing active water supply wells were to become unusable due to increased salinity. In accordance with the Significance Criteria **(**Section 4.4.3.1**),** a significant impact would occur if extraction at the subsurface slant wells were to adversely affect groundwater quality by exacerbating seawater intrusion in the SVGB.

Figure 7-12 illustrates the flow paths of water in the vicinity of the slant wells at Potrero Road and compares the current conditions (No Project) with the model-predicted flow paths under Alternative 1 conditions. Note that under the current conditions, seawater is continuing to migrate inland, maintaining the current condition of seawater intrusion.

With the implementation of Alternative 1, a portion of the intruding seawater would be removed from the coast through pumping at the seawater intake system. Once removed, the pressure on the seawater flowing landward at the coast would be reduced within the localized area affected by the proposed project pumping. The pressure reduction would interrupt the inland flow of seawater instead of allowing the seawater to continue to migrate inland. This would cause the seawater/freshwater interface to migrate back towards the ocean, thus reducing the extent of the area currently affected by seawater intrusion, similar to the proposed project.

Alternative 1 would extract groundwater from the coast and reduce the inland migration rate of the seawater/freshwater interface. Alternative 1 would, therefore, facilitate the reduction of seawater intrusion and the project impacts are considered less than significant the same significance level as the proposed project.

Impacts of the Project Associated with Existing Groundwater Remediation Systems. Occasionally, past industrial, commercial, or military sites have residual soil and groundwater contamination caused by past spills, leaking underground tanks, unlined chemical disposal sites or inadvertent land disposal of chemicals. If the area of influence of Alternative 1 pumping intersects an active groundwater cleanup site, change in groundwater elevations could cause the groundwater contamination to spread into previously uncontaminated areas.

During the operation of the slant wells at Potrero Road, the proposed slant wells would result in a radius of influence in groundwater in the Dune Sand Aquifer, as shown on **Figures 7-10** and **7-11** discussed above. Within the Potrero Road area, the NMGWM anticipates that groundwater elevations could decrease and that decrease could incrementally affect groundwater flow directions. If there are nearby inland sites that are remediating contaminated groundwater in the same aquifers and are located within the radius of influence of the slant wells, then the pumping of the slant wells could interfere with those remediation activities, 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. In accordance with the Significance Criteria (Section 4.3.3.1), a significant impact would occur if Alternative 1 created a condition that would violate water quality standards or otherwise degrade water quality.

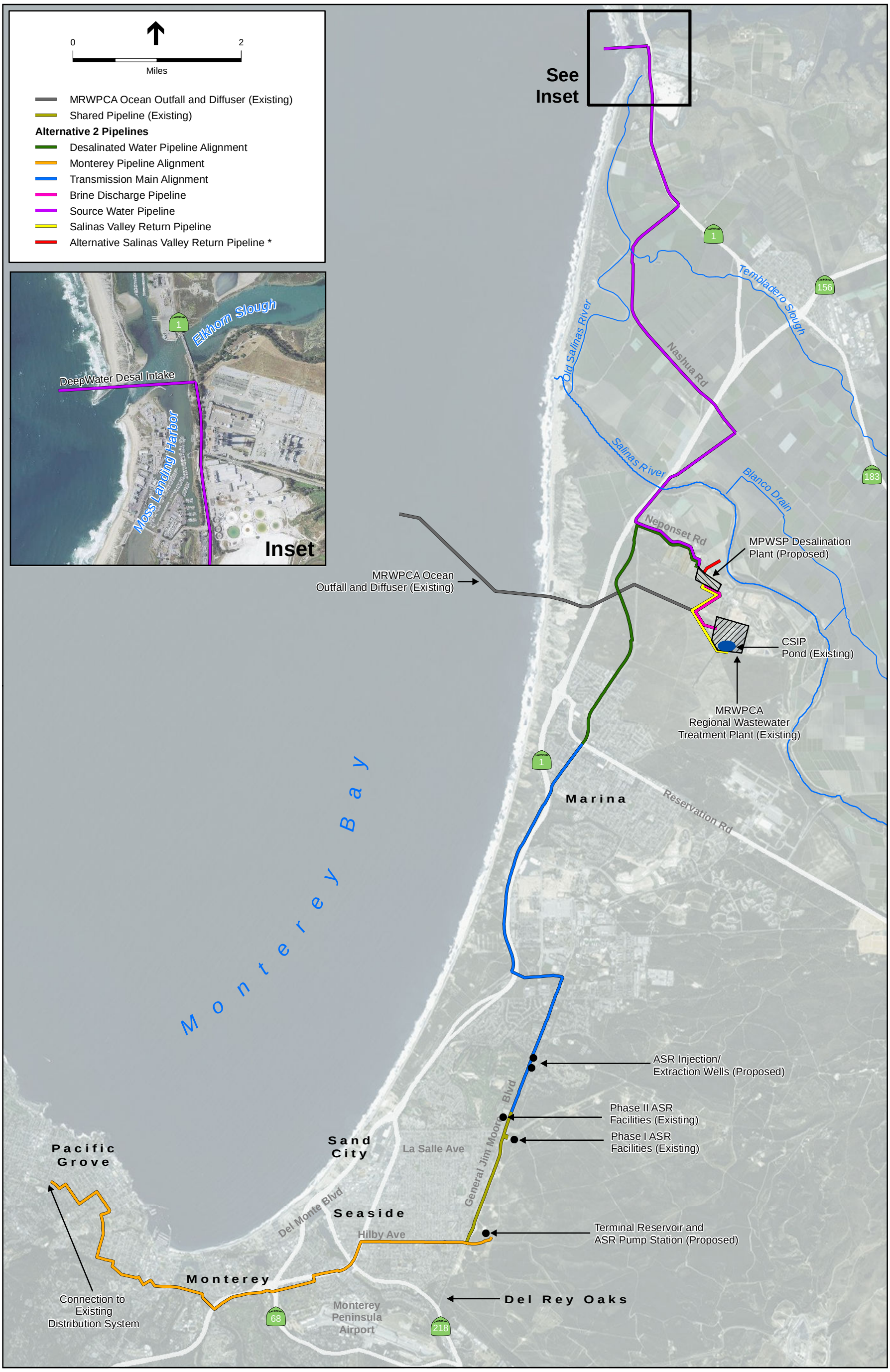
The Fort Ord remediation would not be impacted with Alternative 1, while it could be under the proposed project. The only active cleanup site within the area where groundwater levels may decrease by one foot or more with Alternative 1 would be a former service station site undergoing cleanup for gasoline in groundwater located about 3.5 miles to the southeast in Castroville. The site has been undergoing investigation and cleanup using a soil vapor extraction and air sparging system since 2009 (RRM, 2014). The ongoing remediation will continue until contaminant levels in the groundwater are reduced to at or below action clean-up levels and are protective of human health.

At the distance of 3.5 miles, the NMGWM simulations decrease in accuracy and the anticipated groundwater elevation decrease of up to 2 feet within the radius of influence is less certain to extend this far. Nonetheless, the simulation indicates that the decrease in groundwater elevations is possible and would result in a significant impact. This impact would be reduced to less than significant with the substitution of the former service station site in the implementation of **Mitigation Measure 4.4-4 Groundwater Monitoring and Avoidance of Impacts to Fort Ord Plumes**.

Impact Conclusion. Alternative 1 would result in a less than significant impact related to interference with existing groundwater remediation activities, with the possible exception of the former service station site in Castroville. The impact would be reduced to less than significant with the substitution of the former service station site in the implementation of **Mitigation Measure 4.4-4**, described in Section 4.4, Groundwater Resources. This would be the same level of significance as the proposed project.

Conclusion to Impacts to Groundwater Quality – Operations. For the slant wells at Potrero Road, the seawater/freshwater interface would migrate back toward the ocean, which would be considered a less than significant impact. For the slant wells at Potrero Road, the potential impact of interference with existing remediation systems would be reduced to less than significant with the implementation of **Applicant Proposed Mitigation Measure 4.4-3** and **Mitigation Measure 4.4-4**. Therefore, for Alternative 1 as a whole, the potential operations impacts would be less than significant with mitigation relative to groundwater quality, the same as for the proposed project.

In summary, Alternative 1 would result in an increase in construction related significant impacts for recreation, air quality, biological resources, cultural resources, and traffic compared to the proposed project, each of which would be mitigated to a less than significant level, as with the proposed project. Unlike the proposed project, Alternative 1 would not affect groundwater levels at the remediation site for the Fort Ord plume, but could affect a different remediation site. Alternative 1 and the proposed project would result in significant and unavoidable impacts for an increase in ambient noise levels during construction, and increased greenhouse gas emissions from construction and operation. However, Alternative 1 would not remove an obstacle to growth, as would the proposed project, since the volume of Salinas Valley Return flow required from the wells at Potrero Road would reduce the amount of water available to customers. Alternative 1 would, therefore, avoid the significant and unavoidable indirect effects of growth compared to the proposed project.



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

SOURCE: ESA, 2015

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Figure 7-12

Alternative 2 DeepWater Desal

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Compared to the MPWSP Variant

Alternative 1 and the MPWSP Variant would use the same kinds of construction techniques and operational procedures for the desalination components (i.e., subsurface intakes, desalination plant site, conveyance pipelines, etc.), except for construction and operation of the slant wells at Potrero Road and the Source Water Pipeline segment between the slant wells and Neponset Road. The Variant would include the added construction of the GWR project facilities. Therefore, Alternative 1 would have lessened construction-period impacts compared to the MPWSP Variant in the areas of air quality, biological resources, aesthetics, cultural resources and traffic and noise.

Construction of the slant wells at Potrero Road would result in a reduction in and elimination of some impacts on biological resources compared to the MPWSP Variant because, as explained above, the construction at Potrero Road would occur in a parking lot and not within a sensitive dune area, as is the case with construction impacts at the CEMEX slant well intake location.

Similar to the MPWSP Variant, operation and siting of the subsurface slant wells under Alternative 1 would have a less than significant impact related to depletion of groundwater supplies, substantial interference with groundwater recharge, violation of any water quality standard, or degradation of groundwater quality. The changes in groundwater elevations for the MPWSP Variant would result in a smaller footprint than Alternative 1, because the rate of pumping from the slant wells would be 15.5 mgd for the MPWSP Variant compared to the 24.1 mgd for Alternative 1. However, neither Alternative 1 nor the MPWSP Variant would affect any known water supply wells, other than the three dust suppression wells at the landfill for the MPWSP Variant, resulting in a less than significant impact for both. Nonetheless, Alternative 1 would still implement the same **Applicant Proposed Mitigation Measure 4.4-3** as the MPWSP Variant to further ensure that slant well operation would not adversely impact nearby active water supply wells. In addition, as explained above and in Sections 2.7, Water Rights, and Section 7.10, Salinas Valley Return Options, Alternative 1 would return the percentage of groundwater pumped from the SVGB to the CSIP system or to an overlying water user in-lieu of their pumping of groundwater. Although the percentage of water returned by Alternative 1 would be greater than the MPWSP Variant, both would use similar options for delivering return flows to the SVGB. Unlike the MPWSP Variant, Alternative 1 would not affect groundwater levels at the remediation site for the Fort Ord plume, but could affect a different remediation site.

Alternative 1 would result in the use of more energy than the MPWSP Variant (40,500 MWhs/year net increase from baseline compared to 35,800 MWhs/year net increase required for the MPWSP Variant) and, thus, would result in more greenhouse gas emissions than the MPWSP Variant (see Chapter 4, Section 4.11, Greenhouse Gas Emissions and Chapter 6, MPWSP Variant). Alternative 1 and the MPWSP Variant would each result in significant and unavoidable impacts for an increase in ambient noise levels during construction, and increased greenhouse gas emissions from construction and operation. The MPWSP Variant would result in an unavoidable significant air quality impact during construction (PM_{10}) while the air quality construction effects of Alternative 1 would be less than significant with mitigation. However, Alternative 1 would not remove an obstacle to growth, as would the proposed project and the project Variant, since the volume of Salinas Valley Return flow required from the wells at Potrero Road would reduce the

amount of water available to customers. Alternative 1 would, therefore, avoid the significant and unavoidable indirect effects of growth compared to the MPWSP Variant.

7.11.2.2 Alternative 2

Alternative 2 would consist of constructing a new open-water intake proposed by the DeepWater Desal project (Intake Option 9 described in Section 7.6.2.9), with a Source Water Pipeline to carry pumped seawater to the Desalination Plant site on Charles Benson Road, and brine discharge pumped to the existing MRWPCA outfall. The main features of the desalination plant and outfall that comprise Alternative 2 were described previously in detail in Chapter 3, Project Description. This alternative would use the Alternative Pipeline Configuration 2 as described in Section 7.9.3. **Figure 7-12** illustrates the layout of the main features of Alternative 2. The Source Water Pipeline route from the intake at MLPP would be constructed south along Highway 1, and follow the same alignment as the Alternative 1 Source Water pipeline route starting at the intersection of Potrero Road and Highway 1 to the Desalination Plant site. Other than the Source Water Pipeline route, all other pipeline routes would be the same as the Pipeline Configuration 2 analyzed previously in Section 7.9. The impacts of the Alternative 2 intake were compared with the proposed project intake in **Table 7-5**.

Ability to Meet Project Objectives

Alternative 2 would meet all of the proposed project objectives since it contains the same elements as the proposed project and would produce the same volume of product water, except the new open-water intake would be located further north, and would result in additional permitting complexity and increased costs associated with the construction and operation of an open-water intake and from the construction of additional length of Source Water Pipeline.

Environmental Effects

Compared to the Proposed Project

Except for the construction and operation of a new open-water intake on the ocean floor, Alternative 2 would use the same construction techniques and operational procedures as the proposed project. Compared to the proposed project's construction and operation of subsurface slant wells, Alternative 2 would result in new and greater impacts related to the construction and operation of an open-water intake on the ocean floor, including: construction impacts on federal and state waters, navigation, and recreation within the construction zone; construction and operation impacts to marine biological resources (e.g., benthic organisms and potential take of marine mammals and birds) in the Elkhorn Slough, Moss Landing Harbor, and the ocean floor; operational impacts on zooplankton and fish larvae that would be entrained or impinged from operation of the intake; increased energy use for pumping seawater from the intake to the Desalination Plant site, which would contribute to more GHG emissions; and improvements to the pretreatment equipment and processes that would be required at the Desalination Plant to pre-treat the raw seawater, including coagulation and flocculation, which would include mixers and additional chemical feed equipment.

Further, Alternative 2 would result in an increase in construction-related impacts compared to the proposed project (i.e., air quality, biological resources, noise and vibration, traffic, and water quality) from the construction of approximately seven additional miles of Source Water Pipeline from the intake at Moss Landing to the Desalination Plant site near Marina. Construction of the Source Water Pipeline from Moss Landing would result in impacts on wetland and riparian habitat at a HDD bore pit located west of Molera Road and south of Tembladero Slough on the Monterey County Water Resources Agency-controlled land. Further, impacts from construction of the Source Water Pipeline route from Moss Landing to the Desalination Plant site would result in potentially more impacts to different recorded archeological and historical resources located adjacent to the pipeline route than those located near the CEMEX site and proposed project Source Water Pipeline route.

Although impacts from the increased distance of the Source Water Pipeline for Alternative 2 would be more severe than those of the proposed project, construction impacts would be mitigated to less than significant levels using the same mitigation measures presented for the proposed project's construction impacts. On the other hand, unlike the proposed project, Alternative 2 would not result in pumping of groundwater, would not affect the remediation of the plume at Fort Ord, would not include an element of returning groundwater to the SVGB, and would not adversely affect groundwater. In summary, Alternative 2 would result in new and greater impacts compared to the proposed project related to the construction and operation of a new open-water intake on the ocean floor, including impacts to marine biological resources from construction activities on the ocean floor, and impacts to zooplankton and fish larvae that would be entrained or impinged from operation of the intake, in addition to those listed above. Operationally, Alternative 2 would result in the use of more energy than the proposed project and, thus, more greenhouse gas emissions than the proposed project (see Chapter 4, Section 4.11, Greenhouse Gas Emissions). However, both the proposed project and Alternative 2 would result in significant and unavoidable impacts from greenhouse gas emissions. In addition, both Alternative 2 and the proposed project would result in significant and unavoidable impacts related to an increase in ambient noise levels during construction and removing an obstacle to future growth through the availability of additional and reliable water supplies.

Compared to the MPWSP Variant

Except for the construction and operation of a new open-water intake on the ocean floor, Alternative 2 would use the same construction techniques and operational procedures as the MPWSP Variant for the desalination components. Compared to the MPWSP Variant's construction and operation of subsurface slant wells at the CEMEX site, Alternative 2 would have no impacts on groundwater quantity, quality or recharge because of the use of an open-water intake. For the same reason, unlike the MPWSP Variant, Alternative 2 would not return groundwater to the SVGB. However, Alternative 2 would result in new and greater impacts related to the construction and operation of a new open-water intake on the ocean floor, including impacts to marine biological resources (e.g., benthic organisms) from construction activities on the ocean floor, and impacts to zooplankton and fish larvae that would be entrained or impinged from operation of the intake.

Alternative 2 would result in a considerable increase in construction-related impacts (i.e., air quality, biological resources, noise and vibration, traffic, and water quality) from approximately seven more miles of pipeline than the Source Water Pipeline of MPWSP Variant due to the distance from the intake pumps at Moss Landing to the Desalination Plant site. Further, impacts from construction of the Source Water Pipeline route from Moss Landing to Desalination Plant site would result in potentially more impacts to archeological and historical resources located adjacent to the pipeline route than those adjacent to the CEMEX site and the MPWSP Variant Source Water pipeline. Although impacts from the increased distance of the Source Water Pipeline for Alternative 2 would be more than the MPWSP Variant, each of these impacts of the Source Water Pipeline could be mitigated to less than significant levels using the same mitigation measures presented for the MPWSP Variant's construction impacts. However, new mitigation measures would be required to reduce impacts from the construction and operation of an open-water intake. In summary, Alternative 2 would result in new and greater impacts compared to the MPWSP Variant related to the construction and operation of a new open-water intake on the ocean floor, including impacts to marine biological resources from construction activities on the ocean floor, and impacts to zooplankton and fish larvae that would be entrained or impinged from operation of the intake.

Unlike the MPWSP Variant, Alternative 2 does not include the construction and operation of the GWR Project elements, thereby resulting in potentially less severe construction-related impacts to air quality, noise and vibration, aesthetics, biological resources, cultural resources, and traffic. Construction of the MPWSP Variant would result in a significant and unavoidable impact from emissions of PM10 during construction, resulting in a more severe impact than Alternative 2 on air quality. Operationally, Alternative 2 would result in the use of more energy than the MPWSP Variant and, thus, more greenhouse gas emissions than the MPWSP Variant (see Chapter 4, Section 4.11, Greenhouse Gas Emissions and Chapter 6, MPWSP Variant). However, both the MPWSP Variant and Alternative 2 would result in significant and unavoidable impacts from greenhouse gas emissions. In addition, both Alternative 2 and the MPWSP Variant would result in significant and unavoidable impacts for an increase in ambient noise levels during construction and by removing an obstacle to future growth through the availability of additional and reliable water supplies.

7.11.3 Proposed Project Variant Alternatives

In addition to the alternatives analyzed above, this section provides an analysis of two alternatives to the option presented in Chapter 6, MPWSP Variant, composed of the same desalination components described for Alternatives 1 and 2, above. The MPWSP Variant would provide approximately 9,752 afy of additional water supplies (the same amount as the proposed project), except that the MPWSP Variant would provide 6,252 afy from a 6.4-mgd desalination plant (compared to the proposed project's 9.6-mgd capacity desalination plant) combined with a water purchase agreement for 3,500 afy of water from the GWR Project. In addition to providing 9,752 afy of potable water supplies for the Monterey District, the MPWSP Variant would also provide approximately 4,750 afy of recycled water supplies for irrigation in the northern Salinas Valley. The analysis below provides a basis for determining an environmentally superior alternative with respect to a reduced-capacity desalination plant with the GWR Project.

7.11.3.1 Alternative 3

Alternative 3 is composed of the same desalination and pipeline components as those for Alternative 1 (i.e., intake slant wells at Potrero Road), except for a reduced capacity desalination plant (intake of 15.5 mgd of seawater and production capacity of 6.4 mgd of desalinated water), seven slant wells (the same as for the MPWSP Variant), and the addition of the GWR Project components of the MPWSP Variant as described in Chapter 6 (see **Figure 7-13**).

Ability to Meet Project Objectives

Alternative 3 meets most of the basic project objectives as it contains the same elements and would develop an alternate water supply. However, the volume of developed water would be smaller than the proposed project and would therefore only partially meet the basic project objectives, as discussed below. Similar to Alternative 1, although the majority of flow paths of water originate from the ocean, there is a small wedge of area east of the slant wells at Potrero Road from which groundwater is anticipated to originate from inland water sources (i.e., the Dune Sands Aquifer). The NMGWM estimates that the volume of inland water that would be pumped at the Potrero Road slant well site would be about 17 percent of the source water or about 2,951 afy.

As a consequence, Alternative 3 would return 2, 951 afy to the SVGB, resulting in an equivalent reduction in CalAm's water supply to 12,345 afy, which would not meet the future demand of 15,296 afy and would not fully develop sufficient alternative water supplies to: completely replace the existing Carmel River supply diverted in excess of CalAm's legal rights under Order 95-10; entirely provide supply to allow for "repayment" of water CalAm previously pumped from the Seaside Basin in excess of CalAm's adjudicated right; completely provide water supply reliability; and, provide supply for Pebble Beach, for the development of legal lots of record or for additional tourism demand resulting from economic recovery. Therefore, Alternative 3 may be unable to completely meet water demands. In addition, because CalAm does not have site control for construction and operation of the Potrero Road slant wells, Alternative 3 may pose additional feasibility hurdles.

Environmental Effects

Alternative 3 would have the same construction and operational impacts as the MPWSP Variant, except for those additional impacts from the construction of the slant wells at Potrero Road and the additional Source Water Pipeline already discussed above for Alternative 1. These additional construction impacts would include the significant and unavoidable noise and air quality impacts of the MPWSP Variant, exacerbated by the additional construction for the Potrero Road facilities. Other construction effects, such as traffic and cultural resources, would be the same as for the MPWSP Variant and would be less than significant with mitigation, but would be of a greater magnitude than for the MPWSP Variant. On the other hand, construction-related biological resources effects of Alternative 3 would be of a lesser magnitude than those of the Variant due to the change in construction of the slant wells from a biologically sensitive area at CEMEX to one less so at Potrero Road.

The following analysis provides more detail on impacts from construction and operation of the Potrero Road slant wells on groundwater. This was selected based on the differences between Alternative 3 and the MPWSP Variant, namely, the slant wells at Potrero Road.

At any given time, five slant wells would be operational and two slant wells would be on standby or undergoing routine maintenance. These slant wells would be designed to collectively operate at an average pumping rate of approximately 15.5 mgd in order to provide a sufficient volume of feedwater such that the proposed project Desalination Plant can produce the required 6.1 mgd of product water. The slant wells would be screened across the Dune Sands Aquifer. Operation of the slant wells at the proposed pumping rate could draw groundwater levels down to a point where neighboring wells could become damaged or not operate. In accordance with the significance criteria (Section 4.4.3.1), a significant impact could occur if the operation of the proposed slant wells substantially lowered groundwater elevations in neighboring wells exposing wells screens or well pumps.

Impacts from groundwater pumping at the proposed slant wells were analyzed by reviewing the modeling output from the NMGWM. This analysis compared the modeling output of the Potrero Road Alternative 3 scenario (Scenario 8sn) to the No Project condition, (Scenario 1n). The modeling shows that project pumping from the slant wells would cause a response in the Dune Sands Aquifer and a smaller response in the 180-Foot Equivalent Aquifer, compared to baseline. The model outputs are presented as maps and are provided in **Figure 7-14,** which compares the anticipated changes in groundwater elevations in the Dune Sand Aquifer and **Figure 7-15**, which compares the anticipated changes in groundwater elevations in the 180-Foot Equivalent Aquifer, against the baseline.

As shown on the figures, project-related groundwater pumping from the slant wells would form a cone of depression, with the area of influence extending outwards from the slant wells. The corresponding reductions in groundwater elevations are shown on the contour lines within the area of influence. The area where the contours are the deepest is adjacent to the pumping slant wells: a reduction of up to 20 feet in the Dune Sands Aquifer but only up to 5 feet in the 180-Foot Equivalent Aquifer. The smaller effect in the 180-Foot Equivalent Aquifer is because the Salinas Valley Aquitard separates the Dune Sands Aquifer from the 180-Foot Equivalent Aquifer in this area, restricting flow from the 180-Foot Equivalent Aquifer. With distance away from the pumping wells, the magnitude of drawdown would be progressively reduced until the edge of the area of influence is reached. The edge of the area of influence, or the l-foot contour line furthest out, marks the area where the NMGWM calculates the groundwater elevation decline of only one foot.

Table 7-16 shows the maximum distance that the radius of influence would extend inland with a one foot groundwater level decrease from the slant wells given different types of climate conditions. As indicated on the table, the largest area of influence would be generated from the slant well pumping response in the Dune Sands Aquifer during prolonged dry (2027), moderate (2034), and wet (2046) periods and after a dry period with return to normal rainfall (2050). Note that the aquifer recovery would not occur until the relatively wetter time period of 2046 to 2050.

MRWPCA Ocean Outfall and Diffuser (Existing)
Shared Pipeline (Existing)
Treatment Plant

Proposed CalAm Facilities

ASR-5 and ASR-6 Wells
Terminal Reservoir/ ASR Pump Station
Salinas Valley Return Flow Injection Options
Source Water and Brine Discharge Pipelines[a]
Conveyance and Distribution Pipelines[b]
MPWSP Desalination Plant (6.4 mgd)

Proposed GWR Facilities

Source water diversion facility
RUWAP Pump Station (Option 1)
Coastal Pump Station (Option 2)
GWR injection well clusters
RUWAP Product Water Pipeline (Option 1)
Coastal Product Pipeline (Option 2)
Source Water Pipeline
New treatment facilities at MRWPCA Regional WWTP

NOTES:

[a] Pipelines include the Altarnative Source Water Pipeline, Brine Discharge Pipeline, and ASR Pump-to-Waste Pipeline.

[b] Pipelines include the Highway 68 Interconnection Improvements, Alternative Desalinated Water Pipeline, AlternativeTransmission Main, Alternative Monterey Pipeline, Salinas Valley Return Pipeline, and ASR Conveyance Pipelines.

0 2 Miles

See Inset 1
Subsurface Slant Wells at Potrero Road
Tembladero Slough Diversion
Old Salinas River
Tembladero Slough
Castroville
Prunedale
MRWPCA Ocean Outfall and Diffuser (Existing)
Salinas Valley Return Flow Injection Option 2
MPWSP Desalination Plant (6.4 mgd)
Salinas Valley Return Flow Injection Option 1
See Inset 2
Blanco Drain Diversion
Reclamation Ditch
Blanco Drain
Reclamation Ditch Diversion
Salinas
MRWPCA Regional Wastewater Treatment Plant (Existing)
Salinas River
Salinas Treatment Facility Storage and Recovery Site
Marina
Reservation Rd
RUWAP Pump Station (Option 1)
Coastal Pump Station (Option 2)
Salinas Pump Station Diversion
Monterey Bay
ASR-5 and ASR-6 Wells
General Jim Moore Blvd
Pacific Grove
Sand City
La Salle Ave
GWR injection well clusters
Connection to Existing Distribution System
Lake El Estero Diversion
Del Monte Blvd
Seaside
Hilby Ave
Terminal Reservoir/ASR Pump Station
Highway 68 Interconnection Improvements approximately 1 and 3 miles south. See Figure 3-10.
Monterey

MRWPCA Regional Wastewater Treatment Plant (Existing)
New treatment facilities at MRWPCA Regional WWTP
CSIP Pond (Existing)
Salinas Valley Reclamation Plant Modifications

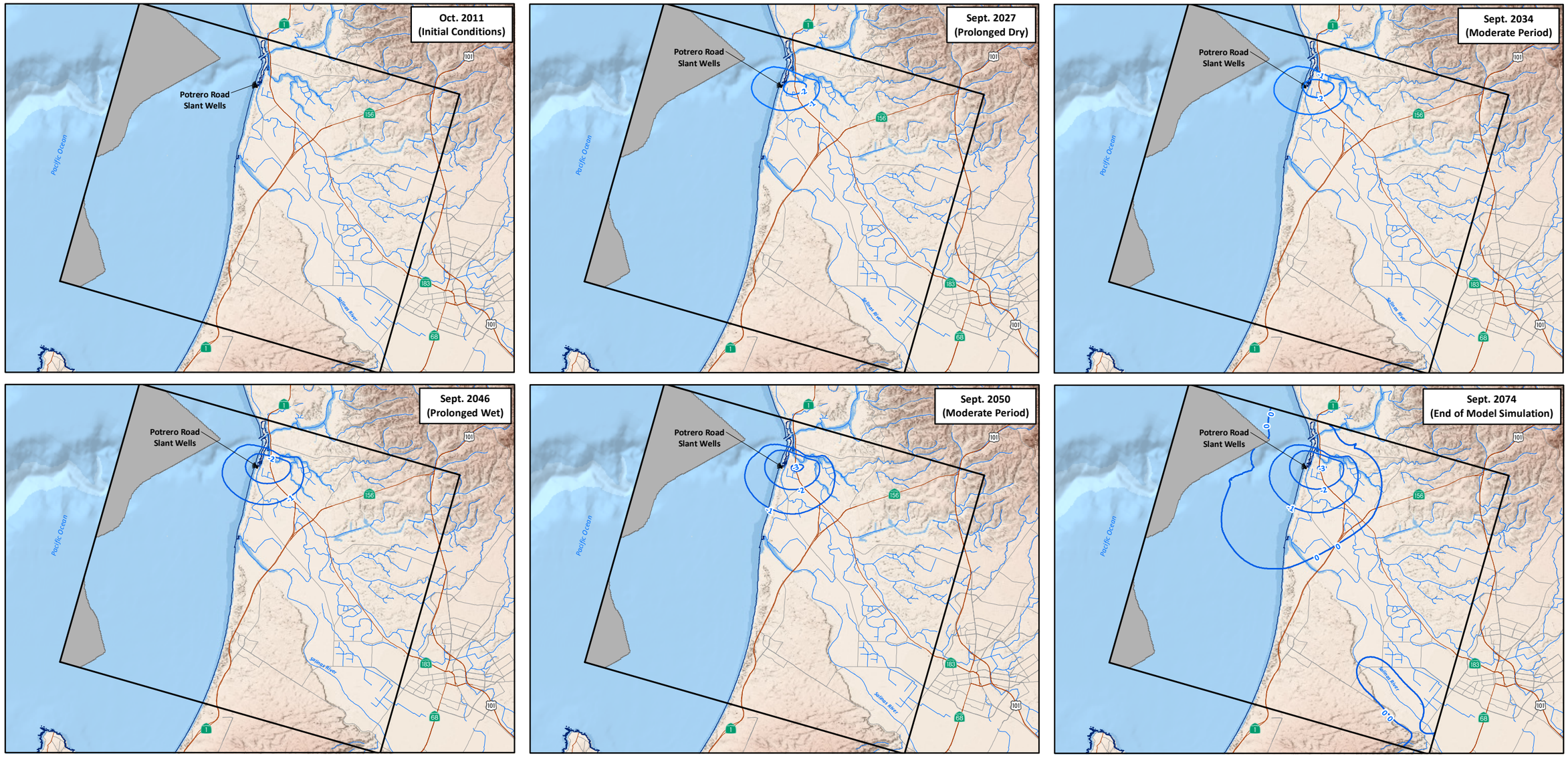
Inset 1
MRWPCA Regional WWTP

Moss Landing Rd
Subsurface Slant Wells at Potrero Road
Potrero Rd

Inset 2
Subsurface Slant Wells at Potrero Road

SOURCE: ESA, 2015

205335.01 Monterey Peninsula Water Supply Project
Figure 7-13
Alternative 3

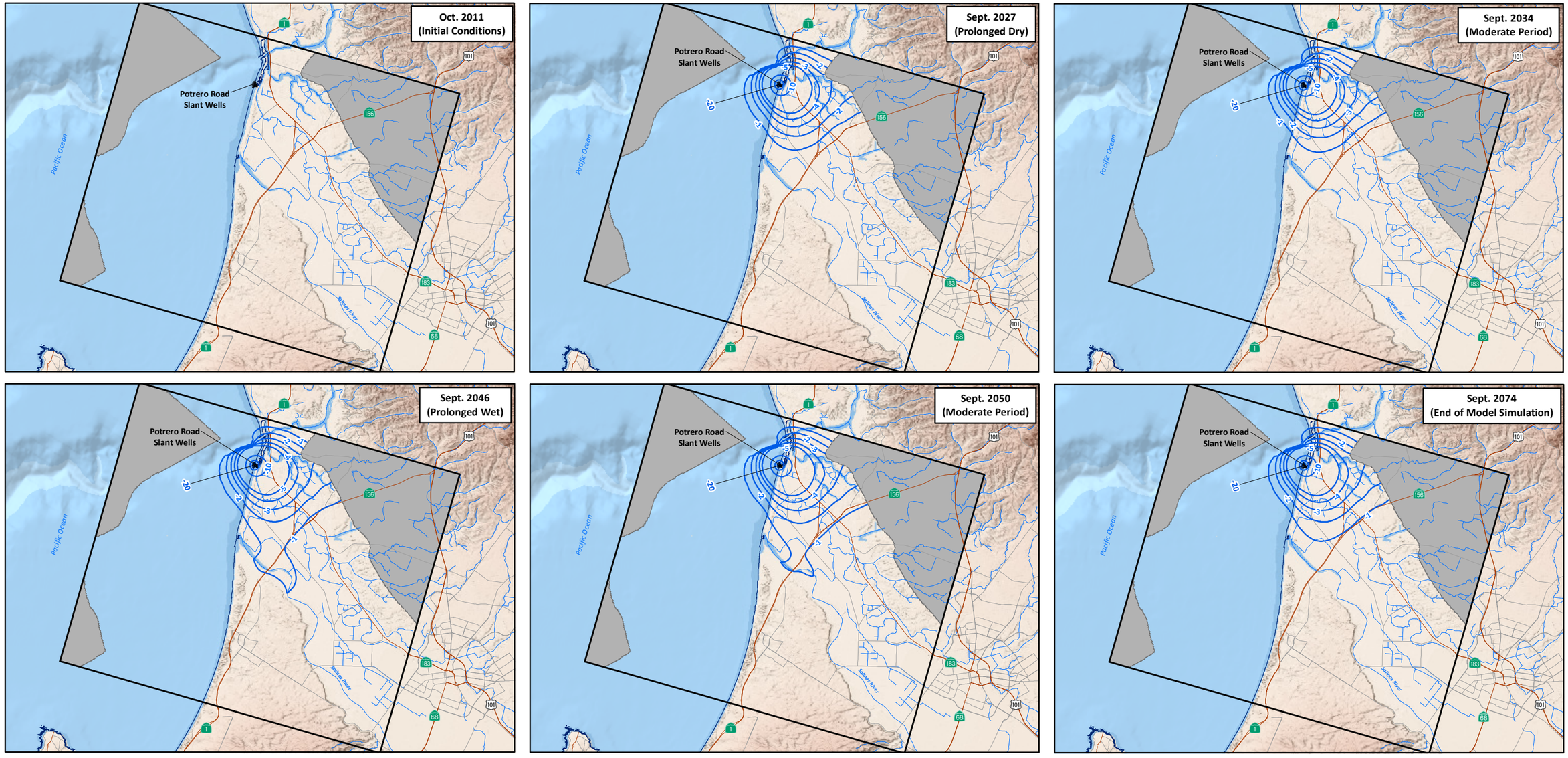


SOURCE: Geoscience, 2015c

205335.01 Monterey Peninsula Water Supply Project

Figure 7-14

Alternative 3 – Changes in Groundwater Elevations for 180-Foot Equivalent Aquifer between Alternative 3 and No Project (Scenarios 8sn vs. 1n)



SOURCE: Geoscience, 2015c

205335.01 Monterey Peninsula Water Supply Project

Figure 7-15

Alternative 3 – Changes in Groundwater Elevations for Dune Sand Aquifer between Alternative 3 and No Project (Scenarios 8sn vs. 1n)

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TABLE 7-16
MAXIMUM DISTANCE INLAND FROM THE PROPOSED SLANT WELLS WITH WATER LEVEL DECLINE OF ONE FOOT

Aquifer	Maximum Distance Inland in Miles from the Slant Wells with Water Level Decline of One Foot				
	September 2027 (Prolonged Dry)	September 2034 (Moderate Period)	September 2046 (Prolonged Wet)	September 2050 (Moderate Period)	September 2074 (End of Model Simulation)
DSA	2.7	2.7	3.0	3.2	2.6
180	1.1	1.3	1.7	2.1	1.5

NOTES:
DSA = Dune Sand Aquifer
180 = 180-Foot Equivalent Aquifer or 180-Foot Aquifer

SOURCE: Geoscience, 2015.

This is because there is a time lag from when the drier conditions begin and when the aquifer has fully responded to those drier conditions and the smaller volume of rainfall infiltration to the aquifer at depth. Once the aquifer has responded to the drier conditions with lower groundwater levels, there is a subsequent time lag for the aquifer to recover when the climate becomes wetter.

Survey of Known Groundwater Production Wells within the Radius of Influence. As shown on **Figures 4.4-14** and **4.4-15**, the 180-Foot Aquifer and the 400-Foot Aquifer have been intruded by seawater in coastal areas since at least 1944, with the intrusion currently extending up to 8 and 3.5 miles further inland, respectively. Consequently, wells that are located within the radius of influence and screened in the 180-Foot and 400-Foot Aquifers have been brackish-to-saline for years, and are no longer able to serve irrigation or potable uses. For this reason, there are no known active wells within the Dune Sands Aquifer or the 180-Foot Equivalent Aquifer that are within the area that could experience a decrease in groundwater elevation of one feet or more (Geoscience, 2015) for Alternative 3 of the Variant with supply wells at Potrero Road.

Conclusion of Impact Analysis – Groundwater Supply to Neighboring Production Wells. The NMGWM model results indicate that project-related pumping at the slant wells would elicit a response in the groundwater in the Dune Sands Aquifer and the 180-Foot Equivalent Aquifer resulting in a cone of depression with an area of influence that extends outward from the wells up to about 3.2 miles (Dune Sands Aquifer after a dry period). The survey of local groundwater wells indicate that no known active wells located in the area of influence would be adversely impacted by the drawdown caused by project pumping. Consequently, Alternative 3 would have no impact on neighboring local groundwater wells. Therefore, Alternative would result in a decrease in impact on local groundwater wells compared to the proposed project's less than significant impact.

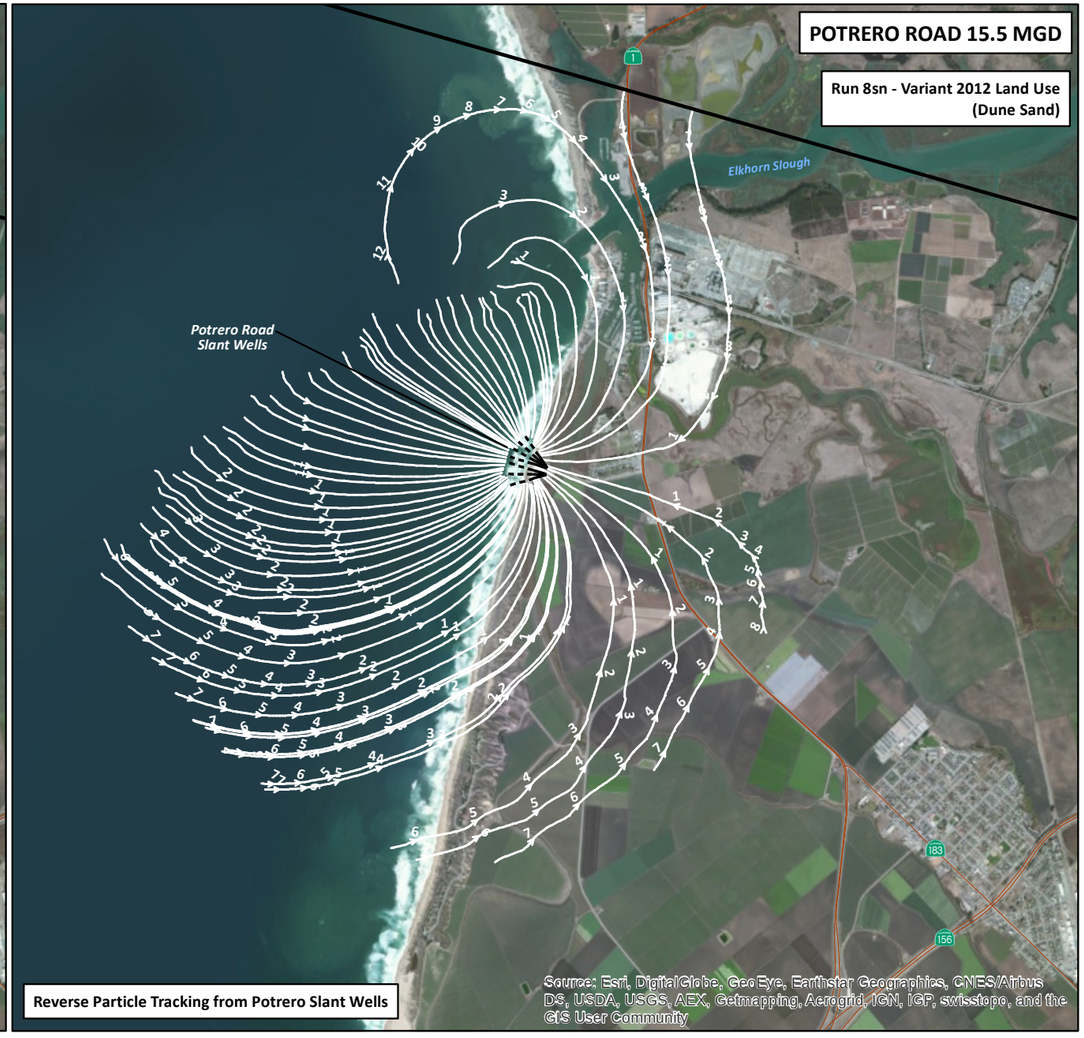
Depletion of Groundwater Supply from the SVGB. Operation of the slant wells at Potrero Road at the proposed pumping rate of 15.5 mgd could cause changes in the groundwater flow direction such that groundwater from inland groundwater sources in the SVGB would be captured and

drawn into the seawater intake system. In accordance with the significance criteria (Section 4.4.3.1), a significant impact could occur if the operation of the Potrero Road slant wells would substantially deplete the groundwater supply from inland sources within SVGB. This impact reflects the SWRCB concern that groundwater users could be harmed by the project's use of water from inland areas of the SVGB (see Section 4.4.3.2, Approach to Analysis for further discussion).

This impact was analyzed by using particle tracking maps developed through the NMGWM to illustrate the source of water entering the slant wells. The modeling results assess whether and how much water might be drawn from inland water sources and plot the predicted pathway of water entering the slant wells before and during operations. **Figure 7-16** illustrates the water particle flow paths at the Potrero Road site in the Dune Sands Aquifer where the water particles are reverse tracked starting from the slant wells and moving upgradient along the flow path back toward the source of the water. As shown on **Figure 7-16**, the majority of water entering the slant wells is anticipated to originate from west of the slant wells, ultimately from the ocean by infiltration through the ocean floor. A much smaller volume of water would originate within a narrow flow path originating from inland areas.

The NMGWM estimated that the volume of inland water under Alternative 3 would be about 17 percent under 2012 land use conditions after the pumping has started and the cone of depression has stabilized after a few months. Based on the feedwater supply of 15.5 mgd, this would be about 2,951 afy. Over time, the land use conditions would change as predicted by the county and city general plans. By the time that projected 2060 land use conditions have occurred, the percentage of inland water would have decreased to an average of about 14 percent or about 2,430 afy, in response to the combined changes in land use in the inland areas. Over the life of the proposed project, this would be an average of about 15.5 percent or about 2,690 afy. Consistent with the proposed MPWSP Variant, Alternative 3 would return this volume of water to the basin. Ongoing sampling of water in the monitoring wells and slant wells would further quantify with increased accuracy the actual return volume.

Conclusion of Impact Analysis - Depletion of Groundwater Supply from the SVGB. The NMGWM was used to estimate the volume of inland water drawn to the slant wells at Potrero Road and to simulate the pathways of water particles to assess whether the proposed groundwater extraction from the slant wells at the Potrero Road site would deplete groundwater supplies from inland sources within the SVGB. Particle tracking indicated that a portion of the feedwater to the slant wells would be drawn from inland groundwater sources. The modeling results estimated that the slant wells would draw an average of about 17 percent or 2,951 afy of the feedwater from inland SVGB water sources. As part of Alternative 3, the inland water drawn from the SVGB would not be depleted but would be returned to the SVGB as in-lieu groundwater recharge to the CSIP pond, to an overlying user not currently identified, or to one of the other return options previously described in Section 7.10. The return method would meet the SWRCB's criteria as described in Section 2.7, Water Rights. Pumping at the slant wells would not deplete groundwater resources in the SVGB and, therefore, this impact would be less than significant.



EXPLANATION

white line — Particle Travel Path

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

Slant Wellhead
Blank Casing
Well Screen

Potrero Road Slant Wells - Configuration B
(Feedwater Supply of 15.5 MGD)

NORTH

0 3,500 7,000 Feet

Run 1n - Baseline (No Project)
2012 Land Use

Run 8sn - Variant 2012 Land Use
(Dune Sand)

SOURCE: Geoscience, 2015c

Figure 7-16

Alternative 3 – Particle Tracking near Potrero Road
No Project (Scenario 1n) and Alternative 3 (Scenario 8sn)

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Conclusion to Impacts to Groundwater Supplies. The impact analysis of the slant wells at Potrero Road was based on the NMGWM model simulations. There are no known active supply wells located in the area of influence that would be adversely impacted by the drawdown caused by Alternative 3 pumping and the impact is less than significant. Further, there are no remediation wells, including the Fort Ord remediation site, that would be affected by the area of influence and the impact is less than significant. Alternative 3 would not deplete groundwater resources in the SVGB and the impact would be less than significant, similar to the impacts of the MPWSP Variant.

Recognizing the long-term nature of the proposed project and the need to provide continued verification that the project would not contribute to lower groundwater levels in neighboring wells or to seawater intrusion within the SVGB, the project applicant has proposed as part of the project to expand the existing regional groundwater monitoring program to include the area where groundwater elevations are anticipated to decrease by one or more feet in the Dune Sands Aquifer and the 180-Foot Equivalent Aquifer (see **Figures 7-14** and **7-15**). The Applicant Proposed Mitigation Measure, included in this EIR as **Applicant Proposed Mitigation Measure 4.4-3** (discussed in Section 4.4, Groundwater Resources), would ensure that a groundwater monitoring program is in place before and during groundwater pumping operations in the affected area to verify that the seawater intake system performs as expected. The monitoring program proposed under **Applicant Proposed Mitigation Measure 4.4-3** would detect changes to local groundwater elevations and quality, and evaluate whether those changes could damage neighboring active wells. Implementation of **Applicant Proposed Mitigation Measure 4.4-3** is not necessary to address any significant project effect, but instead further bolsters the conclusion that the impact of the Alternative 3 on nearby active wells would be less than significant. All other impacts relative to groundwater previously analyzed for MPWSP Variant are applicable and result in the same level of significance for Alternative 3, less than significant.

In summary, operation of the slant wells at Potrero Road would result in a greater amount of groundwater pumped from the SVGB that would be proposed to be returned to the SVGB (2,951 afy) compared to the MPWSP Variant (700 afy). As discussed in Chapter 6, MPWSP Variant, the GWR Project would return surface water to the CSIP system resulting in no additional capacity for the return required for Alternative 3, except for limited amounts during dry years only. As discussed above for Alternative 1 and in Section 2.7, Water Rights, return of water to the SVGB would be by injection wells, if feasible, or CalAm could deliver to an identified wholesaler or end-user in the SVGB in-lieu of their pumping of groundwater from the SVGB.

Unlike the MPWSP Variant, Alternative 3 would not meet CalAm's total water demands of 15,296 afy, including those from planned development in its service area, because it would have to return 2,951 afy to the SVGB. As such, Alternative 3 could eliminate water that would otherwise support future growth of up to 1,755 afy, and reduce indirect impacts related to growth inducement identified for the MPWSP Variant in Chapter 8, Growth Inducement Potential and Secondary Effects of Growth.

7.11.3.1 Alternative 4

Alternative 4 is composed of the same desalination and pipeline components as those for Alternative 2 (i.e., DeepWater Desal open-water intakes at MLPP), except for a reduced capacity desalination plant (intake of 15.5 mgd of seawater and production capacity of 6.4 mgd of desalinated water), and the addition of the GWR Project components of the MPWSP Variant as described in Chapter 6 (see **Figure 7-17**).

Ability to Meet Project Objectives

Alternative 4 meets all of the basic project objectives as it would contain the same elements and deliver the same amount of water as the MPWSP Variant. However, the new open-water intake would result in additional permitting complexity and increased costs associated with the construction and operation of an open-water intake and from the construction of additional length of Source Water Pipeline.

Environmental Effects

Alternative 4 would have the same construction and operation environmental effects as described above for Alternative 2 for all of the desalination and pipeline components, with additional impacts from the construction and operation of the GWR Project as analyzed in Chapter 6 for the MPWSP Variant. Compared to the MPWSP Variant, Alternative 4 would construct and operate a new open-water intake with the same impacts identified above for Alternative 2. Specifically, Alternative 4 would result in new and greater impacts related to the construction and operation of an open-water intake on the ocean floor, including: construction impacts on federal and state waters, navigation, and recreation within the construction zone; construction and operation impacts to marine biological resources (e.g., benthic organisms and potential take of marine mammals and birds) in the Elkhorn Slough, Moss Landing Harbor, and the ocean floor; operational impacts on zooplankton and fish larvae that would be entrained or impinged from operation of the intake; and increased energy use for pumping seawater from the intake to the Desalination Plant site and pretreatment equipment and processing required of raw seawater. Alternative 4 would not result in any source water being drawn from the SVGB because all source water for the desalination process would come from a new open-water intake. Therefore, all impacts related to effects on the SVGB would be eliminated with Alternative 4. As stated previously for Alternative 2, Alternative 4 would use more energy than the MPWSP Variant and result in a more severe significant and unavoidable greenhouse gas emissions impact. Further, Alternative 4 would result in the same significant and unavoidable impacts on noise and vibration related to an increase in ambient noise levels during construction and an increase in emissions of PM10 during construction as the MPWSP Variant. In summary, Alternative 4 would result in new and greater impacts than the MPWSP Variant from construction and operation of a new open water intake and additional miles of pipelines, as discussed above for Alternative 2.

MRWPCA Ocean Outfall and Diffuser (Existing)
Shared Pipeline (Existing)
Treatment Plant

Proposed CalAm Facilities

ASR-5 and ASR-6 Wells
Terminal Reservoir/ ASR Pump Station
Salinas Valley Return Flow Injection Options
Source Water and Brine Discharge Pipelines[a]
Conveyance and Distribution Pipelines[b]
MPWSP Desalination Plant (6.4 mgd)

Proposed GWR Facilities

Source water diversion facility
RUWAP Pump Station (Option 1)
Coastal Pump Station (Option 2)
GWR injection well clusters
RUWAP Product Water Pipeline (Option 1)
Coastal Product Pipeline (Option 2)
Source Water Pipeline
New treatment facilities at MRWPCA Regional WWTP

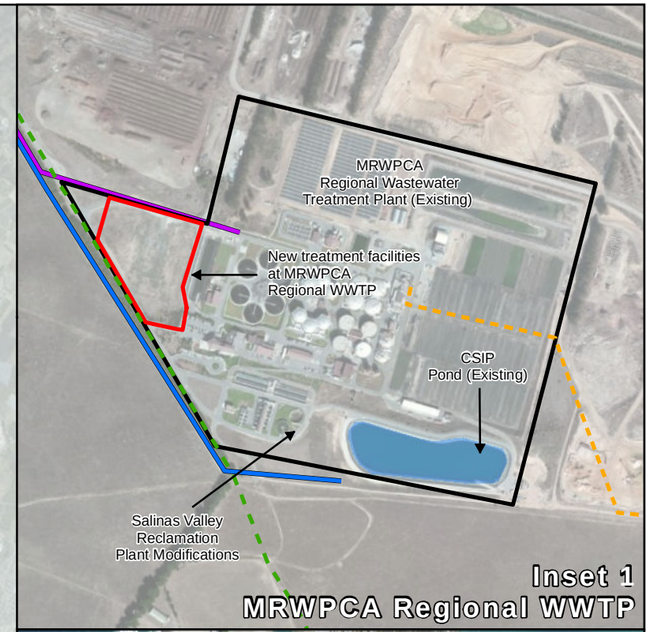
NOTES:

[a] Pipelines include the Altarnative Source Water Pipeline, Brine Discharge Pipeline, and ASR Pump-to-Waste Pipeline.

[b] Pipelines include the Highway 68 Interconnection Improvements, Alternative Desalinated Water Pipeline, AlternativeTransmission Main, Alternative Monterey Pipeline, Salinas Valley Return Pipeline, and ASR Conveyance Pipelines.

0 2 Miles

Moss Landing
See Inset 2
DeepWater Desal Intake
Prunedale
Castroville
Old Salinas River
Tembladero Slough
Tembladero Slough Diversion
MRWPCA Ocean Outfall and Diffuser (Existing)
Salinas Valley Return Flow Injection Option 2
MPWSP Desalination Plant (6.4 mgd)
Blanco Drain Diversion
Reclamation Drain
Blanco Drain
Salinas Valley Return Flow Injection Option 1
See Inset 1
MRWPCA Regional Wastewater Treatment Plant (Existing)
Reclamation Ditch Diversion
Salinas
Salinas River
Marina
Reservation Rd
Salinas Treatment Facility Storage and Recovery Site
Salinas Pump Station Diversion
RUWAP Pump Station (Option 1)
Coastal Pump Station (Option 2)
ASR-5 and ASR-6 Wells
GWR injection well clusters
Terminal Reservoir/ASR Pump Station
Highway 68 Interconnection Improvements approximately 1 and 3 miles south. See Figure 3-10.
Monterey Bay
Pacific Grove
Connection to Existing Distribution System
Lake El Estero Diversion
Monterey
Sand City
La Salle Ave
Del Monte Blvd
General Jim Moore Blvd
Seaside
Hilby Ave
156
101
183
1
68
218



SOURCE: ESA, 2015

205335.01 Monterey Peninsula Water Supply Project

Figure 7-17
Alternative 4

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7.12 Environmentally Superior Alternative

The analysis of alternatives presented in Section 7.11, taken together with the analysis of the proposed MPWSP and the MPWSP Variant in Chapters 4 and 6, respectively, provide a basis to identify the environmentally superior alternative, pursuant to CEQA Guidelines Section 15126.6, among the alternatives to the proposed project and those to the MPWSP Variant. The environmentally superior alternative is the alternative identified as meeting most of the basic project objectives and resulting in the fewest significant environmental impacts. CEQA Guidelines Section 15126.6 provides that if the No Project Alternative would be the environmentally superior alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives. Here, No Project Alternative 1 may technically qualify as the environmentally superior alternative because it would involve the least amount of change to the existing physical environment. However, No Project Alternative 1 would not meet most of the basic project objectives, is not feasible for reasons indicated previously, and could result in different impacts than the proposed project or other options given the failure of No Project Alternative 1 to supply sufficient water for customers within the CalAm service territory. For this reason, the discussion below focuses on selecting another environmentally superior alternative from among the myriad options presented in this EIR.

It is important to recognize that the selection of the environmentally superior alternative is not always a straight-forward and formulaic exercise. In some cases, including here, no alternative stands out from others as eliminating significant and unavoidable, long-term environmental effects. As such, considerable weighing among gradations of impacts and judgments as to the relative importance of topical impact areas in the context of the proposed project come into play. Such judgments, while based upon reasoning grounded in the scientific study that comprises the EIR, are inherently subjective. This means that, though this EIR identifies an environmentally superior alternative, the CPUC decision-makers could ultimately come to a different conclusion as to which option is the environmentally superior alternative based upon applying different weights to various impact areas.

The following discussion of the environmentally superior alternative assumes that the Alternative Pipeline Configuration 2, as described previously in Section 7.9.3 and as used for all of the alternatives analyzed above, would be used for either the proposed project or the MPWSP Variant.

Because the proposed project would result in the least amount of construction and operation impacts compared with either Alternative 1 or Alternative 2, it is the environmentally superior alternative of the proposed project alternatives (as opposed to Variant options). While Alternatives 1 and 2 would not result in impacts to the Salinas Valley Groundwater Basin, the effects of the project in this regard would be less than significant, except as to one impact concerning remediation that would be less than significant with mitigation. On the other hand, Alternatives 1 and 2 would cause numerous construction effects that are significant and would require mitigation to attain a level of less than significant. Furthermore, Alternative 1 may prove infeasible due to failure to meet the basic objective of the project to supply sufficient replacement

water to CalAm customers and the lack of site control for the slant wells. Alternative 2 may prove infeasible due to regulatory and permitting hurdles, and also would cause significant impacts above and beyond those identified for the project without corresponding offset to project significant effects. For these reasons, the proposed MPWSP project is the environmentally superior alternative among those options that do not include the GWR facilities.

Similarly, because the MPWSP Variant results in the least amount of construction and operation impacts compared with either Alternative 3 or Alternative 4, it is the environmentally superior alternative of the MPWSP Variant alternatives. The explanation provided in the paragraph above with respect to environmental impacts and project feasibility applies equally to the choice among the MPWSP Variant and Alternatives 3 and 4.

When combined with other CalAm facilities (e.g. pipelines and ASR facilities) the project variant would have impacts similar to the proposed project for most of the topical areas evaluated. However, there are several impacts of the project variant that are unique, or are more or less severe than the proposed project. These factor heavily into the selection of the environmentally superior alternative and are thus listed below.

The following impacts are unique to the GWR facilities of the project variant, and would not be associated with the proposed project:

- The soils that underlie the proposed location for the Injection Well Facilities in the Seaside Groundwater Basin could be susceptible to hydro-collapse if large quantities of water were injected into the ground. The risk would be less than significant.

- Construction of the proposed Reclamation Ditch and Tembladero Slough diversions could indirectly result in habitat modifications for endangered or threatened fish species as a result of construction activities and dewatering the construction sites. This impact would be less than significant with implementation of mitigation.

- Operation of the project variant would result in changes in stream flows that may interfere with fish migration in the Salinas River and Reclamation Ditch. This impact would be less than significant with implementation of mitigation.

The following impacts would be more severe with the project variant than with the proposed project:

- Construction of the project variant would result in an overall increase in the amount of soil that would be disturbed, and therefore, would increase the potential to result in soil erosion and loss of topsoil. The combined impact would be mitigated to a less-than-significant level.

- Rapid water fluctuations may induce erosion and sedimentation within the downstream affected reach of the Reclamation Ditch and Tembladero Slough components of the project variant that would not occur under the proposed project. This significant impact of the project variant would be reduced to less-than-significant with the implementation of mitigation.

- The addition of the GWR Facilities would result in an overall increase in temporary, construction-related trips on local roadways compared to the proposed project, and construction of the GWR facilities would overlap with construction of the CalAm facilities for almost two years. The combined significant impact would be mitigated to a less-than-significant level.

- The proposed project would be able to mitigate the generation of noise levels to meet the applicable standards during construction. However, impacts associated with construction at the Tembladero Slough Diversion site would conflict with County Code Section 10.60.030, resulting in a significant and unavoidable impact of the project variant, even with mitigation.

- While the emissions of PM_{10} associated with the proposed project could be mitigated to a less-than-significant level, the total combined maximum day construction emissions of the MPWSP Variant would result in a significant unavoidable impact even with mitigation.

- Discharges of the proposed project through the existing outfall would result in exceedences in Ocean Plan water quality objectives for PCBs and ammonia. Discharges associated with the project variant would, in addition, exceed Ocean Plan water quality objectives for chlordane, toxaphene, DDT and TCDD Equivalents. All exceedences, for both projects, could be reduced to less than significant with the implementation of the same mitigation measure.

The following impacts would be <u>less severe</u> with the project variant than with the proposed project:

- The response of the SVGB to the operations of the project variant in the Dune Sands Aquifer and 180-Foot Equivalent Aquifer would be much less pronounced than under the proposed project because less water would be extracted from the slant wells and more water would be provided to CSIP for agricultural users, and Salinas Valley return water would be injected into the 180-Foot Equivalent Aquifer.

- Interference with the remediation of a contaminated groundwater plume at Fort Ord can be mitigated under the proposed project; it would be avoided with operation of the project variant as a result of the dampened groundwater elevation response in the SVGB.

- The combined components of the project variant would use 4,700 MWh/year less energy than the proposed project. The impact would be less than significant for both the proposed project and the project Variant since the energy would not be used in a wasteful and inefficient manner.

The project variant would generate 253 metric tons CO_2e (GHG) per year less than the MPWSP. The impact would remain significant and unavoidable for both the proposed project and the project variant. The MPWSP Variant would generate certain significant environmental effects that would not occur with the project, but for the most part, such effects would be less than significant with implementation of mitigation measures.

There are two significant unavoidable impacts that would occur with the MPWSP Variant and not with the proposed project – construction PM_{10} emissions and noise – but these impacts would be temporary in nature and thus may be accorded a lesser weight than impacts of a more permanent

and on-going nature. The MPWSP Variant would result in an increase in other construction-related impacts (cultural resources, traffic and biological resources) due to the construction of the GWR Project elements. Each of these temporary impacts would be less than significant with mitigation. Although the MPWSP Variant and the proposed project would each result in a significant environmental impact associated with greenhouse gas emissions, the Variant would use less energy than the project and thus would have somewhat lower greenhouse gas emissions than the project. Compared to the proposed project, the MPWSP Variant would provide a diversified portfolio of water supplies, reduce pumping from the SVGB, increase Seaside Basin groundwater supplies, and improve groundwater levels and quality in the SVGB. While both the proposed project and the MPWSP Variant would have less than significant effects on the SVGB levels from pumping at the slant wells, the effects would be minimized with the MPWSP Variant. As noted, reasonable minds could differ as to the selection of the environmentally superior alternative. Nonetheless, weighing the short term unavoidable construction impacts of the Variant against the longer-term, more severe impacts of the project in the key areas of groundwater and greenhouse gas emissions, between the two options, the MPWSP Variant is deemed to be the environmentally superior alternative.

7.13 Impact Analysis for Test Slant Well at Potrero Road

7.13.1 Introduction

If Intake Option 3, comprised of subsurface slant wells at Potrero Road, is selected as the intake option for the MPWSP, CalAm would need to construct a test slant well within the California Department of Parks and Recreation parking lot and then operate a pilot program (aquifer test and water quality analyses) for up to 24 months to inform project design (RBF Consulting, 2014). This section analyzes the physical environmental effects of implementing a test slant well and pilot program at the western terminus of Potrero Road, in the California Department of Parks and Recreation parking lot, and identifies measures to mitigate significant impacts.

To support the Seawater Intake System described in Chapter 3, Project Description, a test slant well was constructed at the CEMEX active mining area and a pilot program is currently being operated. Environmental review of the test slant well and pilot program at the CEMEX active mining area was completed separately by the California Coastal Commission and Monterey Bay National Marine Sanctuary.

Similar to the test slant well and pilot program for the proposed Seawater Intake System under the proposed project, as discussed in Section 3.4.1 of Chapter 3, Project Description, the purposes of the Potrero Road test slant well and pilot program would be to: obtain site-specific field data regarding the geology, hydrogeology, and water quality characteristics of the underlying formations; improve the precision of groundwater modeling efforts; inform the final design of the Seawater Intake System; and verify and confirm slant well construction methods and techniques (RBF Consulting, 2014).

Construction and operation of a test slant well and pilot program at the Potrero Road parking lot would require several discretionary approvals, including approval from California Department of Parks at Recreation, Monterey County, Monterey County Environmental Health, Monterey Regional Water Pollution Control Agency, Central Coast Regional Water Quality Control Board, Monterey Bay Unified Air Pollution Control District, California Coastal Commission, California State Lands Commission, Monterey Bay National Marine Sanctuary, and U.S. Fish and Wildlife Service. Additional discretionary approvals would be needed to convert a test slant well into a permanent well.

7.13.2 Description of Test Slant Well and Pilot Program

The test slant well and pilot program at the Potrero Road Site are described below, including the test slant well components, construction activities, operation of the pilot program, and conversion of the test slant well into a permanent production well (RBF Consulting, 2014).

The facilities to be constructed as part of the test slant well and pilot program include the test slant well, a submersible well pump, a wellhead vault, electrical facilities and controls, temporary flow measurement and sampling equipment, three monitoring well clusters, and a temporary buried water diffuser to discharge the water produced during the pilot program. The test slant well and its associated infrastructure would be at the western end of the parking lot at Potrero Road. The test slant well would be constructed within the northwest corner of the parking lot, along with the electrical control panel, buried electrical conduit, and a new PG&E's power pole. Two of three monitoring well clusters would be constructed in approximately 1,000 feet intervals east of the slant test well head. The third would be constructed in the immediate vicinity of the test well head. Upon completion of the pilot program, the temporary water diffuser would be removed and the test slant well would be converted into a permanent production well.

7.13.3 Construction of Test Slant Well and Pilot Program

All construction activities and disturbance would occur in the parking lot at the western terminus of Potrero Road. The entire parking lot, measuring a little less than one acre, would be disturbed during construction of the test slant well and associated infrastructure.

The slant test well will be designed using similar materials, size and construction methodology as the proposed intake wells for the MPWSP. The borehole would be approximately 810 feet long and drilled at an angle of 10 degrees below horizontal across the shallow Dune Sand Aquifer and the deeper Perched "A" Aquifers; the Perched "A" Aquifer is underlain by the relatively impermeable Salinas Valley Aquitard. The length of the well and screen section intervals would depend on the aquifer materials encountered. The slant test well would be completed using up to 22-inch-diameter casing and up to 12-inch-diameter stainless steel screen, specially designed for use in seawater environments. The wellhead 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 head and pump. 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 off-site 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 aboveground electrical control panel located adjacent to the slant test well. The electrical panel would be about 4 feet long, 2 feet wide, and 6 feet tall, and would be an outdoor facility without a roof or walls.

The three monitoring well clusters would be drilled using the sonic drilling method,[44] as described in the *Hydrogeolgy Work Plan* (Geosciences, 2013). This drilling method does not use drilling mud or additives, and produces minimal cuttings because most of the cuttings are preserved in plastic tubes and stored for later analyses. Each monitoring well cluster would include three 2-inch diameter wells, drilled to depths of 50, 150, and 200 feet below mean sea level. The well pipes would be secured with an expandable, lockable well cap that fits just inside the well casing. Monument-style, steel protective cylinders with concrete well pads would be installed over each well. The well monument covers would be secured with keyed-alike locks. The well pads would gently slope away from the covers to prevent water from pooling around the monitoring well.

The raw seawater from the aquifer pump test would be discharged back into the buried water diffuser pipeline to infiltrate back into Monterey Bay. The buried diffuser would be a subsurface infiltration system comprised of approximately 400 linear feet of 16-inch diameter horizontal well screen in a gravel-packed 24-inch square wire-mesh wrapped box, buried approximately 4 feet below the ground surface. The project applicant would be required to consult and comply with the RWQCB regarding permitting for the test water pumped from the test well during development and testing. The diffuser would be located along the west, south, and east edges of the parking lot, within the disturbed area of the parking lot.

Construction activities will occur in the paved roadway and the disturbed area in the parking area at the west end of Potrero Road. The parking area and roadway are not nesting areas for Snowy Plovers, and the site is visually shielded from potential nesting areas on the beach by a 250-foot wide swath of sand dunes that rise approximately 15 feet above the site. Therefore, the construction activities could occur at any time of the year.

[44] The sonic drilling method is more precisely identified as a rotary vibratory drilling method. The drill head contains a rotary motion mechanism and an oscillator, which causes a high frequency force to be superimposed on the drill string. The drill bit is physically vibrating up and down in addition to being pushed down and rotated. These three combined forces allow drilling to proceed rapidly through most geological formations including most types of rock. In unconsolidated materials, the vibratory action causes the surrounding soil particles to fluidize, thereby allowing effortless penetration. In rock, the drill bit causes fractures at the rock face, creating a rock dust (if dry) or a slurry (if wet) and small rock particles, which facilitates advancement of the drill bit. This drilling method does not use drilling mud or additives.

7.13.4 Operation of Test Slant Well and Pilot Program

Upon completion of the well installation and development activities, the pilot program would consist of an aquifer test of the test slant well for up to 24 months to quantify the aquifer response to pumping. Monitoring the aquifer response would be accomplished through electronic sensors placed in the test slant well and the three monitoring well clusters, and would not require full-time onsite field staff. Temporary packers would be installed at different intervals within the screen section of the test slant well to facilitate aquifer testing different depth intervals. The water from the aquifer pump test would be infiltrated back into the ocean through the water diffuser pipeline.

7.13.5 Conversion of Test Slant Well into Permanent Production Well

Upon completion of the pilot program and assuming the results indicate the Potrero Road site can produce the required volume of water, the test slant well would be converted into a production well by removing the screen interval packers that were installed to facilitate the aquifer testing during the pilot program. A well pump and flow rate meter would be installed in the well, and the system added to the electrical power conduit.

Subsequently, using the existing well box, four additional slant wells would be drilled from the well box but extending to the north. Five additional slant production wells, also at 10 degrees below horizontal would be constructed at one well cluster in the southwest corner of the parking lot. All ten production wells would be piped to the Source Water Pipeline and routed to the desalination plant.

7.13.6 Setting and Regulatory Framework for Test Slant Well

The Potrero Road test slant well would be located in unincorporated Monterey county. The environmental setting and regulatory framework for the test slant well would be similar to the proposed project. As such, descriptions of the environmental setting and regulatory framework for each impact topic are not repeated in this chapter. See Chapters 4 for detailed information regarding the environmental setting or regulatory framework relevant to the Potrero Road test slant well and pilot program.

7.13.7 Environmental Impacts and Mitigation Measures – Test Slant Well at Potrero Road Site Active Mining Area

This section evaluates the potential for the Potrero Road test slant well and pilot program to adversely affect the physical environment. The order in which environmental resource topics are presented follows that of Chapter 4, Environmental Setting, Impacts, and Mitigation Measures, as shown in **Table 7-17**. Significance criteria for evaluating environmental impacts and approach to analysis are defined at the beginning of each Chapter 4 environmental resource topic section.

TABLE 7-17
ENVIRONMENTAL RESOURCE IMPACT SUBSECTIONS

7.13.7.1 Geology, Soils, and Seismicity	7.13.7.10 Greenhouse Gas Emissions
7.13.7.2 Surface Water Hydrology and Water Quality	7.13.7.11 Noise and Vibration
7.13.7.3 Groundwater Resources	7.13.7.12 Public Services and Utilities
7.13.7.4 Marine Biological Resources	7.13.7.13 Aesthetic Resources
7.13.7.5 Biological Resources	7.13.7.14 Cultural and Paleontological Resources
7.13.7.6 Hazards and Hazardous Materials	7.13.7.15 Agriculture and Forest Resources
7.13.7.7 Land Use, Land Use Planning, and Recreation	7.13.7.16 Mineral Resources
7.13.7.8 Traffic and Transportation	7.13.7.17 Energy Conservation
7.13.7.9 Air Quality	7.13.7.18 Population and Housing

For each environmental resource topic addressed in this section, the applicable impact criterion is identified, followed by an analysis of the project's physical environmental impacts relative to existing conditions. Where applicable, this section also identifies mitigation measures for all of the impacts considered significant, consistent with the CEQA Guidelines (Section 15126.4[a][1]), which state that an environmental impact report (EIR), "shall describe feasible measures which could minimize significant adverse impacts…" The conclusion of each impact analysis is expressed in terms of impact significance, the categories of which are defined in Section 4.1.2 of Chapter 4, Environmental Setting, Impacts, and Mitigation Measures. In general, the impacts of the test slant well presented in the analysis below are similar to those described for all subsurface slant wells discussed in Chapter 4.

7.13.7.1 Geology, Soils, and Seismicity

This section addresses potential geology, soils, and seismicity impacts associated with construction and operation of the test slant well and pilot program. A detailed discussion of the applicable environmental setting, regulatory context, significance criteria for evaluating environmental impacts and approach to analysis are provided in Section 4.2, Geology, Soils, and Seismicity.

Based on the nature of the test slant well and pilot program, no impacts related to the following significance criteria would result for the reasons described below:

Exposure of people or structures to substantial adverse effects related to fault rupture. The test slant well would not be close enough to faults that would be vulnerable to surface fault rupture. Therefore, there would be no impact.

Exposure of people or structures to substantial adverse effects related to landslides. The site of the test slant well is a flat parking lot surrounded by relatively flat topography with low to no susceptibility to landslides. Therefore, no impact would occur.

Exposure of people or structures to substantial adverse effects related to coastal erosion and bluff retreat caused by sea level rise. Structures located along the shoreline are anticipated to be exposed and subject to wave action and erosion. The rate of coastal retreat

is such that the test slant well would not be expected to be exposed anytime prior to the year 2060. Therefore, no impact would occur.

Exposure of people or structures to substantial adverse effects related to subsidence. The characteristic of the test slant well site and underlying aquifer, are less prone to subsidence because the granular structure is better able to support the overlying weight of soil. The test slant well would draw water from unconfined aquifers that are recharged by seawater, thereby keeping the pore spaces between soil grains filled with water, and further supporting its granular structure. Consequently, the soil structure above the test slant well would be unlikely to subside as a result of pumping. Therefore, no impact would occur.

Exposure of people or structures to substantial adverse effects related to expansive soils. The coastal area, including the site of the test slant well, is not underlain by expansive soils. Consequently, it would be unlikely that the soil at the test slant well location would be subject to expansion from wetting and drying cycles. Therefore, no impact would occur.

Construction Impacts

Impact 7.1-1: Increased soil erosion or loss of topsoil during construction. ***(Less than Significant)***

The test slant well construction activities would involve localized and short-term ground disturbance, which could cause soil erosion. However, the area where the test slant well would be constructed is entirely within an unpaved parking area; there is no undisturbed topsoil. Upon completion of construction, the test slant well would be buried beneath the ground surface and the topography restored to the pre-construction flat conditions, thereby minimizing potential for soil erosion. Because the slant test well construction footprint would not exceed one acre, the test slant well would not be required to comply with the applicable water quality and erosion minimization regulations of the NPDES construction general permit. However, the test slant well would be required to comply with the Monterey County Erosion Ordinance. Implementation of the best management practices required by this ordinance would minimize erosion. In addition, because the entire construction footprint is within an existing parking lot, the construction activities would not disturb the vegetated portions of the sand dunes and would not disturb any special status species. Therefore, the construction activities would be less than significant.

Operational (Pilot Program) Impacts

Impact 7.1-2: Exposure of people or structures to substantial adverse effects related to seismically induced groundshaking. ***(Less than Significant)***

As discussed in Section 4.2, Geology, Soils, and Seismicity, there is the potential for Monterey County to experience a moderate to large earthquake during operations of the test slant well. Damage from an earthquake could cause or require temporary pilot program disruption to allow for inspection and repair, localized pipeline leaks, and minor and repairable structural damage. However, because the test slant well and pilot program would not involve the development of vertical above-ground structures or otherwise attract people to the project site for extended periods of time, the potential for seismic-induced groundshaking to cause injury, loss of life, or

substantial property damage is low. The test slant well would be designed and constructed by registered professionals, subject to compliance with applicable laws and regulations governing construction at the project site (e.g., California Building Code, County building ordinances, state and county well construction standards), and inspected by a local building official prior to final operational approval. Together, these requirements would ensure that the test slant well is designed to withstand seismic events without sustaining substantial damage or collapse. Therefore, this impact would be less than significant.

Impact 7.1-3: Exposure of people or structures to substantial adverse effects related to liquefaction and Lateral Spreading. (*Less than Significant*)

The test slant well site is located in an area of high liquefaction potential. Because the test slant well and pilot program would not involve the development of vertical above-ground structures or otherwise attract large numbers of people to the project site for extended periods of time, the potential for seismic-induced liquefaction and lateral spreading to cause injury, loss of life, or substantial property damage is low. The test slant well would be designed and constructed by registered professionals, subject to compliance with applicable laws and regulations governing construction at the project site (e.g., California Building Code, County building ordinances, state and county well construction standards), and inspected by a local well inspector prior to final operational approval. While these practices would not completely eliminate the potential for damage to the test slant well, they would ensure that the resultant improvements would have the structural fortitude to withstand anticipated liquefaction and lateral spreading. With compliance with applicable regulations and through implementing standard engineering practices and well construction standards, this impact would be less-than-significant.

Impact 7.1-4: Exposure of people or structures to substantial adverse effects related to corrosive soils. (*Less than Significant*)

The site of the test slant well is underlain by sandy soils with moderate corrosivity potential. The presence of corrosive soils would be evaluated and addressed through the final geotechnical investigation prior to construction. If the investigation finds corrosive soils, the geotechnical engineer would recommend avoidance, removal or cathodic protection. Therefore, the impact of corrosive soils is considered less than significant with respect to corrosive soils.

7.13.7.2 Surface Water Hydrology and Water Quality

This section addresses potential surface water hydrology and water quality impacts associated with construction and operation of the test slant well and pilot program. A detailed discussion of the applicable environmental setting, regulatory context, significance criteria for evaluating environmental impacts and approach to analysis are provided in Section 4.3, Surface Water Hydrology and Water Quality.

Based on the nature of the test slant well and pilot program, no impacts related to the following significance criteria would result for the reasons described below:

Violation of water quality standards or waste discharge requirements. Once constructed, the test slant well would extract water from the Dune Sand and Perched "A" Aquifers continuously for up to 24 months for aquifer testing. The extracted water would be routed to the water diffuser pipeline for infiltration back into the subsurface. The salinity of the water samples analyzed from the exploratory boreholes near the insertion point for the test slant well is the same as seawater. The test slant well would draw water from an area located further to the west from beneath the ocean relative to the exploratory boreholes drilled in the parking lot, and it would be expected to be equally as saline and probably 100 percent seawater. Consequently, the water to be discharged into the water diffuser pipeline would be the same as seawater. Therefore, there would be no impact.

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. The test slant well, the well head structures, and the water diffuser pipeline would all be underground. However a power pole and small electrical control panel for the slant wells would be above ground. This negligible increase in impervious surfaces would not alter drainage patterns, increase flooding on- or off-site, or exceed the capacity of stormwater drainage systems. No impact would result.

Degradation of water quality from discharges of treated water and disinfectant from existing and newly installed pipelines during construction. The construction of the water diffuser pipeline would not require flushing or discharge of treated water and/or disinfection effluent. Therefore, there would be no impact to water quality.

Place housing within a 100-Year flood hazard zone. The test slant well and pilot program would not involve construction of new housing or structures for human occupancy within a 100-year flood hazard zone. Therefore, the significance criterion related to the placement of housing within a 100-year flood hazard zone is not applicable.

Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam. There are no dams or levees immediately adjacent to the project area. Dams that are located in the region include Los Padres and San Clemente Dams on the Carmel River and Nacimiento and San Antonio Dams on the Salinas River. The test slant well would lie within the predicted dam inundation zone. Implementation of the test slant well and pilot program would not affect reservoir operations. Therefore, the test slant well and pilot program would not expose people or structures to flooding damages due to failure of a dam or levee. There would be no impact associated with potential flooding from levee or dam failure. Relevant flooding-related issues are addressed under Impacts 7.2-4 through 7.2-6, below.

Expose people or structures to inundation by seiche or mudflow. The test slant well and pilot program would have no effect on the frequency or probability of seiches because the test slant well and pilot program would not create new enclosed water bodies or affect the frequency of earthquakes. Further, as the test slant well and pilot program would not include the construction of habitable structures, there would be no impacts related to property loss, injury, or death from a seiche. Due to the relatively flat topography of the project area, implementation would not expose people or property to increased mudflow hazards. Therefore, no impact related to inundation by seiche or mudflow would result.

Construction Impacts

Impact 7.2-1: Degradation of water quality associated with increased soil erosion and inadvertent releases of toxic chemicals during general construction activities. (*Less than Significant*)

Construction of the test slant well would involve the use of heavy equipment for the clearing, excavation, drilling, stockpiling, and backfilling of soil, among other activities. This work would require the transport, handling, and onsite storage of hazardous materials, such as fuels and lubricants. Ground-disturbing activities would subject soils to erosion from wind and stormwater runoff. The use of hazardous materials onsite could result in spills or other accidental releases. If not managed appropriately, exposed soils and/or hazardous chemicals could become mobilized and transported offsite during precipitation events, which could contribute to the degradation of surface water quality. The parking lot area where the test slant well would be constructed is flat. The well would be constructed below the surface and the ground surface would be restored to its existing relatively flat topography. Therefore, the potential impact relative to erosion would be less than significant.

Oils, gasoline, lubricants, fuels, and other potentially hazardous substances for the drilling equipment would be used and stored on-site during the construction of the test slant well. The use of chemicals would be short-term and subject to standard requirements for the handling and storage of hazardous materials. In addition, the construction contractor(s) would also be required to comply with the county erosion ordinance, which would require the implementation of BMPs that ensure that the necessary controls to minimize soil erosion, manage runoff, and protect water quality are in place during general construction activities. Therefore, the water quality impact associated with general construction activities would be less than significant.

Impact 7.2-2: Degradation of water quality from construction-related discharges of dewatering effluent from open excavations and water produced during well drilling and development. (*Less than Significant*)

Drilling of the test slant well would involve the extraction of water, which may contain soil cuttings and formation water (water present at depth in geologic materials). No chemicals or binders would be used during the drilling process. Water generated during drilling and well development would be routed to the buried water diffuser for infiltration back into the subsurface. Water produced during test slant well drilling would be considered a “water supply discharge” under the General Waiver of WDRs for Specific Types of Discharges (General Waiver) (RWQCB Resolution R3-2008-0010), discussed more fully in Section 4.3, Surface Water Hydrology and Water Quality. The General Waiver contains standard conditions that govern the types, locations, and methods of such discharges. Through compliance with these required conditions, the project’s discharge of water produced during test slant well construction would have a less-than-significant impact with respect to water quality degradation.

Operational (Pilot Program) Impacts

Impact 7.2-3: Alteration of drainage patterns such that there is a resultant increase in erosion, siltation, or the rate or amount of surface runoff. (*Less than Significant*)

The test slant well would be constructed in a previously disturbed parking lot. The wellhead of the test slant well would be enclosed in concrete vaults, buried below the sand. Due to its small size and because it would be buried in the sand, the vault would not impede infiltration or alter drainage patterns. The electrical controls for the slant well would be enclosed in an electrical control panel. This negligible increase in impervious surfaces would not alter drainage patterns, significantly increase erosion or siltation, nor impede the infiltration of stormwater into the dune sands. The impact would be less than significant.

Impact 7.2-4: Exposure of people or structures to a significant risk of loss, injury, or death from flooding due to a tsunami. (*Less than Significant*)

The test slant well, the well head structure, and the water diffuser pipeline are all located on the coast and could be subject to tsunamis. However, all of these structures would be buried underground, except for the electrical control panel and a power pole. In the event that a tsunami destroyed the electrical control panel, this would result in a temporary shutdown of the test slant well. The panel would be replaced and the test slant well would then continue operations. There is an existing public tsunami warning system that would notify workers to avoid the area in the event a tsunami was to occur. Therefore, the impact would be less than significant relative to tsunamis.

Impact 7.2-5: Exposure of people or structures to a significant risk of loss, injury, or death from flooding due to sea level rise. (*Less than Significant*)

Sea level rise is expected to result in coastal retreat. Structures located along the shoreline are anticipated to be exposed and subject to wave action and erosion. The rate to coastal retreat is such that the test slant well would not be expected to be exposed anytime prior to the year 2060. Therefore, the impact with respect to coastal retreat for this pilot program would be less than significant.

Impact 7.2-6: Impedance or redirection of flood flows due to the siting of project facilities in a 100-year flood hazard area. (*Less than Significant*)

The test slant well, electrical control panel and the water diffuser pipeline are all located within a 100-year flood zone. However, test slant well and the water diffuser pipeline would be buried underground. The existing flat topography would be restored to its original configuration at the end of the testing period, resulting in no change to the existing drainage patterns. Furthermore, the electrical control panel is not anticipated to impede flood flows due to the small size. Therefore, there would be a less than significant impact relative to the placement within a 100-year flood hazard area.

7.13.7.3 Groundwater Resources

This section addresses potential groundwater resources impacts associated with construction and operation of the test slant well and pilot program. A detailed discussion of the applicable environmental setting, regulatory context, significance criteria for evaluating environmental impacts and approach to analysis are provided in Section 4.4, Groundwater Resources.

Based on the nature of the test slant well and pilot program, no impacts related to the following significance criteria would result for the reasons described below:

> ***Violate any water quality standards or otherwise degrade water quality relative to groundwater.*** The test slant well would be constructed using a drill rig that would not use drilling fluids, such as bentonite mud, foams, or additives; only air, the water already in the geologic materials drilled through, and possibly additional potable water would be used to circulate the drill cuttings. If potable water were added, the water quality would be better than the underlying saline water. Therefore, the water in the aquifer could not be adversely impacted by fluids during the construction of the slant wells and there would be no impact.

Construction Impacts

Impact 7.3-1: Construction of the test slant well were to 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. ***(Less than Significant)***

If water is needed to assist in the drilling of the slant wells, the water would be trucked in to the site and would use potable water from the public water supply, not from an individual groundwater well. This volume of water would be acquired entirely from the public water supply, not from groundwater wells, resulting in a less than significant impact to aquifer volumes or groundwater levels.

Operational (Pilot Program) Impacts

Impact 7.3-2: Operation of the proposed facilities were to 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. ***(Less than Significant)***

Operations of the pilot program could last up to 24 months. The test slant well would be screened across the Dune Sand Aquifer. The source water to the test slant well would be mostly seawater infiltrating through the seafloor and moving through the Dune Sand Aquifer to the well. A smaller portion of the source water would be from inland sources also migrating through the Dune Sand Aquifer. No water would originate from the 180-Foot Aquifer because it is separated from the Dune Sand Aquifer by the Salinas Valley Aquitard, as discussed in Section 4.4, Groundwater Resources. The water quality of the Dune Sand Aquifer is brackish to saline and as a consequence, is not used as a water supply. Therefore, drawdown effects and the localized lower groundwater levels within the vicinity of the test slant wells would not adversely impact water supply wells and this impact would be less than significant.

Impact 7.3-3: Operation of the proposed facilities were to violate any water quality standards or otherwise degrade groundwater quality. *(Less than Significant)*

The source of the water replacing the water extracted by the test slant wells is expected to be predominantly seawater; a smaller percentage of water would originate from inland water sources. However, as discussed above, the test slant well would be screened only across the Dune Sand Aquifer, which is not used for water supply because the water is brackish to saline. Consequently, the pumping of the alternate test slant well would not change the existing water quality and the impact is considered to be a less than significant impact.

7.13.7.4 Marine Biological Resources

This section addresses potential marine biological resources impacts associated with construction and operation of the test slant well and pilot program. A detailed discussion of the applicable environmental setting, regulatory context, significance criteria for evaluating environmental impacts and approach to analysis are provided in Section 4.5, Marine Resources.

Based on the nature of the test slant well and pilot program, no impacts related to the following significance criteria would result for the reasons described below:

> ***Substantial interference with the movement of any native resident or migratory fish or wildlife species during construction.*** The test slant well would be below the seafloor; no components would be on or penetrate through the seafloor into the open ocean. Consequently, there can be no interference with the movement of any native resident or migratory fish or wildlife species during construction. Therefore, there would be no impact during construction.
>
> ***Conflict with the provisions of an adopted habitat conservation plan or natural community conservation plan.*** The test slant well would be below the seafloor; no components would be on or penetrate through the seafloor into the open ocean. Therefore, there would be no impacts to an adopted habitat conservation plan or natural community conservation plan during the pilot program.

Construction Impacts

Impact 7.4-1: Result in substantial adverse effects on candidate, sensitive, or special-status species during construction. *(Less than Significant)*

The construction of the test slant well would occur within the boundaries of the Marine Resources study area. As this activity would be located well below the seafloor, noise from the drilling operation is the only possible effect on special status species.

Onshore construction of the slant wells would result in the temporary displacement of beach sands in the immediate construction area. Since most of this construction activity would occur on the back (inland) side of the dunes, it is unlikely any of these beach sands would be suspended into nearshore waters by breaking waves. However, if sand were suspended due to construction activities, it would be distributed along the beach by normal processes affecting littoral drift.

Given the coarse grain size of the beach sands in the area, their suspension would not cause measurable increases in turbidity.

The directional drilling for the test slant well can be expected to generate some subterranean noise that would transmit into seafloor sediments. However, there are several characteristics of the slant well drilling operations that are expected to reduce the noise transmitted to the ocean floor. First, the slant well drilling equipment has the cutting head and fluid circulating pumps generating noise at depth below the seafloor. Second, the thickness of overlying sediments would act to muffle transmitted noise. Finally, any noise from the slant well drilling equipment that might reach the seafloor surface can be expected to be at or below ambient noise levels from surf. Consequently, any of the drilling noise reaching overlying ocean waters is expected to be below background noise levels and have no impact on marine mammals, reptiles or fish.

Based on the expected subsurface noise levels generated by the slant well drilling at the seafloor surface, potential background noise levels, and the noise levels required to cause acute or chronic harm to either special status fish species or marine mammals, the potential for impacts to candidate, sensitive, or special-status species including southern sea otters, humpback whales, gray whales, leatherback sea turtles, winter-run Chinook salmon, Coho salmon, steelhead trout, and white sharks due to undersea noise caused during construction of the subsurface slant wells would be less than significant.

Operational (Pilot Program) Impacts

Impact 7.4-2: Result in substantial adverse effects on candidate, sensitive, or special-status species during project operations. *(Less than Significant)*

The test slant well and operation of the pilot program would not increase salinity levels or produce brine, therefore no impact would occur related to candidate, sensitive, or special-status species during operations.

Another concern for operation of the test slants wells is the possibility that fine organic matter could be impinged against the seafloor causing a buildup of organic matter and change the normal distribution of sediment grain size. As discussed in Section 4.5, Marine Biological Resources, several studies have concluded that fine-grained material would not settle to the seafloor over the test slant wells. Therefore, impacts to candidate, sensitive, or special-status species including southern sea otters, humpback whales, gray whales, leatherback sea turtles, winter-run Chinook salmon, Coho salmon, steelhead trout, and white sharks due to operation of the test slant wells would be less than significant

Impact 7.4-3: Substantial interference with the movement of any native resident or migratory fish or wildlife species during project operations. (*Less than Significant*)

Impingement of organisms or fine organic matter against the seafloor due to operation of the test slant wells is highly unlikely. Therefore, operation of the test slant well during the pilot program

would not substantially interfere with the movement of any native resident or migratory fish or wildlife species and impacts would be less than significant.

7.13.7.5 Biological Resources

This section addresses potential biological resources impacts associated with construction and operation of the test slant well and pilot program. A detailed discussion of the applicable environmental setting, regulatory context, significance criteria for evaluating environmental impacts and approach to analysis are provided in Section 4.6, Terrestrial Biological Resources.

Based on the nature of the test slant well and pilot program, no impacts related to the following significance criteria would result for the reasons described below:

Interfere substantially with the movement of native fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.

Implementation of the proposed project would result in no impact relative to this criterion because the proposed project does not include the placement of structures within creeks, rivers, or other waterways and there are no established native resident or migratory wildlife corridors or wildlife nurseries within the project boundary. Construction and operation of the test slant well would occur within a graveled/dirt parking lot, which currently does not serve as a migratory wildlife corridor or wildlife nursery site.

Conflict with local tree ordinances.

The test slant well would be constructed within a graveled/dirt parking lot. No trees are located within this parking lot and no trees would be trimmed or removed for construction or operation of the test slant well. Therefore, the project would not conflict with local tree ordinances; no impact.

Conflict with the provisions of an adopted Habitat Conservation Plans, natural community conservation plans or other approved local, regional, or state habitat conservation plan.

The proposed test slant well would not be located within the boundary of an adopted Habitat Conservation Plan, natural community conservation plan or other approved local, regional, or state habitat conservation plan and therefore would not conflict with any plan; no impact.

Result in substantial adverse effects on candidate, sensitive, or special-status species; riparian habitat, critical habitat, or other sensitive natural communities; or federal wetlands, federal other waters, and waters of the State during project operations.

Following construction, the proposed slant well head would be buried below the parking lot and would be monitored through electronic sensors. Operations would not disturb any new ground surface and would not be expected to impact candidate, sensitive, or special-status species; riparian habitat, critical habitat, or other sensitive natural communities; or federal wetlands, federal other waters, and waters of the State; no impact.

Construction Impacts

Impact 7.5-1: Result in substantial adverse effects on species identified as candidate, sensitive, or special-status, either directly or through habitat modification, during construction.

The test slant well would be constructed within a graveled/dirt parking lot that does not provide habitat for special-status species.[45] However, the parking lot is surrounded by central dune scrub on the west and salt marsh on the north, east, and south. Many special-status species are known, or have potential, to occur in the habitats immediately surrounding the parking lot. These species include Monterey spineflower, robust spineflower, Seaside bird's-beak, Menzies' wallflower, sand gilia, Smith's blue butterfly, western snowy plover, Hooker's manzanita, Toro manzanita, sandmat manzanita, Monterey Coast paintbrush, Monterey ceanothus, branching beach aster, Eastwood's goldenbush, sand-loving wallflower, Kellogg's horkelia, south coast branching phacelia, Michael's rein orchid, black legless lizard, silvery legless lizard, coast horned lizard, and special-status nesting birds. As described in "*Overview of Potential Construction Effects on Plants*" and "*Overview of Potential Construction Effects on Wildlife*" in Section 4.6.3.4 Construction Impacts and Mitigation Measures, these special status species, if present within the vicinity of the project site, could be indirectly impacted by construction, which would be a significant impact.

Implementation of the following mitigation measures would reduce impacts to less than significant:

- 4.6-1a: Retain a Lead Biologist;
- 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;
- 4.6-1i: Avoidance and Minimization Measures for Nesting Birds;
- 4.6-1n: Habitat Mitigation and Monitoring Plan;
- 4.12-1b: General Noise Controls for Construction Equipment; and
- 4.14-2: Site-Specific Construction Lighting Measures

Impact 7.5-2: Result in substantial adverse effects on riparian habitat, critical habitat, or other sensitive natural communities during construction.

Construction of the test slant well would not occur within any riparian habitat, critical habitat, or other sensitive natural community. However, central dune scrub and salt marsh, two sensitive natural communities, are located immediately adjacent to the parking lot. These sensitive natural

[45] As defined in Section 4.6.1.8, special-status species include candidate and sensitive species.

communities may also be considered environmentally sensitive habitat areas (ESHA) under the North County Land Use Plan Local Coastal Program and by the California Coastal Commission. Additionally, Monterey spineflower critical habitat is located immediately west of the parking lot. Central dune scrub, salt marsh, and Monterey spineflower critical habitat could be indirectly impacted by worker traffic or construction related-trash, which would be a significant impact. Western snowy plover critical habitat is located approximately 170 feet west of the parking lot and would not be impacted by construction.

Implementation of the following Mitigation Measures would reduce impacts to less than significant:

- 4.6-1a: Retain a Lead Biologist;
- 4.6-1b: Construction Worker Environmental Awareness Training and Education Program;
- 4.6-1c: General Avoidance and Minimization Measures;
- 4.6-1n: Habitat Mitigation and Monitoring Plan;
- 4.6-2a: Consultation with Local Agencies and the California Coastal Commission regarding Environmentally Sensitive Habitat Areas; and
- 4.6-2b: Avoid, Minimize, and Compensate for Direct Construction Impacts to Sensitive Communities

Impact 7.5-3: Result in substantial adverse effects on federal wetlands, federal other waters, and/or waters of the State during construction.

Construction of the test slant well would not occur within any federal wetlands, federal other waters, and/or waters of the State. However, the Old Salinas River (a potential federal other water/water of the State) and its associated salt marsh wetlands is located within 25 feet of the parking lot. Mandatory compliance with the NPDES Construction General Permit, including implementation of the project SWPPP, would protect water quality. However, due to proximity, construction worker foot traffic could extend beyond the designated construction work area and into these features, which would be a significant impact.

Implementation of the following Mitigation Measures would reduce impacts to less than significant:

- 4.6-1a: Retain a Lead Biologist;
- 4.6-1b: Construction Worker Environmental Awareness Training and Education Program;
- 4.6-1c: General Avoidance and Minimization Measures;

7.13.7.6 Hazards and Hazardous Materials

This section addresses potential hazards and hazardous materials impacts associated with construction and operation of the test slant well and pilot program. A detailed discussion of the applicable environmental setting, regulatory context, significance criteria for evaluating

environmental impacts and approach to analysis are provided in Section 4.7, Hazards and Hazardous Materials.

Based on the nature of the test slant well and pilot program, no impacts related to the following significance criteria would result for the reasons described below:

> ***Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school***. The test slant well is not located within 0.25 mile of a school. Therefore, there would be no impact.
>
> ***Be located on a site, which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, create a significant hazard to the public or the environment.*** The test slant well is not located on a known hazardous materials site. Therefore, there would be no impact.
>
> ***Be located within an area covered by an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, and would result in a safety hazard for people residing or working in the project area.*** The test slant well site is not located within an airport land use plan area. Therefore, there would be no impact.
>
> ***Be located within the vicinity of a private airstrip and result in a safety hazard for people residing or working in the project area.*** The test slant well would not be located within the vicinity of a private airstrip; therefore, no safety hazard would result from implementation.
>
> ***Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.*** The Monterey County Emergency Operations Plan provides an overview of agency roles and responsibilities during emergencies (Monterey County Office of Emergency Services, 2011). The test slant well would not interfere with the designated agency responsibilities and reporting in the event of an emergency. No impact would result.
>
> ***Increase risk of wildland fire during operations.*** Operation of the pilot program would not introduce potentially flammable activities in fire-prone areas. Accordingly, there would be no increased risk of wildland fire hazards during operation.

Construction Impacts

Impact 7.6-1: Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials during construction. ***(Less than Significant)***

Petroleum products, such as gasoline, diesel fuel, lubricants, and cleaning solvents would be utilized to fuel and maintain construction vehicles and equipment. Reasonably foreseeable upset and accident conditions could result in inadvertent releases of small quantities of these materials, which could adversely affect construction workers, soil, and surface water. However, construction activities must comply with numerous hazardous materials and stormwater regulations designed to ensure that hazardous materials are transported, used, stored, and disposed of in a safe manner to protect worker safety, and to reduce the potential for a release.

Through compliance with applicable regulations hazardous materials impacts associated with potential releases from the transport, use, or disposal of hazardous materials or petroleum products during construction would be less than significant.

Impact 7.6-2: Reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment during construction. ***(Less than Significant with Mitigation)***

Although hazardous materials sites are not currently identified in proximity to the test slant well, newly discovered sites may arise prior to the time of construction that could affect subsurface conditions in the project area. Encountering unanticipated soil or groundwater contamination could result in potential exposures to construction workers, the public, or the environment, resulting in a significant impact. However, this impact could be reduced to a less-than-significant level with implementation of Mitigation Measures 4.7-2a (Health and Safety Plan) and 4.7-2b (Soil and Groundwater Management Plan). These measures would require that construction contractors prepare a Health and Safety Plan and a Soil and Groundwater Management Plan that include procedures to follow if unanticipated contamination is discovered during construction.

Impact 7.6-3: Increase risk of wildland fires during construction. (*Less than Significant*)

The test slant well is not located within or near an area classified by CAL FIRE as a High or Very High Fire Hazard Severity Zone (CAL FIRE, 2007, 2008); however, construction activities could temporarily increase fire risk to nearby plant in the coastal dunes. With compliance with California fire code regulations for construction, the potential impact associated with an increased risk of fire during construction would be less than significant.

Operational (Pilot Program) Impacts

Impact 7.6-4: Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials during project operations. ***(Less than Significant)***

Reasonably foreseeable upset and accident conditions could result in inadvertent releases of small quantities of these hazardous materials into soil and surface water. However, compliance with the various regulations regarding the safe transport, use, and storage of hazardous materials would ensure this impact is less than significant.

7.13.7.7 Land Use, Land Use Planning, and Recreation

This section addresses potential land use and recreation impacts associated with construction and operation of the test slant well and pilot program. A detailed discussion of the applicable environmental setting, regulatory context, significance criteria for evaluating environmental impacts and approach to analysis are provided in Section 4.8, Land Use, Land Use Planning, and Recreation.

Based on the nature of the test slant well and pilot program, no impacts related to the following significance criteria would result for the reasons described below:

Physically divide an established community. The test slant well and pilot program would not divide an established community or established land uses. Thus, would result in no impact.

Conflict with any applicable habitat conservation plan or natural community conservation plan. This criterion is addressed in Section 7.13.7.5, Terrestrial Biological Resources.

Increase the use of existing neighborhood and regional parks or other recreational facilities. The test slant well and pilot program does not propose to construct new homes or businesses and would not increase the number of residents in the project area. Thus, implementation of the test slant well and pilot program would not increase the use of recreational parks or other recreational facilities in the area. Thus, there would be no impact related to the construction or expansion of recreational facilities. Temporary increases in use of nearby beach access points during construction are addressed under Impact 7.7-1, below.

Construction and Operational (Pilot Program) Impacts

Impact 7.7-1: Substantial disruption of established recreational land uses or closure of a designated recreational facility during construction. ***(Less than Significant with Mitigation)***

The test slant well would be located in the parking lot of the Salinas River State Beach. All construction-related disturbances would be limited to the parking lot but would also require the temporary closure of the parking lot and access to the beach for about 3 to 4 months. However, recreationists can access the beach from points approximately 1 mile south at the parking lot at the end of Marina Dunes Way and approximately 0.5 mile north at the parking lot at Sandholdt Road. The slant well construction activities would not restrict lateral public access along the shoreline and the construction activities would not be visible from the beach.

Construction-related air quality and exhaust emission, and increase noise levels associated with construction work and stating areas could also temporarily degrade the recreational experience along the shoreline immediately west of the Potrero Road parking lot. In addition, construction would impede roadway access to nearby recreational facilities and uses. These impacts would be temporary. The impact on recreational resources and facilities would be significant. However, implementation of **Mitigation Measures 4.9-1 (Traffic Control and Safety Assurance Plan),** and **4.12-5 (Stationary-Source Noise Controls)** would reduce this impact to a less-than-significant level by ensuring that sufficient noise insulation or sound absorbing material is provided to the existing enclosure to provide additional noise attenuation.

Impact 7.7-2: Consistency with applicable plans, policies, and regulations related to land use and recreation that were adopted for the purpose of mitigating an environmental effect. (*Less than Significant*)

Given the underground location, adjacent land uses, and nature of the facility, the test slant well would not substantially conflict with plans, policies, or regulations that were adopted for the purpose of avoiding or mitigating an adverse environmental effect related to land use or recreation. As a result, the test slant well would have a less-than-significant effect with respect to land use and recreational policy conflicts.

Impact 7.7-3: Compatibility with adjacent land uses during project operations. *(Less than Significant)*

The test slant well would be completely buried beneath the ground surface. The electrical controls for the test slant well would be housed in an above-ground electrical control panel located adjacent to the wellhead vault. Neither the test slant well, nor the electrical control panel would restrict recreational access to the beach. For these reasons, the pilot program would have a less-than-significant impact with respect to land use compatibility.

7.13.7.8 Traffic and Transportation

This section addresses potential traffic and transportation impacts associated with construction and operation of the test slant well and pilot program. A detailed discussion of the applicable environmental setting, regulatory context, significance criteria for evaluating environmental impacts and approach to analysis are provided in Section 4.9, Traffic and Transportation.

Based on the nature of the test slant well and pilot program, no impacts related to the following significance criteria would result for the reasons described below:

> ***Conflict with the applicable congestion management program, including LOS standards.*** LOS standards established by jurisdictions/agencies are intended to regulate long-term (permanent) traffic increases associated with new development and do not apply to short-term (temporary) traffic increases that occur during construction. As discussed under Impact 7.8-8, during operations approximately 1 round-trip per day could occur on Potrero Road for up to 24 months. Based on existing traffic conditions, the projected increase is well within the roadway carrying capacity of this two-lane road and would not affect traffic conditions. Because implementation of the test slant well and pilot program would not result in substantial long-term, ongoing effects related to traffic and congestion, typical LOS calculations were not performed for this traffic analysis, and county LOS standards were not used to evaluate potential project impacts. No impact related to conflicts with the applicable congestion management program or LOS standards would occur.
>
> ***Changes in air traffic patterns.*** Construction and operation of the test slant well and pilot program would not affect air traffic patterns. Neither the construction equipment proposed for use during construction nor the test slant well, once completed, would exceed the height restrictions established by nearby airports (Monterey Peninsula Airport and Marina Municipal Airport).

Permanent increases in traffic safety hazards due to a design feature or incompatible uses. The test slant well and pilot program would not introduce new design features (e.g., new facilities or obstructions within public roadways) or alter existing features (e.g., road realignment). In addition, traffic generated during pilot program would be compatible with the mix of vehicle types (autos and trucks) currently using regional and local roadways. Therefore, this significance criterion is not applicable. Temporary increases in traffic safety hazards during construction are addressed under Impact 7.8-3, below.

Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities. In general, adopted policies, plans, and programs pertaining to public transit, bicycle, and pedestrian travel are intended to be used for long-term planning purposes and do not apply to construction activities. Implementation of the test slant well and pilot program would not permanently change the existing or planned transportation network in the affected jurisdictions of Monterey County, nor would the test slant well and pilot program directly or indirectly eliminate alternative modes of transportation, transportation corridors, or facilities (e.g., bicycle paths, lanes, or routes; bus turnouts or bus routing; walkways, sidewalks, or crosswalks, etc.). Further, the test slant well and pilot program would not prevent the use of any roads on which public transit routes operate, nor would it generate increased traffic volumes on roads used as public transit routes to a degree that would cause lengthy delays for transit riders or eliminate and/or reduce access to such transit facilities. Therefore, the test slant well and pilot program would not conflict with policies, plans, or programs related to transit, bicycle, or pedestrian travel. Temporary impacts related to alternative modes of transportation during construction are addressed in Impact 4.9-3 (increased traffic safety hazards) and Impact 4.9-5 (temporary disruptions to public transit during construction).

Construction Impacts

Impact 7.8-1: Temporary traffic increases on regional and local roadways due to construction-related vehicle trips. *(Less than Significant)*

Construction access for the test slant well would use Highway 1 and Potrero Road. Construction for the test slant well would require up to 15 workers for approximately 3 to 4 months. 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. Therefore, the potential impact would be considered to be less than significant.

Impact 7.8-2: Temporary reduction in roadway capacities and increased traffic delays during construction. (*Less than Significant*)

Construction of the test slant well would not result in road closures or lane restrictions because all work would be conducted within a parking lot. Therefore, the potential impact would be considered to be less than significant.

Impact 7.8-3: Increased traffic safety hazards for vehicles, bicyclists, and pedestrians on public roadways during construction. ***(Less than Significant with Mitigation)***

Construction vehicles traveling to and from the project area, including trucks delivering equipment and supplies to the construction work areas and trucks hauling excavated materials offsite for disposal, would share the area roadways with other vehicles. The greatest number of daily construction-related truck trips would occur along Highway 1 and Potrero Road. Construction activities could increase traffic safety hazards in the project area due to: conflicts between haul trucks and other large construction vehicles and automobiles, bicyclists, and pedestrians using the roadways; and conflicts related to the movement of traffic on travel lanes adjacent to construction work areas, particularly at entry and egress points where construction-related vehicles would access public roadways. Potential increases in traffic safety hazards during construction would be a potentially significant impact. However, implementation of **Mitigation Measure 4.9-1 (Traffic Control and Safety Assurance Plan)** would reduce this potential impact to a less-than-significant level.

Impact 7.8-4: Impaired emergency access during construction. ***(Less than Significant)***

Construction of the test slant well would be not cause impairments to emergency access because all work would be conducted within a parking lot. Therefore, the potential impact would be considered to be less than significant.

Impact 7.8-5: Temporary disruptions to public transportation, bicycle, and pedestrian facilities during construction. ***(Less than Significant with Mitigation)***

Construction activities, including vehicle ingress and egress, equipment and materials staging, could disrupt established public transportation, bicycle and pedestrian movement along Potrero Road or at the test well site. However, implementation of **Mitigation Measure 4.9-1 (Traffic Control and Safety Assurance Plan)**, which includes measures that would 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.

Impact 7.8-6: Increased wear-and-tear on the designated haul routes used by construction vehicles. ***(Less than Significant)***

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 (pavement type and thickness) and the existing condition of the road. However, construction of the test slant well is anticipated to generate a limit amount of construction related trips. Therefore this impact would be less than significant.

Impact 7.8-7: Parking interference during construction. ***(Less than Significant with Mitigation)***

Construction of the test slant well would temporarily close the parking lot at the western end of Potrero Road for approximately 3 to 4 months which would displace parking spaces and could adversely affect parking conditions. In addition, construction worker parking demand associated with these construction activities could further limit parking in the area. Parking interference impacts during construction would be potentially significant. However, implementation of **Mitigation Measure 4.9-1 (Traffic Control and Safety Assurance Plan),** would reduce this impact to a less-than-significant level.

Operational (Pilot Program) Impacts

Impact 7.8-8: Long-term traffic increases on regional and local roadways during project operations and maintenance. ***(Less than Significant)***

During the pilot program, an up to 24-month aquifer pumping test would be performed on the test slant well. Once constructed, a worker would access the site in a small truck or automobile. The addition to traffic would be limited to one round trip per day. All work would be conducted within the parking lot. Therefore, the potential impact would be considered to be less than significant.

Impact 7.8-9: Long-term parking interference. ***(Less than Significant)***

Operation of the test slant well and pilot program could last up to 24-months and would require the displacement of 1 or 2 parking spaces. The capacity at the existing parking lot would be able to accommodate this displacement; therefore this impact is less than significant.

7.13.7.9 Air Quality

This section addresses potential air quality impacts associated with construction and operation of the test slant well and pilot program. A detailed discussion of the applicable environmental setting, regulatory context, significance criteria for evaluating environmental impacts and approach to analysis are provided in Section 4.10, Air Quality.

Based on the nature of the test slant well and pilot program, no impacts related to the following significance criterion would result for the reasons described below:

> ***Conflict with implementation of the applicable air quality plan.*** Emissions associated with the test slant well could conflict with or obstruct implementation of the *Triennial Plan Revision 2009-2011* (2012 AQMP) if emissions are not accounted for in the 2012 AQMP. Construction projects that use typical construction equipment such as dump trucks, scrappers, bulldozers, and front-end loaders that temporarily emit precursors of ozone (i.e., ROG and NOx), are already accounted for in the emission inventories of state- and federally-required air quality plans (MBUAPCD, 2008). The test slant well and pilot program would utilize such typical, accounted-for equipment during construction. In addition to typical construction equipment, the test slant well and pilot program would also require some less common construction equipment such as drill rigs for well installation. However, emissions associated with these equipment types would be minimal. Overall,

emissions generated during construction of the test slant well would be consistent with applicable air plans.

With regard to long-term operations, there would be no permanent stationary sources of air pollutant emissions associated with the test slant well and pilot program since it would operate for up to 24 months and then be shut down. Therefore the test slant well and pilot program would not conflict with or obstruct implementation of the 2012 AQMP. No impacts would occur.

Construction Impacts

Impact 7.9-1: Generate emissions of criteria air pollutants and contribute to a violation of an ambient air quality standard during construction. ***(Less than Significant)***

Criteria pollutant emissions associated with construction of the Potrero Road test slant well would be generated from off-road and on-road equipment and vehicle exhaust sources. It is anticipated that sources of fugitive dust would be minimal given that Potrero Road is paved. The maximum daily emissions that would be associated with the test slant well would be similar to the emissions estimated for the proposed project's subsurface slant wells and associated infrastructure (see second emissions row in Table 4.10-5). The maximum daily construction emissions of PM_{10} would be approximately 3 pounds per day, which would not exceed the MBUAPCD's significance threshold of 82 pounds per day. The associated impact would be less than significant.

ROG and NO_x daily emissions from the construction of the test slant well would be less than the MBUAPCD significance thresholds recommended for non-typical construction equipment (i.e., drill rig); therefore, it can be concluded that short-term emissions associated with construction of the test slant well would not contribute to an exceedance of a state or federal standard for ozone. The impact would be less than significant.

Impact 7.9-2: Expose sensitive receptors to substantial pollutant concentrations or create objectionable odors affecting a substantial number of people during construction. ***(Less than Significant)***

Construction of the test slant well would result in the short-term generation of diesel particulate matter (DPM) emissions from the use of the drill rig, other heavy off-road equipment, and heavy-duty trucks. These emissions could result in the short-term exposure of local sensitive receptors to toxic air contaminants (i.e., DPM) and objectionable odors. Construction activities that would be associated with the test slant well could result in temporary odors from use of diesel-fueled equipment. However, these odors would be temporary and would dissipate quickly, and would be unlikely to create objectionable odors that would affect a substantial number of people. Therefore, the short-term construction activities that would be associated with the construction of the test slant well would not expose sensitive receptors to substantial pollutant concentrations or create objectionable odors that would affect a substantial number of people. The associated impact would be less than significant.

Operational (Pilot Program) Impacts

Impact 7.9-3: Long-term increase of criteria pollutant emissions that could affect regional air quality during project operations. *(Less than Significant)*

Operational emissions that would be associated with the test slant well and pilot program would be negligible and would not exceed any of the 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.

Impact 7.9-4: Expose sensitive receptors to substantial pollutant concentrations or create objectionable odors affecting a substantial number of people during operations. *(Less than Significant)*

Once constructed, the test slant well would produce no air pollutants or odors from the site. Workers would occasionally drive to the site to maintain the alternate slant well. However, this would occur no more than once a week. Therefore, operational emissions would be negligible and the potential impact would be less than significant.

7.13.7.10 Noise and Vibration

This section addresses potential noise and vibration impacts associated with construction and operation of the test slant well and pilot program. A detailed discussion of the applicable environmental setting, regulatory context, significance criteria for evaluating environmental impacts and approach to analysis are provided in Section 4.12, Noise and Vibration.

Based on the nature of the test slant well and pilot program, no impacts related to the following significance criteria would result for the reasons described below:

> ***Expose people or structures to, or generate, excessive groundborne noise levels during construction.*** Groundborne noise occurs when vibrations transmitted through the ground result in secondary radiation of noise. Groundborne noise is generally associated with the movement of trains through tunnels and activities such as blasting, neither of which is proposed as part of the project. As a result, construction-related groundborne noise levels are not considered in the impact analysis below. However, groundborne noise vibration impacts could occur during construction (see Impact 7.11-3, below).
>
> ***Expose people or structures to, or generate, excessive groundborne vibration or groundborne noise levels during project operations***. The pilot program would not generate groundborne noise, nor would it generate groundborne vibration levels in excess of applicable thresholds. Thus, impacts related to groundborne vibration and groundborne noise levels does not apply to operation pilot program. However, groundborne vibration impacts could occur during construction (see Impact 7.11-3, below).
>
> ***Cause a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project during project operations.*** The pump for the test slant well would be located in the screen section of the well below the ocean floor. The operation of the pump would not be perceptible in the vicinity of the test slant well. In

addition, the pump would operate for up to 24 months and then be shut down. Therefore, operation of the test slant well would result in no impact related to permanent increases in ambient noise levels.

Be located within an airport land use plan area, within 2 miles of a public airport or public use airport, or in the vicinity of a private airstrip and expose people to excessive noise levels. The closest public airport is the Monterey Peninsula Airport, which is approximately 7.5 miles southeast of the test slant well site. The test slant well and pilot program would not be sited in the vicinity of a private airstrip. Therefore, no impact would occur.

Consistency with the construction time limits established by the local jurisdictions. The test slant well would require nighttime construction but is not located within a jurisdiction with established construction time limits. For this reason, no impact would occur.

The following evaluation focuses on noise and vibration impacts on humans and structures; noise and vibration effects on marine and terrestrial wildlife are addressed in Sections 7.13.7.4, Marine Resources, and 7.13.7.5, Biological Resources, respectively.

Construction Impacts

Impact 7.11-1: Cause a substantial temporary or periodic increase in ambient noise levels in the project vicinity during construction. (*Less than Significant*)

The closest sensitive receptors to the test slant well are residences located approximately 1,000 feet east of the test slant well. Slant well construction is expected to involve the use of a drilling rig, mobile crane, pipe trailers, baker tanks, haul trucks, a flatbed truck, pumps, and air compressors. Construction workers would use a dual-wall, reverse-circulation, “Barber”-type drilling rig to drill the slant well.

As discussed in Section 4.12, Noise and Vibration, the incremental noise increases from well drilling and development activities would be attenuated because of the significant distance to sensitive receptors and would not be perceptible at these receptors during daytime hours. Although the test slant well is closer to sensitive land uses than at the CEMEX site, the attenuated construction equipment noise level at the nearest residential receptors would be 58 dBA. Leq without shielding and 47 dBA, Leq with shielding. Because construction-related noise increases at sensitive receptors would not exceed the speech interference threshold of 70 dBA, daytime noise impacts related to test slant well construction would be less than significant. At night, drilling noise could be perceptible during breaks in traffic along Highway 1 and in wave action. However, because of the significant distance to sensitive receptors, noise increases generated by nighttime well drilling and development activities would not exceed the sleep interference threshold of 60 dBA. Therefore, impacts related to nighttime noise level increases from slant well construction would be less than significant.

Impact 7.11-2: 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. (*Less than Significant*)

The test slant well would be located in the parking lot at the end of Potrero Road. The test slant well would be constructed 24-hours per day throughout the 3 to 4 month construction duration. The closest sensitive receptors to the test slant well are residences approximately 1,000 feet to the east in the jurisdiction of Monterey County and subject to the *Monterey County General Plan*. Policy S-7.9 of the Monterey County General Plan restricts construction activities within 500 feet of a sensitive land use. Policy S-7.10 requires that construction equipment be muffled.

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 certain hours. Because the test well site is greater than 500 feet from the nearest receptors, construction activities would be consistent with this policy.

Monterey County Code Section 10.60.030 limits the operation of machinery or equipment that produces a noise level exceeding 85 dBA at 50 feet from the source, but does not apply to any such noise source that is operated farther than 2,500 feet from an occupied dwelling. None of the equipment proposed would operate at levels exceeding 85 dBA. Therefore, the impact of construction noise from the test slant well related to generation of noise in excess of regulatory noise standards would be less than significant.

Impact 7.11-3: Exposure of people to or generation of excessive groundborne vibration during construction. (*Less than Significant*)

The only substantive sources of vibration during construction would be drill rigs used for drilling and development of the slant wells. Substantial groundborne vibration can damage nearby structures or buildings. This analysis uses a 0.12-in/sec PPV vibration threshold for damage to historic buildings (Wilson, Ihrig, & Associates et al., 2012) and a 0.3-in/sec PPV threshold for all other structures. Substantial vibration levels can also result in sleep interference or annoyance impacts at residences or other land uses where people sleep, such as hotels and hospitals. For adverse human reaction, this analysis uses the Caltrans (2004) vibration annoyance threshold of 0.1 in/sec PPV, which corresponds with vibration levels that are "strongly perceptible".

Structural Damage. Drill rigs can result in vibration measuring 0.089 in/sec PPV at a distance of 25 feet (FTA, 2006). The nearest structure to the test slant well is the residence located approximately 1,000 feet east of the slant well drilling area. However, at 1,000 feet, vibration levels from slant well drilling and development activities would be attenuated to less than 0.0004 in/sec PPV, which is below the threshold for structures, resulting in a less-than-significant impact related to damage to this building.

Human Annoyance. The nearest sensitive receptor to the slant well area are residences located approximately 1,000 feet east of the test slant well drilling area. At 1,000 feet, vibration levels

from slant well drilling and development activities would be attenuated to background levels and would be below the "strongly perceptible" threshold of 0.1 in/sec PPV, resulting in a less-than-significant impact related to human annoyance.

Operational (Pilot Program) Impacts

Impact 7.11-4: 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. ***(Less than Significant)***

The pump for the test slant well would be located in the screen section of the well below the dunes and ocean floor. The operation of the pump would not be perceptible in the vicinity of the test slant well. In addition, the pump would operate for up to 24 months and then be shut down. The closest sensitive receptors to the test slant well are residences approximately 1,000 feet to the east in the jurisdiction of Monterey County and subject to the *Monterey County General Plan*.

Monterey County Code Section 10.60.030 limits the operation of machinery or equipment that produces a noise level exceeding 85 dBA at 50 feet from the source, but does not apply to any such noise source that is operated farther than 2,500 feet from an occupied dwelling. None of the equipment proposed would operate at levels exceeding 85 dBA. Therefore, the impact of noise from the pilot program related to generation of noise in excess of regulatory noise standards would be less than significant.

7.13.7.11 Public Services and Utilities

This section addresses potential public services and utilities impacts associated with construction and operation of the test slant well and pilot program. A detailed discussion of the applicable environmental setting, regulatory context, significance criteria for evaluating environmental impacts and approach to analysis are provided in Section 4.13, Public Services and Utilities.

Based on the nature of the test slant well and pilot program, no impacts related to the following significance criteria would result for the reasons described below:

> ***Result in the need for new or physically altered governmental facilities.*** Approximately 15 construction workers would be employed for up to 4 months during construction. While it is possible that some workers might temporarily relocate from other areas, the test slant well would not substantially increase the local population. During construction, incidents requiring law enforcement, fire protection, or emergency services could occur; however, any temporary increase in incidents would not exceed the capacity of local service providers to a degree that required new or expanded facilities. Any temporary increase in the local population during construction would be negligible and could be accommodated by existing service providers. Therefore, construction of the test slant well would not result in impacts related to the need for new or physically altered governmental facilities in order to maintain existing levels of public services, and no impacts related to public services would occur.

Operation of the pilot program would not permanently increase the local population. Operation activities would require a limited amount of employees for 24 months and would not substantially increase the demand for public services, including fire and police protection, libraries, schools, hospitals, or other services. Therefore, no impacts related to public services would occur during the pilot program. The potential impact related to impaired emergency access during construction is addressed under Impact 7.9-4 in Section 7.13.7.8, Traffic and Transportation.

Require or result in the construction of new water treatment facilities or the expansion of existing facilities, the construction of which could cause significant environmental effects. The purpose of the test slant well and pilot program is to inform the final design of the Seawater Intake System which would provide a new potable water supply source to serve the CalAm Monterey District service area. The construction of test slant well and pilot program, is the subject of this section. This section (Section 7.13, Test Slant Well and Pilot Program) discusses the potential impacts and identified mitigation measures associated with these facilities.

Require or result in the construction of new stormwater drainage facilities or the expansion of existing facilities, the construction of which could cause significant environmental effects. The potential for the test slant well and pilot program to change drainage patterns and increase stormwater runoff is addressed in Section 7.13.7.2, Surface Water Hydrology and Water Quality (see Impacts 4.3-6 and 4.3-7). That analysis indicates that, due to the negligible increase in impervious surfaces associated with the aboveground facilities, the test slant well and pilot program would have no impact associated with potential changes in drainage patterns and the rate and amount of surface runoff. As a result, the test slant well and pilot program would not require or result in the need for new or expanded stormwater drainage facilities. No impact would result.

Have insufficient water supply available to serve the project or require new or expanded water supply resources or entitlements. The test slant well and pilot program implementation would generate up 15 short term jobs in the Monterey District service area. The test slant well and pilot program would not construct new housing, nor would it substantially increase the number of permanent workers in the area. No substantial changes in water demand or water distribution would result. Therefore, no impact would occur.

Construction Impacts

Impact 7.12-1: Disrupt or relocate regional or local utilities during construction. ***(Less than Significant with Mitigation)***

Construction of the test slant well could damage or interfere with existing water, sewer, stormwater drainage, natural gas, electric, or communication lines. While not anticipated, construction could require the permanent relocation of these utility lines, potentially interrupting service if the lines could not be avoided.

Accidental rupture of or damage to utility lines during project construction could temporarily disrupt utility services, such as high-pressure gas pipelines, could result in significant safety hazards for construction workers. For these reasons, impacts on existing utilities and utility services during construction would be potentially significant. However, the 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 and mark the confirmed locations accurately on the final construction drawings; 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, including tailgate meetings with contractor staff on days when work will occur near high risk (high priority) utilities; 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.

Impact 7.12-2: Exceed landfill capacity or be out of compliance with federal, state, and local statutes and regulations related to solid waste during construction. ***(Less than Significant with Mitigation)***

The soil cuttings generated from the drilling of the test slant well borehole would be sent to an offsite landfill. The volume of soil is estimated to be less than 200 cubic yards (RBF Consulting, 2014). The soil from the excavation of the trench for the water diffuser pipeline would be used as backfill for the trench, resulting in a minor volume of soil for offsite disposal. Minor amounts of construction debris associated with the well construction materials or household type solid waste (e.g., cement bags, metal straps on the well pipes, food wrappers) would be generated for offsite disposal. The volume of solid waste generated by construction would not exceed or substantially deplete the landfill capacity. However, failing to divert a substantial portion of the waste generated during project construction could conflict with county and local diversion goals and policies, and could adversely affect the jurisdictions' waste diversion rates; this would be a significant impact. This 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 a plan identifying the types of debris that would be generated by the project and the manner in which these waste streams would be handled to divert recoverable materials from landfills.

Operational (Pilot Program) Impacts

Impact 7.12-3: Exceed landfill capacity or be out of compliance with federal, state, and local statutes and regulations related to solid waste during operations. ***(Less than Significant)***

The operation of the test slant well and pilot program would have limited potential to generate waste during facility operations and maintenance, and any waste generated would be nominal. Impacts associated with disposal of solid waste produced during the aquifer test would be less than significant.

Impact 7.12-4: Require or result in the construction of new wastewater treatment or conveyance facilities or the expansion of existing facilities; exceed wastewater treatment requirements of the Central Coast RWQCB; or result in the determination by the wastewater treatment provider that it has inadequate treatment or outfall capacity to serve the project. ***(Less than Significant)***

The water generated during the aquifer pump test would be routed directly to the onsite subsurface water diffuser pipeline and would not use or impact any existing treatment or conveyance system. The saline water quality of the extracted water would be similar to that of underlying Dune Sand Aquifer and would therefore not change the existing water quality at the point of discharge. Therefore, the impact of the water disposal associated with the aquifer test would be less than significant.

7.13.7.12 Aesthetic Resources

This section addresses potential aesthetic resources impacts associated with construction and operation of the test slant well and pilot program. A detailed discussion of the applicable environmental setting, regulatory context, significance criteria for evaluating environmental impacts and approach to analysis are provided in Section 4.14, Aesthetic Resources.

Construction Impacts

Impact 7.13-1: Construction-related impacts on scenic resources (vistas, roadways, and designated scenic areas) or the visual character of the project area and its surroundings. ***(Less than Significant*****)**

The site of the test slant well is within a visually disturbed unpaved parking lot. The site is devoid of vegetation, has modified topography, and vehicles from recreational beach users move in and out of the parking lot. The parking lot is shielded from the beach by an approximately 250-foot wide swath of sand dunes that rise approximately 15 feet above the parking lot (RBF Consulting, 2014). The construction work area would not be visible from beach vantage points both up- and down-coast. The construction activities could be intermittently visible from Highway 1 (an eligible state scenic highway), approximately .5 mile east. However, due to their distance from the highway, construction activities would not substantially disrupt coastal views. Upon completion of test slant well installation, the well would be buried beneath the ground surface and would not be visible.

Construction activities associated with slant well installation would be temporary and of minimal disruption. Visual impacts associated with this work would not be conspicuous, as they would be screened from most vantage points and would be noticeable by only a small number of passersby. As such, construction would not have a substantial adverse effect on aesthetic resources or scenic vistas and the impact would be less then significant. Although not required to reduce the above-described aesthetic resources impacts to a less-than-significant level, implementation of **Improvement Measure 4.14-1 (Maintain Clean and Orderly Construction Sites)** is recommended to address some of these short-term effects. The improvement measure would require basic daily site maintenance (such as storing construction materials and equipment away from

public view and removing construction debris promptly at regular intervals) and construction area screening where appropriate.

Impact 7.13-2: Temporary sources of substantial light or glare during construction. *(Less than Significant with Mitigation*)

The test slant wells would be located in the Beaches and Coastal Dunes landscape unit, which is generally dark, with sources of nighttime lighting originating primarily from the residences located about 1,000 feet east of the test slant well and from vehicle headlights along Highway 1. Construction activities associated with the test slant well would require construction 24 hours a day and 7 days a week, for about 3 to 4 months. Nighttime construction activities would involve the use of high output lamps, such as halogen, mercury vapor, or high-pressure sodium lamps, which would introduce a new substantial source of light into the area. The drilling site would be approximately 1,000 feet seaward of the nearest residences and 2,400 feet seaward of Highway 1. Despite the distance and intervening vegetation and dune topography, increased lighting could adversely affect nighttime views of this mostly-undeveloped stretch of coastline from the viewpoint of Highway 1 motorists and coastal residents. The impact would be significant. **Mitigation Measure 4.14-2 (Site-Specific Construction Lighting Measures)** requires CalAm to implement site-specific nighttime construction lighting measures, including the use of light shields, directing lights downward, and using the minimum wattage necessary. With implementation of these measures, the temporary light and glare impacts associated with nighttime construction of test slant wells would be reduced to less-than-significant levels.

Operational Impacts

Impact 7.13-3: Permanent impacts on scenic resources (vistas, roadways, and designated scenic areas) or the visual character of the project area and its surroundings. (*Less than Significant*)

The wellhead of the test slant well would be encased in a concrete vault, buried below grade and not visible. Since the vault would not be visible from the surface, no permanent impact on scenic resources or visual character would result.

Above-ground facilities include the electrical control panel and a power pole. The electrical controls would be housed in an aboveground electrical control panel located adjacent to the buried wellhead vault located on the northwest corner of the parking lot. The aboveground electrical control panel would be 4 feet long, 2 feet wide, and 6 feet tall. The electrical control panel would not be visible from offsite locations. The new power pole would be constructed on northwest corner of the parking lot. While the power pole would be visible from the parking lot or Potrero Road; it would not be out of the character with the surroundings as the power pole would connect into the existing power line. Therefore, the impact on scenic resources and visual character would be less than significant.

Impact 7.13-4: Permanent new sources of light or glare. (*Less than Significant*)

Lighting proposed at the site would be only that which is necessary for safety and security; it would be similar to existing light sources in the vicinity and would not be out of character with lighting at the adjacent area. As a result, increased nighttime lighting at the test slant well would have a less-than-significant impact with respect to adverse effects on nighttime views.

7.13.7.13 Cultural and Paleontological Resources

This section addresses potential cultural and paleontological resources impacts associated with construction and operation of the test slant well and pilot program. A detailed discussion of the applicable environmental setting, regulatory context, significance criteria for evaluating environmental impacts and approach to analysis are provided in Section 4.15, Cultural and Paleontological Resources.

Based on the nature of the test slant well and pilot program, no impacts related to the following significance criteria would result for the reasons described below:

> ***Cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5.*** No historical resources listed in or eligible for listing in the CRHR or NRHP are located within the direct or indirect APE for the test slant well. Therefore, there would be no impact.

Construction Impacts

Impact 7.14-1: Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5 of the CEQA Guidelines during construction. (*Less than Significant with Mitigation*)

No archaeological resources eligible for listing in the CRHR or the NRHP are located within the direct APE for the test slant well. Therefore, no impact to known archaeological resources would result from construction of the test slant well. There is however the potential to uncover as yet undiscovered resources during construction. To mitigate potential impacts to previously undiscovered buried archaeological resources, this EIR recommends **Mitigation Measure 4.15-2b (Inadvertent Discovery of Cultural Resources)**. This measure would ensure that work would halt in the vicinity of an archaeological find and that the resources were treated appropriately.

Impact 7.14-2: Directly or indirectly destroy a unique paleontological resource or site, or unique geological feature during construction. *(Less than Significant)*

No known paleontological resources are located within the direct or indirect APE for the test slant well. Therefore, the potential impact to paleontological resources would be considered less than significant and no mitigation is necessary.

Impact 7.14-3: Disturbance of any human remains, including those interred outside of formal cemeteries, during construction. (*Less than Significant with Mitigation*)

While no known human remains have been documented within the 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. However, the impact would be reduced to a less-than-significant level with implementation of **Mitigation Measure 4.15-4 (Inadvertent Discovery of Human Remains)**. Mitigation Measure 4.15-4 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.

7.13.7.14 Agriculture and Forestry Resources

This section addresses potential agriculture and forestry resources impacts associated with construction and operation of the test slant well and pilot program. A detailed discussion of the applicable environmental setting, regulatory context, significance criteria for evaluating environmental impacts and approach to analysis are provided in Section 4.16, Agriculture and Forestry Resources.

Based on the nature of the test slant well and pilot program, no impacts related to the following significance criteria would result for the reasons described below:

> ***Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use.*** The test slant well is not located in areas mapped as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. Therefore, the test slant wells would not result in the permanent displacement or conversion of important farmland to non-agricultural uses. No impact would result.
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> ***Conflict with existing zoning for agricultural use or with a Williamson Act contract.*** The test slant well is not located within or immediately adjacent to areas zoned for agricultural use or on lands under Williamson Act contract. Therefore, no impact related to conflicts with agricultural zoning or Williamson Act contracts would result.
>
> ***Conflict with existing zoning for forest land or timberland or result in the loss of forest land or the conversion of forest land to non-forest uses.*** There is no forest land or timberland in the area; thus, construction and operation of the test slant well and pilot program would not conflict with zoning regulations for forest land or timberland, result in the loss of forest land, or result in the conversion of forest land to non-forest uses.
>
> ***Involve other changes in the existing environment that, due to their location or nature, could result in the conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use or the conversion of forest land to non-forest uses.*** The test slant well would not be located on or in the immediate vicinity of land used for agriculture. Therefore, construction of these facilities would not affect soil conditions in farmland areas or result in inadvertent damage to agricultural irrigation systems. No impact would result.

7.13.7.15 Mineral Resources

This section addresses potential mineral resources impacts associated with construction and operation of the test slant well and pilot program. A detailed discussion of the applicable environmental setting, regulatory context, significance criteria for evaluating environmental impacts and approach to analysis are provided in Section 4.17, Mineral Resources.

Based on the nature of the test slant well and pilot program, no impacts related to the following significance criteria would result for the reasons described below:

> ***Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state; or result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan.*** The test slant well would be located within the Salinas River State Beach. No sand and gravel mining would be allowed. According to the Department of Conservation, Division of Oil, Gas, and Geothermal Resources, there is one borehole one half mile southeast of the test well site. Therefore, implementation of the test slant well and pilot program would not result in the temporary loss of known mineral resources and construction-related impacts would have no impact.

7.13.7.16 Energy Conservation

This section addresses potential energy resources impacts associated with construction and operation of the test slant well and pilot program. A detailed discussion of the applicable environmental setting, regulatory context, significance criteria for evaluating environmental impacts and approach to analysis are provided in Section 4.18 Energy Conservation.

Based on the nature of the test slant well and pilot program, no impacts related to the following significance criteria would result for the reasons described below:

> ***Conflict with energy standards, including standards for energy conservation.*** The building permit application review process would ensure that the test slant well and pilot program is compliant with all applicable state and local energy conservation standards. Therefore, no impact related to compliance with applicable energy and energy conservation standards would result.
>
> ***Require or result in the construction of new electrical generation and/or transmission facilities, or expansion of existing facilities, the construction of which could cause significant environmental effects.*** New underground and aboveground powerlines would be constructed between existing powerlines in the area and the test slant well to connect to the local PG&E power grid. The impacts associated with overhead powerlines are evaluated in Section 7.13.7. This section discusses the potential impacts and identified mitigation measures associated with the test slant well and pilot program.

Construction Impacts

Impact 7.17-1: Use large amounts of fuel and energy in an unnecessary, wasteful, or inefficient manner during project construction. ***(Less than Significant with Mitigation)***

Construction activities could result in wasteful or inefficient use of energy if construction 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 for construction of the test slant well to use large amounts of fuel or energy in a wasteful manner is considered a potentially significant impact. However, with implementation of **Mitigation Measures 4.18-1 (Construction Equipment Efficiency Plan)** and **4.10-1c (Idling Restrictions)**, which would ensure construction activities are conducted in an fuel-efficient manner and minimize idling times for construction equipment and vehicles, respectively, the impact would be reduced to a less-than-significant level.

Operational Impacts

Impact 7.17-2: Use large amounts of fuel and energy in an unnecessary, wasteful, or inefficient manner during project operations. ***(Less than Significant)***

Operation of the aquifer pump test for the pilot program would result in the consumption of electricity for the well pump and the consumption of fuel for field staff commute trips to and from the test slant well. However, the use of energy for operation would be minimal and necessary to determine the effects of pumping at Potrero Road on the groundwater basin, and to determine if this location would be capable of providing a reliable source of feedwater. Therefore, electricity consumed as a result of operations would not be wasteful or inefficient and the impact related to the use of fuel and energy during operations would be less than significant.

Impact 7.17-3: Constrain local or regional energy supplies, require additional capacity, or effect peak and base periods of electrical demand during project operations. ***(Less than Significant)***

The primary energy source of concern associated with operation is electrical power provided by PG&E. The pilot program would operate year around for up to 24 months and PG&E has adequate capacity and infrastructure to support the test slant well and pilot program. Therefore, this impact would be less than significant.

7.13.7.17 Population and Housing

This section addresses potential population and housing impacts associated with construction and operation of the test slant well and pilot program. A detailed discussion of the applicable environmental setting, regulatory context, significance criteria for evaluating environmental impacts and approach to analysis are provided in Section 4.19, Population and Housing.

Based on the nature of the test slant well and pilot program, no impacts related to the following significance criteria would result for the reasons described below:

Displace substantial numbers of housing units, necessitating construction of replacement housing. The test slant well and pilot program would not displace any housing units. The test slant well and pilot program would employ a small number of workers during construction and operation of the pilot program. It is expected that local labor could meet the construction workforce requirements. Therefore, the test slant well and pilot program would not create demand for additional housing.

Displace substantial numbers of people, necessitating construction of replacement housing. The test slant well and pilot program would not displace housing units or people or necessitate the construction of replacement housing elsewhere.

Impact 7.18-1: Induce substantial population growth directly (for example, by proposing new homes and businesses. *(Less than Significant)*

The construction of the test slant well would generate a short-term need for up to 15 workers and their families during construction. It is expected that local labor could meet the construction workforce requirements. During operation of the pilot program, workers would periodically visit the site for checking pump operations and data recovery instrumentation. This incremental increase would not induce population growth in the region. Therefore, the potential impact would be less than significant.

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