4.9 Traffic and Transportation

Sections	Tables
4.9.1 Setting/Affected Environment	4.9-1 Characteristics of Roads that Could be Directly Affected by Project Construction Activities
4.9.2 Regulatory Framework	4.9-2 Applicable Regional and Local Land Use Plans and Policies Relevant to Traffic and Transportation
4.9.3 Evaluation Criteria	4.9-3 Summary of Impacts – Traffic and Transportation
4.9.4 Approach to Analysis	4.9-4 Estimated Maximum Daily Vehicle Trips During Project Construction
4.9.5 Direct and Indirect Effects of the Proposed Project	
4.9.6 Cumulative Effects of the Proposed Project	

This section analyzes the potential impacts on traffic, transportation, and circulation that could result from implementation of the Monterey Peninsula Water Supply Project (MPWSP or proposed project). The analysis is based on estimates of workers and vehicles associated with construction and operation of the various components of the proposed project; California Department of Transportation (Caltrans) data on state highway traffic volumes; Transportation Agency for Monterey County (TAMC) data on local roadway traffic volumes; a field reconnaissance by a professional traffic engineer; and review of available maps of transit routes, bike routes, and recreational paths. The analysis focuses primarily on construction-related impacts because most impacts on traffic and transportation would occur during project construction. However, impacts related to long-term project operations and maintenance activities are also discussed.

4.9.1 Setting/Affected Environment

The study area for the evaluation of project impacts on traffic and transportation is comprised of the regional highways and local roadways in the project vicinity. It includes the cities of Marina, Sand City, Seaside, and Monterey, and unincorporated areas of Monterey County. Construction workers and construction vehicles would use regional highways and local roadways to transport materials and equipment and excavated spoils and fill material to and from the construction work areas. In addition, construction workers would install approximately 21 miles of pipeline within or adjacent to roadways and recreational trails. There are no MBNMS resources that would be affected by impacts identified in this section; all impacts related to traffic and transportation would occur outside of MBNMS boundaries. Therefore, MBNMS resources are not described in the environmental setting/affected environment.

4.9.1.1 Regional Roadways

Regional transportation within Monterey County, and within the project area, is supported by a system of highways, including U.S. Highway 101 (Highway 101) and several state routes (Highways 1, 68, 156, 183, and 218). These roadways provide regional access to the project area, the rest of Monterey County, and beyond. These roadways and their associated traffic volumes are summarized below, using the most recent data published by Caltrans (Caltrans, 2015).

Highway 101 is a multi-lane freeway that connects to San Jose and points north and San Luis Obispo and points south. Regional traffic on Highway 101 connects to the project area via interchanges at Highway 156 in Prunedale and Highway 68 in Salinas. The average daily traffic volume on Highway 101 ranges from about 83,700 vehicles north of the Highway 156 interchange; from 58,900 to 73,900 vehicles between Highway 156 and Highway 68; and about 58,500 vehicles south of Highway 68.

Highway 1 varies from a two-lane surface state highway (with at-grade intersections) to a multi-lane freeway (with ramp interchanges). Highway 1 runs north-south directly through the project area, providing direct access to construction work areas in Marina and Seaside, and connecting with regional highways such as Highway 156 in Castroville, Highway 218 in Seaside and Del Rey Oaks, and Highway 68 in Monterey. The average daily traffic volume on Highway 1 ranges from 42,000 to 47,000 vehicles between Highway 156 and Marina; and from 50,000 to 83,000 vehicles between Marina and the Monterey southern city limits.

Highway 68, also known as the Monterey-Salinas Highway, is a surface highway connecting Monterey with Salinas.[1] It is primarily a two-lane road, but there are four-lane segments as well as segments with a center two-way left-turn median. The intersections on Highway 68 at Highway 218–Monterra Road, Ragsdale Drive, and York Road (where turning movements by project-generated trips would occur) are signalized with separate turn lanes. The average daily traffic volume on Highway 68 ranges from 21,800 to 29,000 vehicles between the interchanges with Highway 1 in Monterey and with Reservation Road in Spreckels.

Highway 156 is a predominantly two-lane highway connecting Highway 101 with Highway 1 near Castroville. At Castroville Road it widens to four lanes and becomes a freeway, with interchanges at Highway 183 (Merritt Street) and Highway 1. The average daily traffic volume on Highway 156 ranges from 29,000 to 31,000 vehicles between Highway 1 and Highway 101.

Highway 183, also referred to as Merritt Street in the town of Castroville and Market Street in the city of Salinas, is a predominantly two-lane surface highway connecting Castroville (Highway 1) with Salinas (Highway 101); there are segments with four lanes or a center two-way left-turn median in Castroville. The average daily traffic volume on Highway 183 ranges from 12,000 to 38,200 vehicles between Highway 1 and Highway 101.

Highway 218, also known as Canyon Del Rey Boulevard, is a surface highway connecting Highway 1 (at a freeway interchange) with Highway 68. It has four lanes (plus turn lanes) through Seaside, narrowing to two lanes east of Fremont Street. The average daily traffic volume on Highway 218 ranges from 12,200 to 23,000 vehicles between Highway 1 and Del Rey Oaks, and from 13,000 to 14,600 vehicles between Del Rey Oaks and Highway 68.

[1] Highway 68 (Holman Highway) also connects Carmel with Pacific Grove, and overlaps with Highway 1 between Carmel and Monterey.

4.9.1.2 Local Roadways

The project area has a network of roads that serve various purposes. *Arterial streets* are designed to carry the traffic of local and collector streets to and from freeways and other major streets, generally providing direct access to nonresidential properties. *Collector streets* are designed to move traffic between arterials to local roadways. *Local roads* generally provide direct access to residential land uses. The roadways that would be most affected by project construction activities (and, to a lesser extent, project operations) are primarily two-lane roads, although some potentially affected roadways have four travel lanes (two in each direction).

Table 4.9-1 presents roadway characteristics (e.g., number of travel lanes, bike lanes, parking availability, public transit service, etc.) for the local roadways that would be directly affected by project construction activities (i.e., installation of pipelines within road rights-of-way).

TABLE 4.9-1
CHARACTERISTICS OF ROADS THAT COULD BE DIRECTLY AFFECTED BY PROJECT CONSTRUCTION ACTIVITIES[a]

Roadway / Segment	No. of Travel Lanes	Average Daily Traffic Volumes[b]	Bike Route?	On-Street Parking?	Public Transit Lines[c]	Figure Reference
Source Water Pipeline						
CEMEX Access Road: ● Under Highway 1 to Railroad R-O-W	2 lanes	--	No	No	N/A	Figure 3-3
Lapis Road: ▪ CEMEX access road to Del Monte Boulevard	2 lanes	–	No	No	N/A	Figure 3-4
Del Monte Boulevard: ▪ Lapis Road to Charles Benson Road	2 lanes	3,800	No	No	MST 27	Figure 3-4
Charles Benson Road: ▪ Del Monte Boulevard to MPWSP Desalination Plant	2 lanes	–	No	No	N/A	Figure 3-4 Figure 3-5
New Desalinated Water Pipeline						
Charles Benson Road: ▪ Del Monte Boulevard to MPWSP Desalination Plant	2 lanes	–	No	No	N/A	Figure 3-4 Figure 3-5
Del Monte Boulevard: ▪ Charles Benson Road to Lapis Road	2 lanes	3,800	No	No	MST 27	Figure 3-4
Lapis Road: ▪ Del Monte Boulevard to Del Monte Boulevard	2 lanes	–	No	No	N/A	Figure 3-4 Figure 3-6
Crossing of Marina Green Drive	2 lanes	--	No	No	N/A	Figure 3-6
Crossing of Beach Road	2 lanes	--	No	No	MST 16, 27	Figure 3-6
Crossing of Reservation Road	3 lanes	–	Yes	No	MST 16	Figure 3-7a
New Transmission Main						
Marina Drive ▪ Reservation Road to Reindollar Avenue	2 lanes	--	No	No	N/A	Figure 3-7a

TABLE 4.9-1 (Continued)
CHARACTERISTICS OF ROADS THAT COULD BE DIRECTLY AFFECTED BY PROJECT CONSTRUCTION ACTIVITIES

Roadway / Segment	No. of Travel Lanes	Average Daily Traffic Volumes[b]	Bike Route?	On-Street Parking?	Public Transit Lines[c]	Figure Reference
New Transmission Main (cont.)						
Crossing of Palm Avenue	3 lanes	--	No	No	MST 27	Figure 3-7a
Lightfighter Drive ▪ 1st Avenue to General Jim Moore Boulevard	4 lanes (divided)	15,570	No	No	MST 12, 19, 75	Figure 3-8
General Jim Moore Blvd: ▪ Lightfighter Drive to s/o Coe Avenue / Eucalyptus Road	4 lanes (divided)	6,970 to 9,610	Yes	No	MST 12, 18, 75	Figure 3-8 Figure 3-9a
Carmel Valley Pump Station						
▪ Rancho San Carlos Road	2 lanes	--	No	No	N/A	Figure 3-10c
Ryan Ranch–Bishop Interconnection Improvements						
Ragsdale Drive: ▪ Highway 68 to Lower Ragsdale Drive	4 lanes	–	No	No	MST 8, 93	Figure 3-10a
Lower Ragsdale Drive: ▪ Ragsdale Drive to Wilson Road	2 lanes	–	Yes	No	N/A	
Wilson Road: ▪ Lower Ragsdale Drive to Citation Court	2 lanes	–	Yes	No	MST 8, 93	
Main System–Hidden Hills Interconnection Improvements						
Terra Grande Drive: ▪ Telerana Way to terminus	2 lanes	–	No	No	N/A	Figure 3-10b
Castroville Pipeline						
Crossing of Del Monte Avenue	2 lanes	–	No	No	N/A	Figure 3-12
Crossing of Neponset Road	2 lanes	--	No	No	N/A	Figure 3-11a
Castroville Pipeline Optional Alignment						
Merritt Street: ▪ Del Monte Avenue to Haro Street	2 lanes	--	No	No	MST 28	Figures 3-11b and 3-13
Haro Street: ● Merritt Street to Rec Trail	2 lanes	--	No	No	N/A	
Nashua Road: ● Rec Trail to UPRR	2 lanes	--	No	No	N/A	

NOTES:
[a] The exact locations of the proposed pipelines relative to the roadways listed in this table (i.e., within the travel lanes, within the right-of-way but not within the travel lanes, or outside the right-of-way) are not known at this time. To inform the reader of potential impacts (as described under Impact 4.9-2), the information in the table is based on the conservative assumption that roadway travel lanes would be affected.
[b] Average daily traffic volumes provided by the Transportation Agency for Monterey County (TAMC, 2015).
– = no data available
[c] Public transit information provided by Monterey-Salinas Transit (MST, 2016).
N/A = not applicable
[d] MST routes along this segment of Fremont Street include Routes 2, 12, 14, 18, 19, 21, 22, 24, 56, 69, 93, 94, and Jazz A/B/C.

SOURCE: ESA, 2016.

4.9.1.3 Railroads

Amtrak provides passenger rail service in Monterey County. The Coast Starlight, which has daily northbound and southbound departures (with Seattle and Los Angeles as the final destinations), serves Salinas. The Union Pacific Railroad (UPRR) provides freight service in Monterey County.

The TAMC owns a 13-mile segment of railroad right-of-way between Castroville (where it connects with the UPRR) and Monterey (where it terminates at Cannery Row). Known as the Monterey Branch Line, the right-of-way passes through the cities of Marina and Seaside as well as the former Fort Ord military base. In Seaside and Monterey, several portions of the TAMC right-of-way have been paved over to accommodate recreational trails.

4.9.1.4 Public Transit

The Monterey-Salinas Transit (MST) line provides bus service within northern Monterey County and southern Santa Cruz County. In Monterey County, bus service is provided between the cities of Monterey and Salinas, Marina and Watsonville, Salinas and Watsonville, and south from Salinas to Gonzales. In addition, the MST also provides bus service within the cities of Marina, Monterey, Pacific Grove, and Seaside. Bus routes within and around the project area include Routes 2, 7, 8, 10, 11, 12, 14, 16, 18, 19, 21, 22, 24, 27, 28, 56, 69, 70, 71, 74, 75, 93, 94, Jazz A, Jazz B, and Jazz C (MST, 2016). **Table 4.9-1**, above, indicates the project area roadways that are shared with public transit routes.

4.9.1.5 Bicycle Routes and Pedestrian Paths

Within Monterey County, bicycle travel for both commuting and recreational purposes is common. A network of bicycle facilities, including Class I (bicycle paths), Class II (bicycle lanes, striped in roads), and Class III (bicycle routes without striping), extend throughout the county (as well as the project area) and are frequently located along the right-of-way of roadways or railroads. For example, the 18-mile-long Class I Monterey Peninsula Recreational Trail (also known as the Monterey Bay Coastal Bike Path) originates at Merritt Street in Castroville and heads south along Del Monte Boulevard to Canyon Del Rey Boulevard in Seaside. From there the trail follows the TAMC right-of-way and terminates in Pacific Grove near Forest Avenue. As part of the proposed project, approximately 9 miles of underground pipeline would be installed within or adjacent to the TAMC right-of-way, with 6 of the 9 miles located alongside the Monterey Peninsula Recreational Trail. There are numerous other designated bike routes, some with designated bike lanes, in and around the project area. **Table 4.9-1** indicates the project area roadways that have bikeways.

The level of pedestrian facilities (e.g., sidewalks versus edge-of-road paths) and volumes of pedestrians vary depending on location.

4.9.2 Regulatory Framework

This section provides an overview of notable federal, state, and local environmental laws, policies, plans, regulations, and/or guidelines (hereafter referred to generally as "regulatory requirements") relevant to traffic and transportation, and analyses of the proposed project's conformity with such regulatory requirements, without mitigation.

4.9.2.1 Federal and State

California Department of Transportation

Caltrans is responsible for planning, designing, constructing, operating, and maintaining all state-owned roadways in Monterey County. In California, Caltrans implements federal interstate highway standards. Caltrans requires that project proponents seeking to conduct construction activities within a state-owned right-of-way obtain a Caltrans encroachment permit.

California Coastal Commission

The California Coastal Act (Public Resources Code Section 30000 et seq.) provides for the long-term management of lands within California's coastal zone boundary. Of primary relevance to traffic and transportation are Coastal Act policies concerning minimizing vehicle miles traveled, protecting public access, and maintaining recreational opportunities within the coastal zone. A preliminary assessment of project consistency with these priorities provided here. Final determinations regarding project consistency are reserved for the Coastal Commission. With respect to vehicle miles traveled, any increase in the number of vehicle trips associated with operation of project components in the coastal zone negligible. Maintenance activities would include periodic inspections and repairs, but would not generate a substantial number of new vehicle trips. With respect to public access and recreation, project construction may have short-term indirect effects on shoreline access (i.e., increased traffic and lane closures) during the construction period. However, pipelines would be buried underground and would not substantially affect long-term public access to or along the coast. For these reasons, the project would be consistent with Coastal Act policies related to traffic and transportation.

4.9.2.2 Local

Transportation Agency for Monterey County

The TAMC is an independent association of local officials that oversees planning and funding of regional transportation improvements throughout Monterey County. The agency prepares the Regional Transportation Plan and oversees the implementation of its recommended improvements.

Association of Monterey Bay Area Governments

The Association of Monterey Bay Area Governments (AMBAG) is the federally-designated Metropolitan Planning Organization (MPO) for the tri-county Monterey Bay region. It is the lead

agency responsible for developing and administering the transportation plans and programs that receive federal funds in Monterey, San Benito, and Santa Cruz Counties. As the MPO, AMBAG acts as a forum for cooperative decision-making in the development of transportation plans, programs, and recommendations. AMBAG also develops and maintains a regional travel-demand forecasting model used to plan regional transportation facilities and assess development proposals.

Local Jurisdictions

The incorporated cities of Monterey, Marina, Sand City, and Seaside have adopted General Plans, policies, and capital improvement programs that regulate development and transportation improvements within their jurisdictions. The cities administer encroachment permits for work performed within the rights-of-way of their respective roadways.

Monterey County Public Works Department

The Monterey County Public Works Department is responsible for maintaining roads, bridges, and related facilities within the unincorporated area of the county. The Public Works Department works with the Monterey County Planning Department to review land development applications for compliance with local and state regulations (i.e., private roads, driveways, and county-maintained roads). The Public Works Department administers encroachment permits for work performed within county rights-of-way (such as underground utility work, and driveways and road approaches); permits street closures; and issues transportation permits for county roads.

4.9.2.3 Applicable Regional and Local Land Use Plans, Policies, and Regulations

Table 4.9-2 identifies the traffic- and transportation-related regional and local land use plans, policies, and regulations relevant to the MPWSP that were adopted for the purpose of avoiding or mitigating an environmental effect, and indicates project consistency with such plans, policies, and regulations. Where the analysis concludes the proposed project would not conflict with the applicable plan, policy, or regulation, the finding is noted and no further discussion is provided. Where the analysis concludes the proposed project would be potentially inconsistent with the applicable plan, policy, or regulation, the reader is referred to the specific impact discussion in Section 4.9.5, Direct and Indirect Effects of the Proposed Project, where the potential inconsistency is addressed in more detail. In that subsection, the significance of the potential conflict is evaluated. Where the effect of the potential conflict would be significant, feasible mitigation is identified to resolve or minimize that conflict.

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TABLE 4.9-2
APPLICABLE REGIONAL AND LOCAL LAND USE PLANS AND POLICIES RELEVANT TO TRAFFIC AND TRANSPORTATION

Project Planning Region	Applicable Plan	Plan Element/ Section	Project Component(s)	Specific Plan, Policy, or Ordinance	Relationship to Avoiding or Mitigating a Significant Environmental Impact	Project Consistency with Plan, Policy, or Ordinance
City of Marina (coastal zone and inland areas)	City of Marina General Plan	Community Infrastructure	Subsurface Slant Wells, Source Water Pipeline, new Desalinated Water Pipeline, and new Transmission Main	***Policy 3.3*:** The intent of the General Plan Transportation and Infrastructure Element is to ensure that the requirements for transportation, water supply, wastewater collection and treatment, storm water drainage, and solid-waste disposal generated by existing and future development are adequately provided for. It is also the intent of this section to ensure, to the maximum extent possible, that the provision of such services does not have a deleterious effect on either natural resources or the quality of life of residents of Marina or other potentially affected areas. The major concerns of this section are outlined below: 6. Protect existing and future residential areas from through-traffic that creates safety, noise, and pollution problem.	This policy is intended to protect residential areas from traffic-induced safety hazards, disruptive noise levels, and air pollutants.	Consistent: The subsurface slant wells would not be staffed. Routine and periodic site visits from CalAm personnel would be minimal (no more than 4 roundtrips or 8 one-way trips per day) and would not generate traffic in residential areas. Pipelines would be periodically inspected and repaired, as needed, but would not generate a substantial number of new vehicle trips.
City of Marina (coastal zone)	City of Marina Local Coastal Program Land Use Plan	Policies	Subsurface Slant Wells, Source Water Pipeline, new Desalinated Water Pipeline, and new Transmission Main	***Policy 1*:** Insure access to and along the beach, consistent with the recreational needs and environmental sensitivity of Marina Coastal area.	This policy is intended to maintain public access to and along the shoreline.	Consistent: Project construction may have short-term indirect effects on shoreline access (i.e., increased traffic and lane closures) during the construction period. None of the project components proposed within the coastal zone would permanently preclude public access to or along the coast. Refer to Table 4.2-6 for additional discussion of the project's conformity with applicable Marina Local Coastal Land Use Plan policies related to beach erosion.
City of Seaside (coastal zone and inland areas)	City of Seaside General Plan	Circulation	New Transmission Main, ASR Conveyance Pipeline, ASR Pump-to-Waste Pipeline, ASR Recirculation Pipeline, Terminal Reservoir	***Policy C-1.7*:** Reduce impacts on residential neighborhoods from truck traffic and related noise.	This policy is intended to protect residential areas from traffic congestion and disruptive noise levels.	Potentially Inconsistent: Construction-related traffic increases could result in substantial adverse effects on traffic conditions along neighborhood (residential) streets in Seaside. This issue is addressed further in Impact 4.9-1, which identifies a mitigation measure whose implementation would minimize or avoid this potential inconsistency. Traffic-related noise is addressed in EIR/EIS Section 4.12, Noise and Vibration. (Refer to **Table 4.12-3** for additional discussion of the project's conformity with applicable Seaside General Plan policies related to noise and vibration.)
County of Monterey (coastal zone and inland areas)	Monterey County General Plan	Circulation	MPWSP Desalination Plant, Source Water Pipeline, Brine Discharge Pipeline, new Desalinated Water Pipeline, Pipeline to CSIP Pond, Castroville Pipeline, Carmel Valley Pump Station, Main System-Hidden Hills Interconnection Improvements, Ryan Ranch-Bishop Interconnection Improvements	***Policy C-3.4*:** Strategies to encourage travel in non-peak hours shall be supported.	This policy is intended to avoid traffic congestion.	Potentially Inconsistent: Project construction would temporarily increase traffic and congestion during peak hours. This issue is addressed in Impact 4.9-1, which identifies a mitigation measure whose implementation would minimize or avoid this potential inconsistency.
County of Monterey (coastal zone and inland areas)	Monterey County General Plan	Circulation	MPWSP Desalination Plant, Source Water Pipeline, Brine Discharge Pipeline, new Desalinated Water Pipeline, Pipeline to CSIP Pond, Castroville Pipeline, Carmel Valley Pump Station, Main System-Hidden Hills Interconnection Improvements, and Ryan Ranch-Bishop Interconnection Improvements	***Policy C-4.3*:** The needs of bicyclists and pedestrians, as well as provisions for utilities and drainage, shall be considered and, where appropriate, provided in all public rights-of-way in a manner that minimizes impacts on adjacent land uses.	This policy is intended to protect bicycle and pedestrian modes of transportation.	Consistent: Project construction may have short-term indirect effects on pedestrian and bicycle use within public rights-of-way (i.e., increased traffic and lane closures) during the construction period. However, all project components proposed within public rights-of-way would ultimately be buried underground and would not substantially impede use of these rights-of-way for long-term pedestrian and bicycle use.
County of Monterey	Castroville Community Plan	Economic Development	Castroville Pipeline	**Policy 12.2:** The road improvements, flood control improvements, and slough enhancements included in the Community Plan shall be implemented to result in a smooth flowing circulation system, an increase in redevelopment potential, and an attractive public amenity along the Tembladero Slough that will attract new quality businesses and visitors.	This policy is intended to ensure that road improvements, flood control improvements, and slough replacements result in a smooth flowing circulation system.	Consistent: The Castroville Pipeline would be buried underground and would not substantially affect the circulation system.

TABLE 4.9-2 (Continued)
APPLICABLE REGIONAL AND LOCAL LAND USE PLANS AND POLICIES RELEVANT TO TRAFFIC AND TRANSPORTATION

Project Planning Region	Applicable Plan	Plan Element/ Section	Project Component(s)	Specific Plan, Policy, or Ordinance	Relationship to Avoiding or Mitigating a Significant Environmental Impact	Project Consistency with Plan, Policy, or Ordinance
Fort Ord Reuse Authority (Seaside and Monterey County)	Fort Ord Reuse Plan	Circulation	New Transmission Main, ASR Conveyance Pipelines, ASR Pump-to-Waste Pipeline, ASR Settling Basin, Terminal Reservoir, and Ryan Ranch–Bishop Interconnection Improvements	***Pedestrian and Bicycles Policy B-1*:** Each jurisdiction shall provide and maintain an attractive, safe and comprehensive bicycle system. ***Program B-1.2*:** Each jurisdiction shall review new development to provide bicycle system facilities consistent with the Reuse Plan and the Bicycle System Plan concurrently with development approval.	This policy is intended to maintain a safe bicycle system.	Consistent: Project construction may have short-term indirect effects on the existing bicycle network within the former Fort Ord area (i.e., increased traffic and land closures) during the construction period. However, all project components potentially affecting the bicycle network would ultimately be buried underground and would not substantially impede long-term use of the bicycle network.
Fort Ord Reuse Authority (Seaside and Monterey County)	Fort Ord Reuse Plan	Circulation	New Transmission Main, ASR Conveyance Pipeline, ASR Pump-to-Waste Pipeline, ASR Recirculation Pipeline, ASR Settling Basin, Terminal Reservoir, and Ryan Ranch–Bishop Interconnection Improvements	***Transportation Demand Management Policy A-1*:** Transportation demand management (TDM) programs shall be encouraged. ***Program A-1.3*:** Require new development to incorporate design features that will strengthen TDM programs.	This policy is intended to provide adequate service levels for the local transportation system.	Consistent: Implementation of the proposed project would result in a negligible long-term increase in traffic volumes.
Fort Ord Reuse Authority (Seaside and Monterey County)	Fort Ord Reuse Plan	Circulation	New Transmission Main, ASR Conveyance Pipeline, ASR Pump-to-Waste Pipeline, ASR Recirculation Pipeline, ASR Settling Basin, Terminal Reservoir, and Ryan Ranch–Bishop Interconnection Improvements	***Land Use and Transportation Objective A*:** A transportation system that supports the planned land use development patterns. ***Program A-1.2*:** Each jurisdiction with lands at former Fort Ord shall require new developments to conduct a traffic analysis to determine impacts on traffic conditions, require measures such as TDM programs and traffic impact fees to mitigate these impacts.	This policy is intended to provide adequate service levels for the local transportation system.	Consistent: Implementation of the proposed project would result in a negligible long-term increase in traffic volumes.

SOURCE: City of Marina, 1982, 2000; City of Seaside, 2004; FORA, 1997; Monterey County, 2007, 2010

4.9.3 Evaluation Criteria

The proposed project would have a significant impact related to traffic and transportation if it would:

- Conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation, including mass transit and non-motorized travel as well as relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit;
- Conflict with an applicable congestion management program, including but not limited to level of service (LOS) standards, travel demand measures, or other standards established by the county congestion management agency for designated roads or highways;

Further discussion of significance criteria follows Table 4.9-2.

- Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that would cause substantial safety risks;
- Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment);
- Result in inadequate emergency access;
- Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities;
- Substantially increase traffic safety hazards;
- Cause substantial damage or wear of public roadways by increased movement of heavy vehicles; or
- Result in parking interference during construction.

Based on the nature of the proposed project, 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*.** The operating conditions of a roadway, as measured by the level of traffic congestion experienced by motorists, are described as the level of service (LOS). There are six service levels ranging from LOS A as the best operating condition (free-flow conditions with limited travel delays) to LOS F as the worst-case condition (congested or overloaded roadways with extremely long delays). LOS A through D generally represent traffic volumes that are less than roadway capacity, while LOS E represents at-capacity conditions. The LOS of a particular roadway segment is based on several factors, including traffic volumes, number of lanes, type of intersection control, speed and travel time, traffic interruptions, and driving comfort and convenience. LOS standards established by jurisdictions and 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 4.9-8, long-term operations of the MPWSP Desalination Plant would generate approximately 33 round-trips (66 one-way trips) per day (60 commute trips and 6 midday trips). The greatest long-term

increase in vehicle trips from MPWSP Desalination Plant operations would occur on Charles Benson Road. Based on existing traffic conditions and the industrial nature of the surrounding land uses on Charles Benson Road, the projected increase is well within the roadway carrying capacity of this two-lane road and would not affect traffic conditions. None of the other proposed facilities (subsurface slant wells, ASR-5 and ASR-6 Wells, Terminal Reservoir, and Carmel Valley Pump Station) would be routinely staffed. However, routine and periodic site visits by CalAm staff to monitor operations and conduct maintenance would be required. The long-term operations and maintenance requirements for these proposed project facilities would be similar to those required for existing CalAm operations in the Monterey District service area. They would be incorporated into existing routine site visits and activities and would not generate a significant number of new vehicle trips. Any additional increase in the number of vehicle trips associated with these facilities would be negligible. Pipelines would be periodically inspected and repaired, as necessary, but otherwise would not generate vehicle traffic. Because implementation of the proposed project 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. Temporary traffic impacts caused by the project were analyzed (see Impacts 4.9-1 and 4.9-2) using a non-LOS-based methodology (see Section 4.9.4 Approach to Analysis). No impact related to conflicts with the applicable congestion management program or LOS standards would occur, and this significance criterion is not discussed further.

- ***Changes in air traffic patterns.*** Construction and operation of the proposed project facilities would not affect air traffic patterns. Neither the construction equipment proposed for use during project construction nor the proposed facilities, once completed, would exceed the height restrictions established by nearby airports (Monterey Peninsula Airport and Marina Municipal Airport). Therefore, this significance criterion is not applicable and is not discussed further.

- ***Permanent increases in traffic safety hazards due to a design feature or incompatible uses.*** The proposed project 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 operation of the proposed project 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 and is not discussed further. Temporary increases in traffic safety hazards during project construction are addressed under Impact 4.9-3, 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 proposed project would not permanently change the existing or planned transportation network in the affected jurisdictions in Monterey County, nor would the proposed project 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 proposed project 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 proposed project would not conflict with policies, plans, or programs related to transit, bicycle, or pedestrian travel. Temporary impacts related to alternative modes of transportation during project

construction are addressed in Impact 4.9-3 (increased traffic safety hazards) and Impact 4.9-5 (temporary disruptions to public transit during construction).

- ***Result in substantial traffic delays or increase safety hazards for commercial vessels, or result in the permanent displacement of commercial vessels.*** Implementation of the MPWSP would not involve construction or operations activities that would require the use of ocean vessels, and would not involve the temporary or permanent placement of any facilities in the Monterey Bay or adjacent harbors. Therefore, implementation of the proposed project would have no effect on commercial vessel traffic or movement. Therefore, this criterion is not applicable to the proposed project and is not discussed further.

4.9.4 Approach to Analysis

Most impacts on traffic and transportation would occur during project construction. As a result, the following analysis is focused primarily on construction-related effects, although impacts related to long-term project operations and maintenance activities are addressed under Impact 4.9-8. As discussed below in Section 4.9.5, Direct and Indirect Effects of the Proposed Project, project operations and maintenance activities would generate a very small increase in traffic (up to 10 workers per shift at the MPWSP Desalination Plant, and a negligible increase for all other proposed facilities compared to existing CalAm operations in the Monterey District service area), thus eliminating the need to perform LOS calculations (because of the reasonable expectation that LOS would not be adversely affected).

Construction of the project components would temporarily affect segments of the roadway network in the project area by increasing traffic volumes on roads that provide access to the construction work areas. There is also a potential for project construction to result in temporary lane closures and detours, particularly along pipeline segments that require construction within vehicle travel lanes or road shoulders. Construction-related traffic and changes in traffic circulation patterns could have an impact on traffic flow and traffic safety conditions on area roads, including roads used for recreation and coastal access (see Section 4.8, Land Use, Land Use Planning and Recreation). Construction characteristics, including crew sizes, techniques, materials and equipment, and the rate of construction, were used to estimate the number of vehicles that would be required for construction of the individual facilities.

This analysis relies on published information regarding roadway characteristics and existing traffic volumes; preliminary construction information provided by the project applicant (CalAm); and estimates of daily vehicle trips for construction activities and for long-term maintenance and operations, augmented by the professional traffic analyst's knowledge of the project area. Existing traffic volumes on project area roadways were gathered from the Caltrans website (for state highways) and the TAMC website (for local roads). Estimates of project-related traffic increases were added to existing traffic volumes, and a qualified expert in traffic analysis evaluated the effect of that percent increase on traffic flow, based upon professional experience and knowledge of the relevant roadways. The following factors were considered in the evaluation of construction-related traffic impacts on area roadways: (1) workers would commute to and from the construction work areas earlier and/or later than project-related construction truck trips (i.e., those trips would not happen at the same time); (2) daily traffic volumes on public roads

typically vary from day-to-day (by about 10 percent, ±5 percent), and any increased traffic within the typical daily fluctuation would not be perceptible to the average motorist; and (3) although construction-related vehicle trips would increase traffic volumes on local, two-lane roadways in the project area, the increase would not substantially affect traffic flow if the traffic volumes remained within the carrying capacity of the roads (roughly 10,000 to 15,000 vehicles per day for two-lane roads, depending on design features).

Construction activities associated with the subsurface slant wells and MPWSP Desalination Plant would occur 24 hours a day, 7 days a week, as would construction activities during 8 weeks of development and completion of the proposed ASR-5 and ASR-6 Wells. To the extent feasible, pipeline installation and construction of all other proposed facilities would be conducted during daytime hours. However, some construction might be performed at night to expedite construction and meet the project schedule. The following describes typical construction methods to be used for proposed project components:

- Construction of non-linear facilities (e.g., the MPWSP Desalination Plant, pump stations, Terminal Reservoir, the proposed ASR injection/extraction wells) would typically involve site preparation, grading and excavation, equipment and materials deliveries, concrete formwork, building construction, installation of support equipment, installation of security fencing, and revegetation. Earthmoving activities would be performed using heavy construction equipment such as bulldozers, backhoes, cranes, and graders. Construction workers would pour concrete footings for tanks, lay pipelines, and make pipeline connections.
- Most pipelines would be installed using conventional open-trench construction techniques. However, trenchless technologies would be used where open-cut trenching is not feasible or desirable (e.g., state highway crossings, stream and drainage crossings, and areas with high utility congestion). It is anticipated that trenchless technologies would be used in at least seven locations (see Section 3.3.5.2 in Chapter 3, Project Description).
- Upon the completion of construction activities, roadways (and all other areas) disturbed during pipeline installation would be restored to their preconstruction condition.

Construction activities would generate daily vehicle trips by construction work crews commuting to and from work each day; trucks hauling equipment and materials to the construction work areas; and trucks hauling excavated spoils and construction debris offsite for disposal. The number of construction-related trips would vary during the 24 months of project construction depending on the construction phase, the facilities being constructed, and the nature of the construction activities taking place. The impact analysis presented below is based on the estimated maximum number of daily and hourly vehicle trips that would be generated during periods of peak construction activity, based on a worst-case scenario that assumes all project components would be constructed simultaneously. Due to the construction durations associated with individual project components, the duration of overlap between components would be limited, and the actual traffic volumes generated during project construction are likely to be lower than described below.

The average pace of work for pipeline installation would be 150 to 250 feet per day. It is estimated that project construction activities would generate an estimated 25,110 cubic yards of

excavated spoils and construction materials that would be hauled to the Monterey Materials Recovery Facility to be recycled or the Monterey Peninsula Landfill for disposal. The average capacity for haul trucks would be 10 cubic yards per truck. Vehicle trips associated with spoils hauling and placement would occur throughout the 24-month construction duration. However, as noted below, not all of the proposed facilities are anticipated to generate excess spoils and construction debris that would be hauled offsite.

Construction equipment and materials associated with the subsurface slant wells, MPWSP Desalination Plant, and ASR injection/extraction wells would be stored within the respective construction work areas or at designated staging areas (see **Table 3-4** in Chapter 3, Project Description). Construction equipment and materials associated with pipeline installation would be stored along the pipeline easements and at nearby designated staging areas. To the extent feasible, parking for construction and worker vehicles would be accommodated within the construction work areas and on adjacent roadways.

The discussion of construction-related impacts relies on the following: estimates of construction worker vehicle trips and construction truck trips associated with each project component, and assumptions related to potential overlap of individual facility construction. As described in Chapter 3, Project Description, Section 3.3.10, all project components would be constructed over the 24-month project construction period, with multiple facilities being constructed concurrently. The final construction schedule and phasing could vary from that presented in this assessment. However, the construction scenarios described in this section (estimated vehicle trips for the construction of each project component and the combined impacts associated with concurrent construction of multiple components) are conservative and have been developed to allow for a reasonable assessment of the nature and magnitude of potential construction impacts.

4.9.5 Direct and Indirect Effects of the Proposed Project

Table 4.9-3 summarizes the proposed project's impacts and significance determinations related to traffic and transportation.

TABLE 4.9-3
SUMMARY OF IMPACTS – TRAFFIC AND TRANSPORTATION

Impacts	Significance Determinations
Impact 4.9-1: Temporary traffic increases on regional and local roadways due to construction-related vehicle trips.	LSM
Impact 4.9-2: Temporary reduction in roadway capacities and increased traffic delays during construction.	LSM
Impact 4.9-3: Increased traffic safety hazards for vehicles, bicyclists, and pedestrians on public roadways during construction.	LSM
Impact 4.9-4: Impaired emergency access during construction.	LSM
Impact 4.9-5: Temporary disruptions to public transportation, bicycle, and pedestrian facilities during construction.	LSM
Impact 4.9-6: Increased wear-and-tear on the designated haul routes used by construction vehicles.	LSM
Impact 4.9-7: Parking interference during construction.	LSM

TABLE 4.9-3 (Continued)
SUMMARY OF IMPACTS – TRAFFIC AND TRANSPORTATION

Impacts	Significance Determinations
Impact 4.9-8: Long-term traffic increases on regional and local roadways during project operations and maintenance.	LS
Impact 4.9-C: Cumulative impacts related to traffic and transportation.	SU

NOTES:
LS = Less than Significant impact, no mitigation proposed
LSM = Less than Significant impact with Mitigation
SUM = Significant and Unavoidable, even with implementation of feasible mitigation

4.9.5.1 Construction Impacts

Impact 4.9-1: Temporary traffic increases on regional and local roadways due to construction-related vehicle trips. (*Less than Significant with Mitigation*)

Construction-related vehicle traffic could result in increased congestion and delays for vehicles, which could cause temporary conflicts with local jurisdictions' measures of effectiveness for the performance of the circulation system. Because multiple project components would be constructed simultaneously, and the construction traffic for many of the components would use the same roads, the total number of construction-related vehicle trips along common construction access routes could be higher than the maximum number of daily vehicle trips associated with a single project component. Thus, the analysis below considers the estimated maximum number of daily construction-related vehicle trips and the construction access routes for each project component, the potential for the timing of construction of the various project components to overlap, and the total combined number of additional vehicle trips along the common access routes resulting from all concurrent construction activities. Project components that would increase traffic along common roads or road segments are grouped by area, and the effects of the combined construction-related traffic increases are compared to existing traffic volumes and road carrying capacities. Note that because total trips would be dispersed over various roads and road segments (based on the origins and/or destinations of those trips), the total trips generated by project components in a given area do not necessarily represent the total increase in vehicle trips on any single common road or road segment.

Construction-related traffic occurring on access roadways in the "peak" direction on weekdays from 7:00 a.m. to 9:00 a.m. and 4:00 p.m. to 6:00 p.m. would coincide with peak-period commuter traffic and therefore would have the greatest potential to impede traffic flow. Traffic volume increases caused by project construction would be most noticeable on local, two-lane roads (and, conversely, would be less noticeable on regional, multi-lane roads like Highway 1 and major arterials like Del Monte Boulevard). Project-generated truck trips would be dispersed throughout the day, thus lessening the effect on peak-hour traffic. Drivers could experience delays if they were traveling behind a construction truck. This analysis conservatively assumes that construction workers would commute to and from the worksites during the morning and afternoon peak traffic hours.

Table 4.9-4 presents the estimated number of daily construction worker trips and truck trips generated by construction activities for each project component. The total trips for each area reflect the maximum increase in traffic during periods of peak construction activities; peak construction periods are limited to the maximum duration of overlap among project components (i.e., the duration of the facility with the shortest construction duration in each area).

TABLE 4.9-4
ESTIMATED MAXIMUM DAILY VEHICLE TRIPS DURING PROJECT CONSTRUCTION

Project Facility	Duration (months)	Maximum Daily Totals		Daily Vehicle Trips			
				Workers[a]		Trucks	
		Workers	Trucks	Round-trip	One-Way	Round-trip	One-Way
North of Reservation Road (maximum duration of peak construction activities = 3 month)							
Subsurface Slant Wells[b]	15	30	20	33	66	20	40
MPWSP Desalination Plant	24	88	55	97	194	55	110
Source Water Pipeline	6	25	12	28	56	12	24
Brine Discharge Pipeline	3	12	6	14	28	6	12
Castroville Pipeline	4	12	6	14	28	6	12
New Desalinated Water Pipeline	8	25	12	28	56	12	24
TOTAL TRIPS[c] =		192	111	214	428	111	222
Marina/Seaside Area (maximum duration of peak construction activities = 5 months)							
New Transmission Main	8	25	12	28	56	12	24
Terminal Reservoir	15	40	25	44	88	25	50
ASR Pipelines (ASR Conveyance, ASR Pump-to-Waste Pipeline, and ASR Recirculation Pipeline)	5	25	12	28	56	12	24
ASR Injection/Extraction Wells	12	25	12	28	56	12	24
TOTAL TRIPS[c] =		115	61	128	256	61	122
Monterey Area (maximum duration of peak construction activities = 3 months)							
Ryan Ranch–Bishop Interconnection Improvements	4	12	6	14	28	6	12
Main System–Hidden Hills Interconnection Improvements	3	12	6	14	28	6	12
TOTAL TRIPS[c] =		24	12	28	56	12	24
Carmel Valley Area							
Carmel Valley Pump Station	6	12	6	14	28	6	12

NOTES:

[a] Worker round-trips are increased by 10 percent to account for miscellaneous midday trips by some of the workers.

[b] Accounts for the nine permanent subsurface slant wells that would be constructed *after* construction of the test slant well and completion of the pilot program.

[c] Because total trips would be dispersed over various roads and road segments (based on the origins and/or destinations of those trips), the total trips generated by project components in a given area do not necessarily represent the total increase in vehicle trips on a single common road or road segment.

SOURCE: ESA, 2016.

Project Components North of Reservation Road

Assumptions about the construction duration, timing, and work hours for the components below are described in Section 3.3.9, Construction Schedule.

Subsurface Slant Wells. Construction access for the subsurface slant wells in the coastal area of northern Marina would use Highway 1, Del Monte Boulevard, Lapis Road, Reservation Road, and the existing CEMEX access road located off Lapis Road. As shown in **Table 4.9-4**, up to 30 workers would be needed to construct the intake facilities located in the coastal area. Construction workers would generate up to 33 round-trips (66 one-way trips) per day (60 commute trips and six midday trips). Materials and equipment deliveries would generate an estimated 20 truck round-trips (40 one-way trips) per day. There would be no truck trips related to the offsite disposal of excess spoils because excavated sand would be spread onsite.

MPWSP Desalination Plant. Construction vehicles would most likely use Highway 1, Del Monte Boulevard, Reservation Road, and Charles Benson Road to access the MPWSP Desalination Plant site. As shown in **Table 4.9-4**, up to 88 workers would be needed to construct the MPWSP Desalination Plant. Construction workers would generate up to 97 round-trips (194 one-way trips) per day (176 commute trips and 18 midday trips). Materials and equipment deliveries would generate an estimated 55 truck round-trips (110 one-way trips) per day. There would be no truck trips related to the offsite disposal of excess spoils because excavated soils not used for backfill would be spread or reused onsite.

Source Water Pipeline. Construction-related traffic would access the work areas for the 2.2-mile Source Water Pipeline using Highway 1, Del Monte Boulevard, Reservation Road, and Charles Benson Road. As shown in **Table 4.9-4**, construction of the Source Water Pipeline is estimated to require up to 25 workers. Construction workers would generate up to 28 round-trips (56 one-way trips) per day (50 commute trips and six midday trips). This project component would generate an estimated 12 truck round-trips (24 one-way trips) per day for materials and equipment deliveries and hauling of excess spoils and construction debris offsite.

Brine Discharge Pipeline. Construction traffic for the 2.3-mile Brine Discharge Pipeline would access the pipeline alignment using Highway 1, Del Monte Boulevard, Reservation Road, and Charles Benson Road. As shown in **Table 4.9-4**, construction of this pipeline would require up to 12 workers. Construction workers would generate up to 14 round-trips (28 one-way trips) per day (24 commute trips and four midday trips). This project component would generate an estimated six truck round-trips (12 one-way trips) per day for materials and equipment deliveries and hauling of excess spoils and construction debris offsite.

Castroville Pipeline. Construction traffic for the 4.5-mile-long Castroville Pipeline would access the pipeline alignment using Highway 1, Highway 156, Highway 183 (Merritt Street/Castroville Road), Monte Road, and Charles Benson Road. As shown in **Table 4.9-4**, construction of this project component would require up to 12 workers. Construction workers would generate up to 14 round-trips (28 one-way trips) per day (24 commute trips and four midday trips). This project component would generate an estimated six truck round-trips (12 one-way trips) per day for materials and equipment deliveries and hauling of excess spoils and construction debris offsite.

New Desalinated Water Pipeline. Construction traffic for the 3.3-mile new Desalinated Water Pipeline would access the pipeline alignment using Highway 1, Del Monte Boulevard, Lapis Road, Reservation Road, Beach Road, and Charles Benson Road. As shown in **Table 4.9-4**, installation of this pipeline would require up to 25 workers. Construction workers would generate up to 28 round-trips (56 one-way trips) per day (50 commute trips and six midday trips). This project component would generate an estimated 12 truck round-trips (24 one-way trips) per day for materials and equipment deliveries and hauling of excess spoils and construction debris offsite.

Combined Construction-Related Traffic Increases in North Marina Area

Based on assumptions developed by a professional traffic engineer regarding the origins and destinations of trips by construction workers and haul trucks, and the dispersal of construction traffic on area roadways, the estimated maximum increases in vehicle trips during peak construction periods on common regional roads and road segments are as follows:

- ***Highway 1 (north of Reservation Road):*** Traffic generated by concurrent construction of project components with trip origins and destinations in the Highway 1 and Highway 101 corridors north of Reservation Road would use this road. The total combined vehicle trips associated with the project components in this area (i.e., about 214 one-way worker vehicle trips per day, and about 112 one-way truck trips per day) represent an increase of up to about 0.8 percent above the current daily traffic volume (42,000 to 47,000 vehicles) on this road (Caltrans, 2015).
- ***Highway 1 (south of Reservation Road):*** Traffic generated by concurrent construction of project components with trip origins and destinations in the Highway 1 corridor south of Reservation Road would use this road. The total combined vehicle trips associated with the project components in this area (i.e., about 108 one-way worker vehicle trips per day, and 56 one-way truck trips per day) represent an increase of up to about 0.3 percent above the current daily traffic volume (50,000 to 83,000 vehicles) on this road (Caltrans, 2015).
- ***Reservation Road:*** Traffic generated by concurrent construction of project components with trip origins and destinations in the Highway 101 corridor southeast of the project area would use this road. The total combined vehicle trips associated with the project components in this area (i.e., about 108 one-way worker vehicle trips per day, and 56 one-way truck trips per day) represent a 0.6 to 2.8 percent increase above the current daily traffic volume on this road, which ranges from about 5,900 to 27,500 vehicles per day (TAMC, 2015).

Truck trips generated by concurrent construction activities would be dispersed throughout the day and over the area road network. The maximum increases in traffic resulting from concurrent construction of project components during peak periods of construction would fall within the daily fluctuations of traffic volumes and would not be noticeable to the average motorist on Highway 1 or on the higher-volume segments of Reservation Road. While the increased traffic would be noticeable by drivers on the lower-volume segments of Reservation Road, the traffic volumes would continue to be within the carrying capacity of this two-lane road (which is about 10,000 to 15,000 vehicles per day). Therefore, the impact would be less than significant for the subsurface slant wells, MPWSP Desalination Plant, Source Water Pipeline, Brine Discharge Pipeline, Castroville Pipeline, and new Desalinated Water Pipeline.

Project Components in Marina/Seaside Area

Assumptions about the construction duration, timing, and work hours for the components below are described in Section 3.3.9, Construction Schedule.

New Transmission Main. Depending on the location of each day's worksite, construction traffic for the 6-mile-long Transmission Main would access the pipeline alignment using different roads (e.g., Highway 1, Del Monte Boulevard, Reservation Road, Lightfighter Drive, 2nd Avenue, General Jim Moore Boulevard, Gigling Road, and 8th Street). As shown in **Table 4.9-4**, installation of this pipeline would require up to 25 workers. Construction workers would generate up to 28 round-trips (56 one-way trips) per day (50 commute trips and six midday trips). It is estimated that about 12 truck round-trips (24 one-way trips) per day (spread over the 9-hour workday) would be generated by materials and equipment deliveries and hauling of excess spoils and construction debris offsite.

Terminal Reservoir. Construction traffic for the Terminal Reservoir would most likely use Highway 1, Lightfighter Drive, Fremont Boulevard, Highway 68, Highway 218, and General Jim Moore Boulevard. As shown in **Table 4.9-4**, construction of this project component would require up to 40 workers. Construction workers would generate up to 44 round-trips (88 one-way trips) per day (80 commute trips and eight midday trips). Materials and equipment deliveries would generate an estimated 25 truck round-trips (50 one-way trips) per day. There would be no truck trips related to the offsite disposal of excess spoils because excavated soils not used for backfill would be spread or reused onsite.

ASR Conveyance Pipeline, ASR Pump-to-Waste Pipeline, ASR Recirculation Pipeline. Depending on the location of each day's construction work area, construction traffic for the three parallel 0.8-mile-long ASR pipelines (ASR Conveyance Pipeline, ASR Pump-to-Waste Pipeline, and ASR Recirculation Pipeline) would access the work areas using Highway 1, Lightfighter Drive, Fremont Boulevard, Highway 68, Highway 218, and General Jim Moore Boulevard. As shown in **Table 4.9-4**, installation of these pipelines would require up to 25 workers. Construction workers would generate up to 28 round-trips (56 one-way trips) per day (50 commute trips and six midday trips). It is estimated that about 12 truck round-trips (24 one-way trips) per day (spread over the 9-hour workday) would be generated by materials and equipment deliveries and hauling of excess spoils and construction debris offsite.

ASR Injection/Extraction Wells (ASR-5 and ASR-6 Wells). Construction traffic for the proposed ASR injection/extraction wells would use Highway 1, Lightfighter Drive, Fremont Boulevard, Highway 68, Highway 218, and General Jim Moore Boulevard. As shown in **Table 4.9-4**, construction of the ASR injection/extraction wells would require up to 25 workers. Construction workers would generate up to 28 round-trips (56 one-way trips) per day (50 commute trips and six midday trips). Materials and equipment deliveries would generate an estimated 12 truck round-trips (24 one-way trips) per day. There would be no truck trips related to the offsite disposal of excess spoils because excavated soils not used for backfill would be spread or reused onsite.

Combined Construction-Related Traffic Increases in Marina/Seaside Area

Based on assumptions developed by a professional traffic engineer regarding the origins and destinations of trips by construction workers and haul trucks, and the dispersal of construction traffic on area roadways, the estimated maximum increases in vehicle trips during peak construction periods on common regional roads and road segments are as follows:

- ***Highway 1 (north of Fremont Boulevard / Del Monte Boulevard):*** Traffic generated by concurrent construction of project components in the Seaside area with trip origins and destinations in the Highway 1 and Highway 101 corridors north of Fremont Boulevard / Del Monte Boulevard would use this road segment. The vehicle trips associated with the project components in this area (i.e., about 128 one-way worker vehicle trips per day, and 62 one-way truck trips per day) represent an increase of up to about 0.3 percent above the current daily traffic volume (58,000 to 83,000 vehicles) on this road segment (Caltrans, 2015).
- ***Highway 1 (south of Fremont Boulevard / Del Monte Boulevard)*:** Traffic generated by concurrent construction of project components in the Seaside area with trip origins and destinations in the Highway 1 corridor south of Fremont Boulevard / Del Monte Boulevard would use this road segment. The vehicle trips associated with the project components in this area (i.e., about 64 one-way worker vehicle trips per day, and 30 one-way truck trips per day) represent an increase of up to about 0.2 percent above the current daily traffic volume (50,000 to 77,000 vehicles) on this road segment (Caltrans, 2015).
- ***Other Common Roadways, including Highways 68 and 218*:** The combined vehicle trips on other common roadways associated with the project components in the Seaside area (i.e., up to about 64 one-way worker vehicle trips per day, and 30 one-way truck trips per day) represent an increase of up to about 0.4 percent above the current daily traffic volume (21,800 to 29,000 vehicles) on Highway 68 (Caltrans, 2015), up to about 0.8 percent above the current daily traffic volumes (12,200 to 23,000 vehicles) on Highway 218 (Caltrans, 2015), and from 0.6 to 1.6 percent above the current daily volumes on non-state roadways, which range from about 5,900 to 15,570 vehicles per day (TAMC, 2015).

Truck trips generated by concurrent construction activities would be dispersed throughout the day and over the area road network. Although the combined traffic increases resulting from concurrent construction activities would fall within the daily fluctuations of traffic volumes for the highway and arterial roadways in the area and would not be noticeable to the average motorist, these traffic increases along lower-volume local and neighborhood (residential) streets in the Marina/Seaside area are considered to potentially result in substantial adverse effects. Therefore, the effect of construction-related traffic on traffic congestion is considered a potentially significant impact for the new Transmission Main, Terminal Reservoir, ASR Conveyance Pipeline, ASR Pump-to-Waste Pipeline, ASR Recirculation Pipeline, and ASR-5 and ASR-6 Wells. However, with implementation of **Mitigation Measure 4.9-1 (Traffic Control and Safety Assurance Plan)**, the impact would be reduced to a less-than-significant level. The mitigation measure includes provisions for reducing construction-related traffic and traffic congestion impacts on local streets.

Project Components in Monterey Area

Assumptions about the construction duration, timing, and work hours for the components below are described in Section 3.3.9, Construction Schedule.

Ryan Ranch–Bishop Interconnection Improvements. Construction traffic for the Ryan Ranch–Bishop Interconnection Improvements would most likely use Highway 68, Ragsdale Drive, Lower Ragsdale Drive, and York Road to access the construction work area. As shown in **Table 4.9-4**, construction of this project component would require up to 12 workers. Construction workers would generate up to 14 round-trips (28 one-way trips) per day (24 commute trips and four midday trips). This project component would generate an estimated six truck round-trips (12 one-way trips) per day for materials and equipment deliveries and hauling of excess spoils and construction debris offsite.

Main System–Hidden Hills Interconnection Improvements. Construction traffic for the Main System–Hidden Hills Interconnection Improvements would use Highway 1, Carmel Valley Road, and Tierra Grande Drive to access the construction work areas. As shown in **Table 4.9-4**, construction of this project component would require up to 12 workers. Construction workers would generate up to 14 round-trips (28 one-way trips) per day (24 commute trips and four midday trips). This project component would generate an estimated six truck round-trips (12 one-way trips) per day for materials and equipment deliveries and hauling of excess spoils and construction debris offsite.

Combined Construction-Related Traffic Increases in Monterey Area

Based on assumptions developed by a professional traffic engineer regarding the origins and destinations of trips by construction workers and haul trucks, and the dispersal of construction traffic on area roadways, the estimated maximum increases in vehicle trips during peak construction periods on common regional roads and road segments are as follows:

- ***Highway 1 (north of Highway 68)*:** Traffic generated by concurrent construction of project components with trip origins and destinations north of the project area would use this road. The vehicle trips associated with the project components in this area (i.e., about 28 one-way worker vehicle trips and 12 one-way truck trips per day) represent an increase of up to about 0.1 percent above the current daily traffic volume (58,000 to 83,000 vehicles) along this segment of Highway 1 (Caltrans, 2015).
- ***Highway 1 (south of Highway 68)*:** Traffic generated by concurrent construction of project components with trip origins and destinations south of the project area would use this road. The vehicle trips associated with the project components in this area (i.e., about 14 one-way worker vehicle trips per day, and 6 one-way truck trips per day) represent less than a 0.1 percent increase above the current daily traffic volume (50,000 to 77,000 vehicles) along this segment of Highway 1 (Caltrans, 2015).
- ***Highways 68 and 218*:** Traffic generated by concurrent construction of project components with trip origins and destinations east of the project area would use these roads. The vehicle trips associated with the project components in this area (i.e., up to about 14 one-way worker vehicle trips per day, and 6 one-way truck trips per day) represent an increase of up to about 0.1 percent above the current daily traffic volume (21,800 to 29,000 vehicles) on Highway 68, and up to about 0.2 percent above the current daily traffic volumes (12,200 to 23,000 vehicles) on Highway 218 (Caltrans, 2015).

As described above, truck trips generated by concurrent construction would be dispersed throughout the day and over the area road network. The combined traffic increases resulting from

concurrent construction activities 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 (i.e., about 10,000 to 15,000 vehicles per day). The effect of construction-related traffic on traffic congestion would be a potentially significant impact for the Ryan Ranch-Bishop Interconnection Improvements and Main System-Hidden Hills Interconnection Improvements. However, with implementation of **Mitigation Measure 4.9-1 (Traffic Control and Safety Assurance Plan)**, the impact would be reduced to a less-than-significant level.

Traffic Increases in Carmel Valley Area

Carmel Valley Pump Station. Construction traffic for the Carmel Valley Pump Station would use Highway 1 and Carmel Valley Road to access the construction work area. There are no other facilities proposed in the Carmel Valley area that could contribute additional vehicle trips during project construction. As shown in **Table 4.9-4**, construction of this project component would require up to 12 workers. Construction workers would generate up to 14 round-trips (28 one-way trips) per day (24 commute trips and four midday trips). This project component would generate an estimated six truck round-trips (12 one-way trips) per day for materials and equipment deliveries and hauling of excess spoils and construction debris offsite. The increases in traffic resulting from construction of the Carmel Valley Pump Station would fall within the daily fluctuations of traffic volumes for Carmel Valley Road and this segment of Highway 1, and would not be noticeable to the average motorist. Therefore, this impact would be less than significant for the Carmel Valley Pump Station.

Impact Conclusion

Project-related construction activities would result in a temporary increase in traffic from construction workers and trucks traveling to and from the construction work areas. Although the estimated maximum increase in traffic along regional roadways would remain within the carrying capacities of the regional roadways and would not substantially affect traffic flow, construction-related traffic increases along local and neighborhood (residential) streets could result in adverse traffic conditions. For reasons described above, this impact would be less than significant for all project components located north of Reservation Road and for the Carmel Valley Pump Station. This impact would be potentially significant for the new Transmission Main, Terminal Reservoir, ASR Conveyance Pipeline, ASR Pump-to-Waste Pipeline, ASR Recirculation Pipeline, ASR-5 and ASR-6 Wells, Ryan Ranch-Bishop Interconnection Improvements, and Main System-Hidden Hills Interconnection Improvements. However, implementation of **Mitigation Measure 4.9-1 (Traffic Control and Safety Assurance Plan)** would reduce this potentially significant impact related to increased traffic to a less-than-significant level.

Consistency with Regulatory Requirements

In addition to the impact described above, as noted in **Table 4.9-2**, project construction could conflict with applicable land use policies and ordinances related to increased traffic congestion. These policies and ordinances include Seaside General Plan Policy C-1.7 and Monterey County

General Plan Policy C-3.4. Implementation of **Measure 4.9-1 (Traffic Control and Safety Assurance Plan)** would require that CalAm or its contractors develop project-specific circulation and detour plans to reduce traffic congestion to the extent feasible. Therefore, with this measure implemented, the MPWSP would be brought into conformance with the above-noted policies and ordinances.

Mitigation Measures

Mitigation Measure 4.9-1 has been developed for the project as a whole (to comply with road encroachment requirements for applicable jurisdictions) and applies to all project components and associated construction activities; however, with respect to construction-related increases in traffic and traffic congestion impacts, only the following project components would require implementation of this measure to reduce impacts to a less-than-significant level: the new Transmission Main, ASR Conveyance Pipeline, ASR Pump-to-Waste Pipeline, ASR Recirculation Pipeline, Terminal Reservoir, ASR-5 and ASR-6 Wells, Ryan Ranch–Bishop Interconnection Improvements, and Main System–Hidden Hills Interconnection Improvements.

Mitigation Measure 4.9-1: Traffic Control and Safety Assurance Plan.

The construction contractor(s) shall obtain any necessary road encroachment permits prior to constructing each project component and shall comply with the conditions of approval attached to all project permits and approvals. As part of the road encroachment permit process, a qualified traffic engineer shall prepare a traffic control and safety assurance plan in accordance with professional engineering standards and submit the plan to the agencies with jurisdiction over the affected roads and recreational trails, as well as to the California Public Utilities Commission, for review and approval. For all project construction activities that could affect the public right-of-way (e.g., roadways, sidewalks, and walkways), the plan shall include measures that would provide for continuity of vehicular, pedestrian, and bicyclist traffic; reduce the potential for traffic accidents; and ensure worker safety in construction zones. Where project construction activities could disrupt mobility and access for bicyclists and pedestrians, the plan shall include measures to ensure safe and convenient access, including recreation and coastal, would be maintained.

The traffic control and safety assurance plan shall be developed on the basis of detailed design plans for the approved project. The plan shall include, but not necessarily be limited to, the elements listed below:

- Develop circulation and detour plans to minimize impacts on local streets. Haul routes that minimize truck traffic on local roadways and residential streets shall be used. As necessary, signage and/or flaggers shall be used to guide vehicles through the construction work areas.
- Control and monitor construction vehicle movements by enforcing standard construction specifications through periodic onsite inspections.
- Install traffic control devices where traffic conditions warrant, as specified in the applicable jurisdiction's standards (e.g., the *California Manual of Uniform Traffic Controls for Construction and Maintenance Work Zones*).
- Schedule truck trips outside of peak morning and evening commute hours to minimize adverse impacts on traffic flow (i.e., if agencies with jurisdiction over the

affected roads identify highly congested roadway segments during their review of the encroachment permit applications).

- Post detour signs along affected roadways to notify motorists of alternative routes.
- Perform construction that crosses on-street and off-street bikeways, sidewalks, and other walkways in a manner that allows for safe access for bicyclists and pedestrians. Alternatively, provide safe detours to reroute affected bicycle/pedestrian traffic.
- At least two weeks prior to construction, post signage along all potentially affected recreational trails and coastal access point; Class I, II, and II bicycle routes; and pedestrian pathways, including the Monterey Peninsula Recreational Trail, to warn bicyclists and pedestrians of construction activities. The signs shall include information regarding the nature of construction activities, duration, and detour routes. Signage shall be composed of or encased in weatherproof material and posted in conspicuous locations, including on park message boards, and existing wayfinding signage and kiosks, for the duration of the closure period. At the end of the closure period, CalAm or its contractors shall retrieve all notice materials.
- CalAm and its contractors shall schedule construction activities to minimize impacts during heavy recreational use periods (e.g., weekends and holidays).
- Implement a public information program to notify motorists, bicyclists, nearby residents, and adjacent businesses of the impending construction activities (e.g., media coverage, email notices, websites, etc.). Notices of the location(s) and timing of road closures shall be published in local newspapers and on available websites to allow motorists to select alternative routes. This provision shall be implemented in conjunction with **Mitigation Measure 4.12-1a (Neighborhood Notice)**.
- Store all equipment and materials in designated contractor staging areas.
- Maintain alternate one-way traffic flow past the construction zone where possible.
- Install detour signs to direct traffic to alternative routes around the closed road segment if alternate one-way traffic flow cannot be maintained past the construction zone.
- Limit lane closures during peak hours.
- Restore roads and streets to normal operation by covering trenches with steel plates outside of normal work hours or when work is not in progress.
- Comply with roadside safety protocols to reduce the risk of accidents. Provide “Road Work Ahead” warning signs and speed control (including signs informing drivers of state-legislated double fines for speed infractions in a construction zone) to achieve required speed reductions for safe traffic flow through the work zone. Train construction personnel to apply appropriate safety measures as described in the traffic control and safety assurance plan.
- Maintain access for emergency vehicles at all times. Coordinate with facility owners or administrators of sensitive land uses such as police and fire stations, transit stations, hospitals, and schools. Provide advance notification to local police, fire, and emergency service providers of the timing, location, and duration of construction activities that could affect the movement of emergency vehicles on area roadways.

- Avoid truck trips through designated school zones during the school drop-off and pickup hours to the extent feasible.
- Provide flaggers in school areas at street crossings to manage traffic flow and maintain traffic safety during the school drop-off and pickup hours on days when pipeline installation would occur in designated school zones.
- Coordinate with Monterey-Salinas Transit so the transit provider can temporarily relocate bus routes or bus stops in work zones as deemed necessary.

Impact 4.9-2: Temporary reduction in roadway capacities and increased traffic delays during construction. (*Less than Significant with Mitigation*)

Whereas Impact 4.9-1 addresses increased vehicle traffic, this impact relates to construction activities occurring within vehicle travel lanes and road shoulders that could require temporary lane closures and/or detours. These lane closures and detours would temporarily reduce roadway capacities and result in increased traffic delays during project construction, which could cause temporary conflicts with local jurisdictions' measures of effectiveness for the performance of the circulation system.

All Proposed Pipelines

The proposed project would include installation of approximately 21 miles of new pipelines. **Table 4.9-1**, above, presents the roads that would be directly affected by project construction activities (i.e., construction would occur within or adjacent to, or across, the road rights-of-way).

Pipeline installation would generally be accomplished using conventional open-trench methods; however, where it is not feasible to perform open-cut trenching—such as state highway crossings, stream and drainage crossings, and areas of high utility congestion—trenchless technologies (e.g., jack-and-bore or horizontal directional drilling) would be used. At a minimum, trenchless methods of pipeline installation would be necessary at seven locations:

1. Installation of the Source Water Pipeline beneath the TAMC right-of-way at Lapis Road, just north of the CEMEX access Road;
2. Installation of the new Desalinated Water Pipeline beneath the TAMC right-of-way near the southern intersection of Lapis Road/Del Monte Boulevard;
3. Installation of the new Transmission Main beneath the TAMC right-of-way near Marine Drive/Del Monte Boulevard/Reindollar Avenue;
4. Installation of the new Transmission Main Optional Alignment at Highway 1 and Lightfighter Drive;
5. Installation of the Castroville Pipeline under the Salinas River; and
6. Installation of the Castroville Pipeline under Trembladero Slough.

Trenchless technologies would not reduce the number or available width of travel lanes because pits used for bore-and-jack and directional drilling would be located out of public roadways. The use of trenchless construction methods beneath Highway 1 and Highway 68 would avoid traffic flow disruptions. Each roadway crossing presents unique conditions, and construction methods at other roadway crossings would vary depending on such factors as the available construction area, possible utility interference, and the contractor's preferred method of construction.

The average open-trench width and depth for pipeline installation would be 6 feet and 8 feet, respectively. Pipeline installation would progress at a rate of approximately 150 to 250 feet per day. The active work area along open trenches would be wider than the trenches themselves to accommodate access by trucks and loaders. Staging areas are proposed at strategic locations throughout the project area (see Table 3-4 in Chapter 3, Project Description).

Depending on the final pipeline alignments, where construction would occur in vehicle travel lanes or the adjacent road shoulder, and the width of roads, temporary lane closures and/or detours could be needed to accommodate the construction zone. Some roadway segments would have sufficient pavement width outside of the construction zone to accommodate two-way traffic flow, but other roadways would not, and alternate one-way traffic flow would be maintained on pavement as narrow as 10 feet.

Where feasible and appropriate, construction contractors would install pipelines so as to avoid construction within vehicle travel lanes and to minimize impacts on roadway capacity and function. Detailed information regarding the final pipeline alignments (i.e., whether the pipelines would require construction in road rights-of-way) and associated construction activities would be developed during final project design. This analysis conservatively assumes that all pipelines could require construction within or adjacent to vehicle travel lanes and could require temporary lane closures and/or detours. Impacts on roadway capacities and traffic flow related to pipeline installation are considered to be potentially significant for all proposed pipelines. However, with implementation of **Mitigation Measure 4.9-1 (Traffic Control and Safety Assurance Plan)**, which includes measures to minimize the adverse effects of roadway construction and detours, these impacts would be reduced to a less-than-significant level.

All Other Proposed Facilities

Installation of non-linear facilities (e.g., subsurface slant wells, MPWSP Desalination Plant, ASR-5 and ASR-6 Wells, Terminal Reservoir, and Carmel Valley Pump Station) would not involve construction within road rights-of-way and would not result in temporary lane closures or detours. Therefore, the impact would be less than significant.

Impact Conclusion

Traffic delays resulting from temporary lane closures and detours would be a potentially significant impact for all of the proposed pipelines, but implementation of **Mitigation Measure 4.9-1 (Traffic Control and Safety Assurance Plan)** would reduce the impact to a less-than-significant level. For all other proposed facilities, the impact would be less than significant because none of the non-linear facilities would require temporary lane closures or detours.

Mitigation Measures

Mitigation Measure 4.9-1 has been developed for the project as a whole (to comply with road encroachment requirements for applicable jurisdictions) and applies to all project components and associated construction activities; however, with respect to reduced road capacity resulting from temporary lane closures and detours during project construction, only construction of the proposed pipelines would require implementation of this measure to reduce impacts to a less-than-significant level.

Mitigation Measure 4.9-1: Traffic Control and Safety Assurance Plan.

(See Impact 4.9-1, above, for description.)

Impact 4.9-3: Increased traffic safety hazards for vehicles, bicyclists, and pedestrians on public roadways, and area trails, sidewalks and other pathways, during construction. (*Less than Significant with Mitigation*)

All Proposed Project Facilities

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. Also, pipeline construction would take place within or adjacent to the road for a length of approximately 21 miles. The greatest number of daily construction-related truck trips would occur along Highway 1 and Del Monte Boulevard. During project construction, bicyclists and pedestrians could be required to enter the adjacent road shoulder or use other temporary detours to circumvent construction work areas.

Project construction activities could increase traffic safety hazards in the project area due to:

- Conflicts between haul trucks and other large construction vehicles (with slower speeds and wider turning radii than automobiles) and automobiles, bicyclists, and pedestrians using the roadways;
- 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; and
- Confusion on the part of bicyclists and pedestrians due to temporary changes in bicycle and pedestrian circulation along the Monterey Peninsula Recreational Trail, designated bicycle routes, and sidewalks and other public pathways.

Potential increases in traffic safety hazards during project 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.

Mitigation Measures

Mitigation Measure 4.9-1 applies to all proposed project facilities and associated construction activities.

Mitigation Measure 4.9-1: Traffic Control and Safety Assurance Plan.

(See Impact 4.9-1, above, for description.)

Impact 4.9-4: Impaired emergency access during construction. (*Less than Significant with Mitigation*)

All Proposed Pipelines

As discussed above for Impact 4.9-2, pipeline installation activities could require construction within vehicle travel lanes and road shoulders. Temporary reductions in travel lanes and roadway capacity to accommodate the construction work areas could result in delays for emergency vehicles. Trenching and paving along roadways during pipeline installation could also disrupt emergency vehicle access to adjacent land uses. This impact is potentially significant. However, implementation of **Mitigation Measure 4.9-1 (Traffic Control and Safety Assurance Plan)**, which contains provisions to maintain access during construction, would reduce the impact to a less-than-significant level.

All Other Proposed Facilities

Construction activities and staging areas for the subsurface slant wells, MPWSP Desalination Plant, ASR-5 and ASR-6 Wells, Terminal Reservoir, and Carmel Valley Pump Station are not expected to require construction in roadways or road shoulders. As such, construction of these facilities would not obstruct access for emergency vehicles in the vicinity of the construction work areas. Therefore, impacts related to disrupted access to adjacent land uses for emergency vehicles would be less than significant.

Mitigation Measures

Mitigation Measure 4.9-1 has been developed for the project as a whole (to comply with road encroachment requirements for applicable jurisdictions). However, with respect to disruptions to emergency access, only construction of the proposed pipelines would require implementation of this measure to reduce impacts to a less-than-significant level.

Mitigation Measure 4.9-1: Traffic Control and Safety Assurance Plan.

(See Impact 4.9-1, above, for description.)

Impact 4.9-5: Temporary disruptions to public transportation, bicycle, and pedestrian facilities during construction. (*Less than Significant with Mitigation*)

Brine Discharge Pipeline and Pipeline to CSIP Pond

Construction activities for the Brine Discharge Pipeline and Pipeline to CSIP Pond would occur on private roads and would not impede vehicular, bicycle, or pedestrian traffic flow or disrupt public transportation. As such, there would be no impacts on public transportation and bicycle and pedestrian facilities from construction of these facilities.

All Other Proposed Pipelines

Pipeline installation activities could temporarily affect public transportation, bicycle travel, and pedestrian travel along affected roadways and recreational trails in the project area. About 21 miles of pipelines would be installed, with 6 of those miles located within or adjacent to the Monterey Peninsula Recreational Trail.

Construction activities, including vehicle ingress and egress, equipment and materials staging, trenching, and stockpiling, could disrupt established bicycle and pedestrian facilities located along the pipeline alignments. The proposed Source Water Pipeline alignment crosses the Monterey Peninsula Recreational Trail at the intersection of Del Monte Boulevard and Charles Benson Road. The new Desalinated Water Pipeline would be installed on the west side of Del Monte Boulevard, alongside the Monterey Peninsula Recreational Trail and the TAMC right-of-way between Charles Benson Road and Reservation Road. Roughly 3 miles of the new Transmission Main would be constructed along the TAMC right-of-way and the Monterey Peninsula Recreational Trail. This segment of the new Transmission Main would also border the eastern boundary of Fort Ord Dunes State Park. The Monterey Peninsula Recreational Trail serves as a primary bicycle and pedestrian access route into the Fort Ord Dunes State Park from Marina, Sand City, and Seaside. The Ryan Ranch-Bishop Interconnection Improvements would be installed along Ragsdale Drive, Lower Ragsdale Drive, and Wilson Road, all of which have designated Class II bikeways.

Construction activities within or adjacent to vehicle travel lanes could disrupt access to bus stops operated by MST, require that bus stops be temporarily relocated, and/or conflict with bicycle traffic along roads with designated bike lanes. Pipeline installation activities along the Monterey Peninsula Recreational Trail could conflict with bicycle and pedestrian traffic. Construction-related impacts on alternative transportation modes and facilities during pipeline installation activities would be potentially significant. 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.

All Other Proposed Facilities

Construction activities for the subsurface slant wells, MPWSP Desalination Plant, ASR injection/extraction wells, Terminal Reservoir, and Carmel Valley Pump Station would occur in

off-road areas and would not impede vehicular, bicycle, or pedestrian traffic flow or disrupt public transportation. As such, there would be no impacts on public transportation and bicycle and pedestrian facilities from construction of these facilities.

Consistency with Regulatory Requirements

In addition to the impact described above, as noted in **Table 4.9-2**, project construction could conflict with applicable land use plans, policies, and/or ordinances related to alternative modes of transportation (e.g., public transit, bicycle, pedestrian). These include City of Monterey Del Monte Beach Land Use Plan Policy 13 and Monterey Harbor Land Use Plan Policy 3.K. Implementation of **Mitigation Measure 4.9-1 (Traffic Control and Safety Assurance Plan)** includes several provisions for addressing the potential adverse effects on these resources and facilities during project construction. With this measure implemented, the MPWSP would be consistent with the above-noted policy and ordinances.

Mitigation Measures

Mitigation Measure 4.9-1 has been developed for the project as a whole (to comply with road encroachment requirements for applicable jurisdictions). However, with respect to disruptions to public transportation and bicycle/pedestrian facilities, only construction of the Source Water Pipeline, new Desalinated Water Pipeline, new Transmission Main, and Castroville Pipeline would require implementation of this measure to reduce impacts to a less-than-significant level.

Mitigation Measure 4.9-1: Traffic Control and Safety Assurance Plan.

(See Impact 4.9-1, above, for description.)

Impact 4.9-6: Increased wear-and-tear on the designated haul routes used by construction vehicles. *(Less than Significant with Mitigation)*

All Project Components

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. Freeways and major arterials (e.g., Highways 1, 68, 101, 156, 183, and 218, Del Monte Boulevard, and Fremont Boulevard / Fremont Street) are designed to handle a mix of vehicle types, including heavy trucks; therefore, the impacts of project-related construction traffic are expected to be negligible on those roads. However, some of the smaller roadways and residential streets may not have been constructed to support use by heavy construction trucks and vehicles, and project-related increases in construction truck trips could cause excessive wear-and-tear on these roadways, a potentially significant impact. However, implementation of **Mitigation Measure 4.9-6 (Roadway Rehabilitation Program)**, which requires rehabilitation of any roadways damaged following construction, would reduce this impact to a less-than-significant level.

Mitigation Measures

Mitigation Measure 4.9-6 applies to all proposed facilities and associated construction activities.

Mitigation Measure 4.9-6: Roadway Rehabilitation Program.

Prior to commencing project construction, CalAm and the affected jurisdiction(s) shall enter into an agreement detailing the preconstruction condition of all major project-related construction access and haul routes, in addition to any appropriate post-construction roadway rehabilitation requirements (e.g., who would make the roadway repair, and by when). Temporary detour routes may also be included in the inventory of preconstruction road conditions, if appropriate. The construction routes identified in the rehabilitation program must be consistent with those identified in the construction traffic control and safety assurance plan developed under Mitigation Measure 4.9-1. Roads damaged by project-related construction vehicles shall be repaired to a structural condition equal to that which existed prior to construction activities.

Impact 4.9-7: Parking interference during construction. (*Less than Significant with Mitigation*)

Assuming construction workers would drive to construction work areas alone in their own vehicles (i.e., they would not carpool), project-related construction activities would increase parking demand at certain locations in the project area. Worker parking demand would vary among the individual project components and would also depend on the construction phase and the nature of construction activities taking place. In addition, depending on the final pipeline alignments and the width of the vehicle travel lanes or adjacent road shoulders where construction would occur, construction activities could displace parking spots and adversely affect parking conditions. **Table 4.9-1** shows roadways that could be directly affected by project construction activities and indicates whether these roads have on-street parking spaces. Where feasible and appropriate, construction contractors would install pipelines so as to avoid construction within vehicle travel lanes and minimize parking displacement. Detailed information regarding pipeline alignments (i.e., whether the pipelines would require construction in road rights-of-way) and associated construction activities would be developed during project design. This analysis assumes that pipeline installation activities could require construction within or adjacent to vehicle travel lanes and could require temporary displacement of parking spaces.

All Proposed Pipelines

Installation of the proposed pipelines in unincorporated Monterey County and in the cities of Marina and Seaside, could temporarily displace parking spaces along the affected roadways that have on-street parking. However, field observations shows that, in general, the roadways along these other pipeline alignments have less-than-substantial demand for the available on-street parking spaces, and/or alternative parking spaces are present nearby. Therefore, impacts associated with temporary displacement of on-street parking during installation of these other pipelines would be less than significant, and no mitigation is necessary.

Subsurface Slant Wells

Construction of subsurface slant wells and support facilities would occur entirely within the CEMEX sand mining facility and would have no effect on parking availability in public areas. Further, construction worker parking demand for the subsurface slant wells could be accommodated within the construction work areas and in other previously disturbed areas of the CEMEX sand mining facility. Thus, no impact would result.

MPWSP Desalination Plant

Construction worker parking demand for the MPWSP Desalination Plant could easily be accommodated within the 46-acre parcel, which is currently vacant. Construction activities at the MPWSP Desalination Plant site would have no effect on parking availability in public areas. Thus, no impact would result.

Terminal Reservoir, ASR-5 and ASR-6 Wells, ASR Conveyance Pipeline, ASR Pump-to-Waste Pipeline and ASR Recirculation Pipeline

Construction of the ASR-5 and ASR-6 Wells, ASR Conveyance Pipeline, ASR Pump-to-Waste Pipeline, ASR Recirculation Pipeline, and Terminal Reservoir could increase parking demand in the vicinity of General Jim Moore Boulevard in the former Fort Ord area. However, field observations shows that there is ample on-street parking available in the former Fort Ord area to accommodate this increase. Thus, this impact would be less than significant.

Carmel Valley Pump Station, Main System-Hidden Hills Interconnection Improvements, and Ryan Ranch-Bishop Interconnection Improvements

The Carmel Valley Pump Station, Ryan Ranch-Bishop Interconnection Improvements, and Main System-Hidden Hills Interconnection Improvements are located in low-density areas with ample parking available to accommodate construction worker vehicles. Any on-street parking displaced during installation of proposed improvements in roadways could also be accommodated on adjacent roadways. This impact would be less than significant.

Staging Areas

Many of the proposed staging areas (see Table 3-4 in Chapter 3, Project Description) would occupy portions of parking lots (e.g., a lot that serves Cal State Monterey, and a Walmart parking lot). The temporary displacement of parking spaces would be potentially significant. However, implementation of **Mitigation Measure 4.9-7 (Construction Parking Requirements)** would reduce this impact to a less-than-significant level. **Mitigation Measure 4.9-7** requires that the construction contractor coordinate with the affected jurisdictions (i.e., Cal State Monterey, and the cities of Marina and Seaside) to design the staging areas to avoid or minimize parking impacts in the publicly used parking lots.

Impact Conclusion

Provision of staging areas in publicly used parking lots would result in potentially significant parking impacts due to temporary increases in parking demand associated with construction

worker vehicles and/or temporary displacement of parking spaces in publicly used parking lots for staging areas (off-street). However, implementation of **Mitigation Measure 4.9-7 (Construction Parking Requirements)** would reduce this impact to a less-than-significant level. Construction activities for the subsurface slant wells and MPWSP Desalination Plant would have no effect on parking. Parking displacement impacts resulting from construction of the proposed ASR-5 and ASR-6 Wells, Terminal Reservoir, Carmel Valley Pump Station, Ryan Ranch-Bishop Interconnection Improvements, Main System-Hidden Hills Interconnection Improvements, and all other proposed pipelines would be less than significant.

Mitigation Measures

Mitigation Measure 4.9-7 applies only to staging areas in publicly used parking lots.

> **Mitigation Measure 4.9-7: Construction Parking Requirements.**
>
> Prior to commencing project construction, the construction contractor(s) shall coordinate with the affected jurisdictions (i.e., Monterey County, Cal State Monterey, and the cities of Marina and Seaside) to design the staging areas to avoid or minimize parking impacts in the publicly used parking lots.

4.9.5.2 Operational and Facility Siting Impacts

Impact 4.9-8: Long-term traffic increases on regional and local roadways during project operations and maintenance. (*Less than Significant*)

Operation- and maintenance-related vehicle traffic could result in increased congestion and delays for vehicles, which could cause conflicts with local jurisdictions' measures of effectiveness for the performance of the circulation system.

MPWSP Desalination Plant

The MPWSP Desalination Plant would be operated 24 hours per day, 365 days per year, and is estimated to require approximately 25 to 30 full-time workers (facility operators and support personnel) to operate, monitor, and maintain the desalination facilities. There would be up to 10 workers for each of the following three shifts: 9:00 a.m. to 5:00 p.m., 4:00 p.m. to 1:00 a.m., and 12:00 a.m. to 9:00 a.m., and based on that assumption, approximately 66 one-way trips (33 round trips) would occur throughout each day (30 commute trips and 3 midday trips) during long-term operations and maintenance of the MPWSP Desalination Plant.

The greatest long-term increase in vehicle trips from MPWSP Desalination Plant operations would occur on Charles Benson Road, and based on existing traffic conditions and the industrial nature of the surrounding land uses on Charles Benson Road, the projected increase is well within the roadway carrying capacity of this two-lane road and would not adversely affect traffic conditions. Given that the minimal number of daily vehicle trips associated with worker commutes and deliveries would be dispersed onto different roads farther removed from Charles

Benson Road, long-term operations and maintenance of the MPWSP Desalination Plant would not adversely affect traffic conditions on the overall existing circulation system over the long term. Therefore, the impact would be less than significant.

All Other Proposed Facilities

All other proposed facilities (i.e., the subsurface slant wells, ASR-5 and ASR-6 Wells, Terminal Reservoir, Carmel Valley Pump Station, and all pipelines) would be operated remotely using Supervisory Control and Data Acquisition systems, with periodic visits by CalAm personnel for operations review and maintenance. Maintenance activities include such tasks as landscape maintenance, visual inspections of facilities, performance monitoring, servicing of pumps, testing and servicing of valves, backflushing the ASR-5 and ASR-6 Wells, and minor pipeline repairs. The vehicle trips generated by these routine and periodic site visits would be similar in number to those required for existing CalAm operations in the Monterey District service area and would not constitute a significant increase in new vehicle trips on area roadways. Overall, 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 traffic impact for all other proposed facilities would be less than significant.

Impact Conclusion

The impact related to long-term increases in vehicle trips during project operations and maintenance is less than significant for all project facilities.

Mitigation Measures

None proposed.

4.9.6 Cumulative Effects of the Proposed Project

The cumulative scenario and cumulative impacts methodology are described in Section 4.1.7. Table 4.1-2 lists potential cumulative projects.

Impact 4.9-C: Cumulative impacts related to traffic and transportation. (Significant and Unavoidable, even with implementation of feasible mitigation)

The MPWSP would result in no impact with respect to conflicts with an applicable congestion management plan, changes in air traffic patterns, permanent increases in traffic safety hazards due to a design feature or incompatible uses, or conflicts with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities. Therefore, it could not cause or contribute to any cumulative effects related to these traffic and transportation topics, and these topics are not discussed further.

The geographic scope for the cumulative traffic impact analysis encompasses the local and regional roadways and highways that would be used for project-related construction and operational activities and for access by construction worker and operational employee vehicles. A significant cumulative effect on transportation and traffic could occur if the incremental impacts of the MPWSP combined with those of one or more of the projects listed in **Table 4.1-2** that would use the same transportation network as the MPWSP during the life of the project to substantially and adversely affect the effectiveness of the circulation system or to result in inadequate emergency access.

Cumulative Impacts during Project Construction

As discussed above in Sections 4.9.4 and 4.9.5, the MPWSP's significant impact related to increased congestion from construction traffic would be reduced with the implementation of **Mitigation Measures 4.9-1 (Traffic Control and Safety Assurance Plan)**, **4.9-6 (Roadway Rehabilitation Program)**, and **4.9-7 (Construction Worker Parking Requirements)**. However, the residual impacts after implementation of these mitigation measures are discussed below. Due to increased traffic and transportation network disruptions, concurrent construction of the MPWSP and the projects listed in **Table 4.1-2** would result in potentially significant cumulative impacts on traffic and transportation access and facilities. Such impacts would include a short-term increase in vehicle traffic, reductions in the number or the available width of travel lanes on roads where construction would occur, increased wear-and-tear on the designated haul routes used by construction vehicles, and increases in demand for parking spaces to accommodate construction worker vehicles, among others. In addition, concurrent construction of these projects could create traffic safety hazards for vehicles, bicyclists, and pedestrians on public roadways. Access to adjacent land uses and streets for both general traffic and emergency vehicles could be disrupted. The MPWSP's contributions to these impacts would occur along routes adjacent to most pipeline alignments and above-ground project components south of Reservation Road.

Although the construction schedule for many of the projects listed in **Table 4.1-2** is unknown, the construction schedule for several future cumulative projects could overlap with the anticipated MPWSP construction schedule, thereby causing the types of regional and local traffic and transportation impacts described above. These projects include projects in Monterey County (Nos. 1, 2, 4, and 54), Marina (Nos. 7, 9, and 47), Seaside (Nos. 14 and 17), and Pacific Grove (No. 45). The other projects identified in **Table 4.1-2** are in various stages of planning or entitlement processes and also could occur during the MPWSP's anticipated construction timeframe of summer 2018 through summer 2020.

Potentially significant cumulative traffic and transportation access and facility impacts of the types described above could occur along regional transportation corridors, including Highways 1, 68, and 218, in the vicinity of proposed MPWSP components. Such impacts also would be expected along local arterial and neighborhood roadways connecting regional thoroughfares with specific project construction sites. Based upon the anticipated MPWSP and cumulative project construction schedules (**Table 4.1-2**), potentially significant cumulative impacts on local roadways would likely be concentrated in the cities of Marina, Seaside, and Sand City. However, as discussed, several other projects whose construction timelines remain unknown also could be

constructed within the anticipated MPWSP construction window and have similar transportation effects. Accordingly, this analysis conservatively assumes that at least some of the cumulative projects whose construction schedules remain unknown would be constructed concurrent with the MPWSP. Therefore, the possibility for potential significant cumulative impacts in the cities of Monterey and Pacific Grove as well as in Monterey County cannot be ruled out. The Monterey Pipeline and Pump Station project (No. 60), recently approved and currently under construction, will adversely affect traffic in Seaside and Pacific Grove, but is expected to be completed prior to the start of MPWSP construction.

As discussed above in Sections 4.9.4 and 4.9.5, CalAm would be required to implement **Mitigation Measures 4.9-1 (Traffic Control and Safety Assurance Plan), 4.9-6 (Roadway Rehabilitation Program), and 4.9-7 (Construction Parking Requirements)**, each of which would lessen the MPWSP's contribution to cumulative construction-related traffic and transportation impacts. Specifically, these measures would reduce MPWSP's incremental contribution to congestion and traffic delays on area roadways, safety hazards, emergency access, alternative transportation facilities, wear and tear, and parking impacts. However, given the size of the MPWSP, along with the number of cumulative projects and uncertainty regarding cumulative project construction timing, the residual MPWSP transportation impacts could still contribute substantially to cumulative local and regional traffic and roadway capacity disruptions, a cumulatively significant impact.

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

Mitigation Measure 4.9-C: Construction Traffic Coordination Plan.

CalAm shall coordinate with the appropriate planning agency within each affected jurisdiction to develop and implement a Construction Traffic Coordination Plan. The purpose of the plan shall be to lessen the cumulative effects of MPWSP and local development project construction-related traffic delays and congestion. The plan shall address construction-related traffic associated with all project sites in the vicinity of MPWSP project components (i.e., within 1 mile or would use the same roads) and whose construction schedules overlap that of the MPWSP. The construction traffic coordination plan shall, at a minimum, include the following components:

- Identification of all projects located in the vicinity of MPWSP project components (within 1 mile or would use the same roads) and whose construction schedules overlap that of the MPWSP.
- Consideration for the types of construction-related vehicles and corresponding numbers and timing of trips associated with each said project.

- An evaluation of roadways affected by construction activities and measures to minimize roadway and traffic disturbances (e.g., lane closures and detours). Impact minimization measures shall include, but not necessarily be limited to, elements that are part of the MPWSP's Traffic Control and Safety Assurance Plan (Mitigation Measure 4.9-1).
- Phasing of construction activities, as necessary to prevent degradation of levels of service on affected roadways.
- A program that provides for continual coordination with the affected agencies to allow for adjustments and refinements to the plan once construction is underway.

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

Cumulative Impacts during Project Operations

A significant cumulative impact associated with long-term traffic increases would occur if the traffic or transportation-related effects of MPWSP operations, combined with those of one or more cumulative projects identified in **Table 4.1-2**, were to cause traffic on local and regional roadways to exceed established level of service standards. The number of new vehicle trips that would occur in association with operation of the projects in **Table 4.1-2** remains unknown. Given the large number and nature of these projects, the cumulative operations-related traffic is expected to be substantial.

As described in Section 4.9.5, above, the MPWSP would have less-than-significant long-term traffic increases on regional and local roadways during project operations and maintenance. As discussed under Impact 4.9-8, the MPWSP would require approximately 25 to 30 full-time workers (project facility operators and support personnel) to operate, monitor, and maintain the desalination facilities (all other facilities would be operated remotely by computer and require infrequent maintenance visits). MPWSP Desalination Plant workers would add up to an estimated 66 daily one-way trips to the local and regional road network. The anticipated increase in traffic associated with these vehicle trips would not be noticeable to other motorists and would not affect the users of alternative travel modes (e.g., pedestrians and bicyclists).

The combined effects of operations-related traffic from the projects identified in Table 4.1-2 could have a potentially significant cumulative impact on local and regional traffic. However, the addition of traffic associated with MPWSP operation and maintenance would not contribute substantially to those impacts; they would be mostly limited to Charles Benson Road and Highway 1. The only cumulative projects identified on Table 4.1-2 expected to affect Charles Benson Road are the RUWAP elements (Nos. 31 and 35), whose operational traffic would be between zero and four one-way trips daily (Denise Duffy & Associates, 2004). As a result, the MPWSP's incremental contribution to cumulative operations-related traffic impacts would not be cumulatively considerable (*less than significant*).

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4.10 Air Quality

Sections	Tables
4.10.1 Setting/Affected Environment	4.10-1 Ambient Air Quality Monitoring Summary (2011–2015)
4.10.2 Regulatory Framework	4.10-2 State and Federal Ambient Air Quality Standards and Attainment Status for North Central Coast Air Basin
4.10.3 Evaluation Criteria	4.10-3 Applicable Regional and Local Land Use Plans and Policies Relevant to Air Quality
4.10.4 Approach to Analysis	4.10-4 Summary of Impacts – Air Quality
4.10.5 Cumulative Effects of the Proposed Project	4.10-5 Estimated Maximum Daily Construction Emissions
4.10.6 Cumulative Effects of the Proposed Project	4.10-6 Maximum DPM Concentrations, Cancer Risks, and Chronic Health Indices
	4.10-7 Proposed Action Operational Emissions

This section evaluates the potential impacts on regional and local air quality that would result from construction and operation of the Monterey Peninsula Water Supply Project (MPWSP or proposed project). The analysis is based on estimates of project-related air pollutant emissions, review of existing air quality conditions in the region, and applicable air quality regulations and guidelines. Impacts specific to greenhouse gas (GHG) emissions and climate change are evaluated in Section 4.11, Greenhouse Gas Emissions.

Comments received on the April 2015 Draft EIR expressed concerns regarding the potential for the project to release naturally occurring asbestos during construction; however, there are no areas in the project area that are likely to contain naturally occurring asbestos (CDC, 2000); therefore, this issue is not addressed further in this EIR/EIS. Some commenters suggested that indirect emissions of criteria pollutants associated with electricity use should be quantified and evaluated. This issue is addressed in Section 4.10.5.2, under Impact 4.10-4. Some comments suggested that the operational emissions associated with the periodic excavation and mechanical cleaning of the subsurface slant wells should be quantified. Subsequent to the release of the April 2015 Draft EIR, the layout of project facilities at the CEMEX active mining area was modified such that the well heads, valves, and other slant well facilities are now aboveground and readily accessible for maintenance, thereby reducing the disturbance area associated with periodic maintenance. See Impact 4.10-4 for quantification of emissions associated with slant well maintenance. Comments pertaining to regulatory guidance on health risk assessments are addressed in Impact 4.10-3. Comments associated with construction-related $PM_{2.5}$, NO_2, and ROG emissions are addressed in Impact 4.10-3.

4.10.1 Setting/Affected Environment

The study area for impacts on air quality is the North Central Coast Air Basin (Air Basin). Air quality is a function of both the amount and location of pollutant emissions under the influence of meteorological conditions and topographic features that affect pollutant movement and dispersal. Atmospheric conditions such as wind speed, wind direction, atmospheric stability, the presence of sunlight, and air temperature gradients interact with the physical features of the landscape to determine the movement and dispersal of air pollutants, all of which affects air quality.

4.10.1.1 Regional Topography, Meteorology, and Climate

Topography and meteorology greatly influence air quality. Factors such as wind, sunlight, temperature, humidity, rainfall, and topography all affect the accumulation and/or dispersion of air pollutants. Marine breezes from Monterey Bay dominate the climate of this portion of the Air Basin; westerly winds predominate in all seasons, but are strongest and most persistent during the spring and summer.

The Air Basin covers 5,159 square miles along the central coast of California and is generally bounded by the Monterey Bay to the west, the Santa Cruz Mountains to the northwest, the Diablo Range on the northeast, with the Santa Clara Valley between them. The southern part of the Santa Clara Valley extends into the northeastern tip of the Air Basin and transitions into the San Benito Valley, which runs northwest-southeast and is bounded on the west by the Gabilan Range. To the west of the Gabilan Range is the Salinas Valley, which extends from the city of Salinas at the northwest end to King City at the southeast end. The western edge of the Salinas Valley is formed by the Sierra de Salinas, which is also the eastern edge of the Carmel Valley. The Santa Lucia Range along the Pacific coast defines the western edge of the Carmel Valley.

The mountain ridges in the Air Basin restrict and channel summer onshore air currents. Hot temperatures in the inland valleys warm the ground and intensify onshore airflow during the afternoon and evening. In the fall, the surface winds weaken and the marine layer becomes shallow and eventually dissipates. The airflow is occasionally reversed, creating weak offshore winds.

A semi-permanent high-pressure cell in the eastern Pacific Ocean is the basic controlling factor in the climate of the Air Basin. In the summer, the high-pressure cell is dominant and causes persistent west and northwest winds over the entire California coast. Air descends in the Pacific high-pressure cell (Pacific High), forming a stable temperature inversion of hot air over a cool coastal layer of air. The onshore air currents pass over cool ocean waters to bring fog and relatively cool air into the coastal valleys. The warmer air aloft can inhibit vertical air movement.

The stationary air mass held in place by the Pacific High pressure cell can allow pollutants to build up over a period of days. These conditions also occur when north or east winds cause pollutant transport from the San Francisco Bay Area or the Central Valley into the Air Basin. In the winter, the Pacific High moves south and has a lesser influence on the Air Basin; wind flows southeasterly from the Salinas and San Benito Valleys, especially during the night and morning. Northwest winds are still dominant in winter, but easterly winds are more frequent in the winter than the summer. Air quality usually remains good in the winter and early spring due to the absence of deep, persistent regional subsidence inversions and the presence of occasional storms. Typically, year-round marine airflow allows coastal areas to maintain good air quality.

The project area typically has average maximum and minimum winter (i.e., January) temperatures of 60 degrees Fahrenheit (ºF) and 43 ºF, respectively, while average summer (i.e., July) maximum and minimum temperatures are 68 ºF and 52 ºF, respectively. The warmest month is typically September, with an average maximum high of 72 ºF. Because of the

moderating marine influence, which decreases with distance from the ocean, monthly and annual temperature variations are greatest inland and smallest at the coast. The project area is mostly along the coast with temperature variations that are relatively moderate. Precipitation in the project area averages approximately 20 inches per year (WRCC, 2016).

The presence and intensity of sunlight is another important factor that affects air pollution. Typically, ozone is formed at higher temperatures. In the presence of ultraviolet sunlight and warm temperatures, reactive organic gases (ROGs) and nitrogen oxides (NO_x) react to form secondary photochemical pollutants, including ozone. Since temperatures in many of the Air Basin inland valleys are so much higher than near the coast, these inland areas are much more prone to photochemical air pollution.

4.10.1.2 Criteria Pollutants

The U.S. Environmental Protection Agency (USEPA) has identified criteria air pollutants that are a threat to public health and welfare. These pollutants are called “criteria” air pollutants because standards have been established for each of them to meet specific public health and welfare criteria (see Section 4.10.2, Regulatory Setting, below). Below are descriptions of criteria pollutants that are a concern in the study area.

Ozone

Ozone is a respiratory irritant and an oxidant that increases susceptibility to respiratory infections and can cause substantial damage to vegetation and other materials. Ozone is not emitted directly into the atmosphere, but is a secondary air pollutant produced in the atmosphere through a complex series of photochemical reactions involving ROG and NO_x. ROG and NO_x are known as precursor compounds for ozone. Significant ozone production generally requires ozone precursors to be present in a stable atmosphere with strong sunlight for approximately three hours.

Ozone is a regional air pollutant because it is not emitted directly by sources, but is formed downwind of sources of ROG and NO_x under the influence of wind and sunlight. Ozone concentrations tend to be higher in the late spring, summer, and fall, when the long sunny days combine with regional subsidence inversions to create conditions conducive to the formation and accumulation of secondary photochemical compounds, like ozone.

Carbon Monoxide

Carbon monoxide (CO) is a non-reactive pollutant that is a product of incomplete combustion and is mostly associated with motor vehicle traffic. High CO concentrations develop primarily during winter when periods of light winds combine with the formation of ground level temperature inversions (typically from the evening through early morning). These conditions result in reduced dispersion of vehicle emissions. Motor vehicles also exhibit increased CO emission rates at low air temperatures. When inhaled at high concentrations, CO combines with hemoglobin in the blood and reduces the oxygen-carrying capacity of the blood. This results in reduced oxygen

reaching the brain, heart, and other body tissues. This condition is especially critical for people with cardiovascular diseases, chronic lung disease, or anemia.

Particulate Matter

Respirable particulate matter (PM_{10}) and fine particulate matter ($PM_{2.5}$) represent fractions of particulate matter that can be inhaled into air passages and the lungs and can cause adverse health effects. Particulate matter in the atmosphere results from many kinds of dust- and fume-producing industrial and agricultural operations, fuel combustion, and atmospheric photochemical reactions. Some sources of particulate matter, such as demolition and construction activities, are more local in nature, while others, such as vehicular traffic, have a more regional effect. Very small particles of certain substances (e.g., sulfates and nitrates) can cause lung damage directly, or can contain absorbed gases (e.g., chlorides or ammonium) that can pose a health risk. Particulates can also damage materials and reduce visibility.

Other Criteria Pollutants

Sulfur dioxide (SO_2) is produced through combustion of sulfur or sulfur-containing fuels such as coal. SO_2 is also a precursor to the formation of atmospheric sulfate and particulate matter (both PM_{10} and $PM_{2.5}$) and can contribute to sulfuric acid formation in the atmosphere that could precipitate downwind as acid rain. Lead has a range of adverse neurotoxin health effects, and was formerly released into the atmosphere primarily via leaded gasoline. The phase-out of leaded gasoline in California resulted in decreasing levels of atmospheric lead.

4.10.1.3 Toxic Air Contaminants

Toxic Air Contaminants (TACs) are airborne substances that are capable of causing short-term (acute) and/or long-term (chronic or carcinogenic, i.e., cancer-causing) adverse human health effects (i.e., injury or illness). TACs include both organic and inorganic chemical substances. They may be emitted from a variety of common sources including gasoline stations, automobiles, dry cleaners, industrial operations, and painting operations. The current California list of TACs includes approximately 200 compounds, including Diesel Particulate Matter (DPM) emissions from diesel-fueled engines (CARB, 2011).

4.10.1.4 Valley Fever

Valley Fever is an infectious disease caused by the fungus *Coccidioides immitis*. Valley Fever is also known as San Joaquin Valley Fever, Desert Fever, or Cocci. Infection is caused by inhalation of *Coccidioides immitis* spores that have become airborne when dry, dusty soil or dirt is disturbed by natural processes such as wind or earthquakes, or by human induced ground disturbing activities such as construction, farming, etc. There are about 100,000 new cases of Valley Fever per year in the southwestern United States. Incidences of Valley Fever appear to be decreasing locally in Monterey County. Cases of Valley Fever in Monterey County between 2011 through 2013 ranged between 68 and 73 cases per year, which equaled rates of 16.0 to 17.3 cases per populations of 100,000. In 2014, cases of Valley Fever dropped substantially to 19 cases, which were equal to a rate of 4.5 per population of 100,000 (CDPH, 2015).

4.10.1.5 Existing Air Quality

Monterey Bay Unified Air Pollution Control District (MBUAPCD) operates a regional monitoring network that measures the ambient air quality in the Air Basin. Existing levels of air pollutants in the project area can generally be inferred from ambient air quality measurements conducted by MBUAPCD at its closest stations. The closest station is the Salinas #3 Monitoring Station located approximately 7 miles to the east of the MPWSP Desalination Plant site. The Salinas #3 Monitoring Station measures concentrations of ozone, $PM_{2.5}$, CO, and nitrogen dioxide (NO_2). The only monitoring station in the Air Basin that measures concentrations of PM_{10} is the Hollister-Fairview Road Monitoring Station, which is located approximately 24 miles to the east-northeast of the MPWSP Desalination Plant site. In addition, PM_{10} monitoring at the Hollister-Fairview Road Monitoring Station uses only federal reference or equivalent methods, so the data can only be compared to the federal standard.

Ambient concentrations of air pollutants in a given area are determined by the quantity of pollutants emitted by local sources in the area and the atmosphere's ability to transport and dilute such emissions. Areas located close together and exposed to similar wind conditions typically have similar background pollutant concentrations. **Table 4.10-1** shows a five-year (2011–2015) summary of monitoring data for $PM_{2.5}$, CO, and NO_2 collected at the Salinas #3 Monitoring Station, and PM_{10} collected at the Hollister-Fairview Road Monitoring Station. The data are compared with the applicable California Ambient Air Quality Standards (state standards) and National Ambient Air Quality Standards (federal standards). As indicated in the table, there were no recorded violations of the state or federal standards from 2011 through 2015.

4.10.1.6 Sensitive Receptors

For the purposes of air quality and public health, sensitive receptors are generally defined as land uses with population concentrations that would be particularly susceptible to disturbance from air pollutants associated with project construction and/or operation. Sensitive receptor land uses generally include schools, day care centers, hospitals, and residential areas. Some sensitive receptors are considered to be more sensitive than others to air pollutants. The reasons for greater than average sensitivity include pre-existing health problems, proximity to emission sources, or duration of exposure to air pollutants. Schools, hospitals, and convalescent homes are considered to be relatively sensitive to poor air quality because children, elderly people, and the infirm are more susceptible to respiratory distress and other air quality-related health problems than the general public. Residential areas are considered sensitive to poor air quality because people usually stay home for extended periods of time, with associated greater exposure to ambient air quality.

Many locations along the various proposed pipeline segments would be adjacent to sensitive receptors, including residences. However, pipeline segments would be installed in a linear sequence and would progress at a rate of 150 feet to 250 feet per day, which would limit the duration of exposure for any given receptor to construction-related pollutants. In addition to the proposed pipelines, the MPWSP would include several facilities such as the MPWSP Desalination Plant, the aquifer storage and recovery (ASR) injection/extraction wells (ASR-5 and ASR-6 Wells), Terminal Reservoir, Carmel Valley Pump Station, Main System-Hidden Hills

TABLE 4.10-1
AMBIENT AIR QUALITY MONITORING SUMMARY (2011–2015)

Pollutant*	Standard	Monitoring Data by Year				
		2011	2012	2013	2014	2015
Ozone						
Maximum 1-hour concentration (ppm)	0.09 ppm	0.07	0.07	0.07	0.07	0.07
Days over State Standard		0	0	0	0	0
Maximum 8-Hour Average (ppm)	0.070 ppm	0.057	0.055	0.062	0.062	0.062
Days over State Standard		0	0	0	0	0
Respirable Particulate Matter (PM_{10})						
Maximum 24-Hour Average (µg/m^3)	150 µg/m^3	23	105	98	48	66
Estimated Days over National Standard		0	0	0	0	0
Fine Particulate Matter ($PM_{2.5}$)						
Maximum 24-Hour Average (µg/m^3)	35 µg/m^3	20	16	20	20	23
Estimated Days over National Standard Exceedances/Samples[e]		0	0	0	0	0
State Annual Average (µg/m^3)	12 µg/m^3	6	6	7	5	5
Nitrogen Dioxide (NO_2)						
Maximum Hourly Average (ppm) Highest 24-hour average, µg/m^3[c]	0.18 ppm	0.04	0.04	0.04	0.04	0.03
Days over State Standard Exceedances/Samples[e]		0	0	0	0	0
Carbon Monoxide (CO)						
Maximum 8-Hour Average (ppm)	9.0 ppm	0.99	1.39	-	-	-
Days over State Standard		0	0	-	-	-

NOTES:

"-" indicates that data were not collected for the year and are not available; ppm = parts per million; µg/m^3 = micrograms per cubic meter. Emissions data for ozone, $PM_{2.5}$, NO_2, and CO were collected at the Salinas No. 3 Monitoring Station, and the emissions data for PM_{10} were collected at the Hollister-Fairview Road Monitoring Station.

SOURCE: CARB, 2016a.

Interconnection Improvements, and the Ryan Ranch-Bishop Interconnection Improvements. Several of the proposed facilities are located in close proximity to sensitive receptors. The following paragraphs provide summary descriptions of the sensitive receptors in the vicinity of the proposed project components.

Subsurface Slant Wells

The closest sensitive receptors to the proposed slant wells in the CEMEX active mining area are residences at the Marina Dunes RV Park on Dunes Drive located approximately 0.4 mile (2,100 feet) south-southeast of the southern-most slant well site, and residences on Drew Street located approximately 0.5 mile (2,600 feet) south-southeast of the southern-most slant well site.

Source Water Pipeline

The section of the proposed Source Water Pipeline located along Charles Benson Road and Del Monte Boulevard would be between 0.1 mile (600 feet) and approximately 0.2 mile (1,100 feet) south of a rural residence on Neponset Road.

MPWSP Desalination Plant

The closest sensitive receptors to the proposed MPWSP Desalination Plant site are the two rural residences on Neponset Road located approximately 0.4 mile (2,200 feet) and 0.75 mile (3,900 feet) west of the site, respectively. Residences off Monte Road on the north bank of the Salinas River, the second closest set of sensitive receptors, are approximately 0.95 mile (5,000 feet) from the MPWSP Desalination Plant site.

New Desalinated Water Pipeline

The new Desalinated Water Pipeline would pass within 0.1 mile (600 feet) to 0.2 mile (1,100 feet) of two residences on Neponset Road. The southern 0.65 mile (3,500 feet) of the new Desalinated Water Pipeline alignment would be within 100 feet of residences and within 0.25 mile (1,350 feet) of Miss Barbara's Child Care Center at 266 Beach Road and the Marina Children's Center at 261 Beach Road.

New Transmission Main

The northernmost 0.5 mile (2,650 feet) of the new Transmission Main is within 100 feet of residences in Marina. The Crescita Early Education Center/Marina Child Development Center at 3066 Lake Drive in Marina is within 0.25 mile (1,300 feet) of the new Transmission Main alignment. South of the Highway 1 overpass where the new Transmission Main parallels the west side of the highway, the pipeline is 500 feet or more from the nearest sensitive land uses. Along Lightfighter Drive, the new Transmission Main would pass within 200 feet of a baseball field at California State University, Monterey Bay. Along General Jim Moore Boulevard, the pipeline would pass within 250 of residences along 4th Army Road, within 150 feet of Marshall West Elementary School, within 100 feet of residences in the Fitch Park military housing area, and within 300 feet of Seaside Middle School.

ASR Pipelines

The ASR Conveyance Pipeline, ASR Recirculation Pipeline, and the ASR Pump-to-Waste Pipeline would be within 250 feet of Seaside Middle School, and within 50 to 100 feet of residences in the Fitch Park military housing area along Hatten Road and Ardennes Circle.

ASR-5 and ASR-6 Wells

The ASR-5 and ASR-6 Wells would each be within 50 feet of residences in the Fitch Park military housing area on Ardennes Circle.

Terminal Reservoir

The Terminal Reservoir site is approximately 1,400 feet from the nearest residence along Mescal Street.

Castroville Pipeline

The section of the proposed Castroville Pipeline along Charles Benson Road would be approximately 0.2 mile (1,100 feet) south of a residence on Neponset Road and a part of the pipeline in the Monterey TAMC right-of-ways would be approximately 250 feet from a residence along Neponset Road. On the east side of Salinas River, the Castroville Pipeline would pass adjacent to about a dozen residences. The pipeline would pass about 200 feet south of a residence along Nashua Road, approximately 300 west of a residence at Castroville Road, and would terminate approximately 700 feet southeast of residences in Cypress Court.

Carmel Valley Pump Station

Carmel Valley Pump Station would be within 150 of two residences along Rancho San Carlos Road.

Interconnections with Highway 68 Satellite Systems

The Ryan Ranch-Bishop Interconnection Improvements would be located in a business park area with few sensitive receptors, with the exception of the Ryan Ranch Children's Center and York School, both of which are located approximately 0.2 mile (1,000 feet) from the proposed improvements.

The proposed Main System-Hidden Hills Interconnection Improvements are located in a residential neighborhood, with residences located as close as 50 feet to the proposed pipeline route.

4.10.2 Regulatory Framework

This section provides an overview of federal, state, and local environmental laws, policies, plans, and regulations relevant to air quality. A brief summary of each is provided, along with a finding regarding the proposed project's consistency with those regulatory requirements. The consistency findings concern the proposed project, without mitigation. Where the project, as proposed, would be consistent with the applicable regulatory requirement, no further discussion of project consistency with that regulatory requirement is provided. Where the project, as proposed, would be potentially inconsistent with the applicable regulatory requirement, the reader is referred to a specific impact discussion in Section 4.10.4, Direct and Indirect Effects of the Proposed Project, below, where the potential inconsistency is discussed in more detail. Where applicable, the discussion in Section 4.10.4 identifies feasible mitigation that would resolve or minimize the potential inconsistency.

Federal, state, and regional regulations provide the framework for analyzing and controlling air pollutant emissions and thus general air quality. The United States Environmental Protection

Agency (USEPA) is responsible for implementing the programs established under the federal Clean Air Act, such as establishing and reviewing the federal ambient air quality standards and reviewing State Implementation Plans (SIPs), described further below. However, the USEPA has delegated the authority to implement many of the federal programs to the states while retaining an oversight role to ensure that the programs continue to be implemented.

In California, the California Air Resources Board (CARB) is responsible for establishing and reviewing the state ambient air quality standards, developing and managing the California SIP, securing approval of this plan from the USEPA, and identifying TACs. CARB also regulates mobile emissions sources in California, such as construction equipment, trucks, and automobiles, and oversees the activities of air quality management districts, which are organized at the county or regional level. The MBUAPCD is the regional agency primarily responsible for regulating stationary emission sources at facilities within its geographic area (i.e., Monterey, Santa Cruz, and San Benito counties) and for preparing the air quality plans that are required under the federal Clean Air Act and the 1988 California Clean Air Act.

4.10.2.1 Federal and State Regulations

The federal Clean Air Act Amendments of 1977 established federal ambient air quality standards, and individual states retained the option to adopt more stringent standards and to include other pollution sources. California had already established its own air quality standards when federal standards were established, and because of the unique meteorological problems in California, there are considerable differences between some of the state and federal standards. As shown in **Table 4.10-2**, the state standards tend to be at least as protective as federal standards, and are often more stringent.

Federal ambient air quality standards (federal standards) exist for seven criteria air pollutants: ozone, CO, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and lead. In addition, California has established state standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. The ambient air quality standards are intended to protect public health and welfare, and they specify the concentration of pollutants (with an adequate margin of safety) to which the public can be exposed without adverse health effects. They are designed to protect those segments of the public most susceptible to respiratory distress, referred to as sensitive receptors, including people with asthma, the very young, elderly, people weak from other illness or disease, or people engaged in strenuous work or exercise. Healthy adults can tolerate occasional exposure to air pollution levels that are somewhat above the ambient air quality standards before adverse health effects are observed.

Federal Clean Air Act

The 1977 Clean Air Act (last amended in 1990; Title 42 United States Code Section 7401 et seq.) requires that regional planning and air pollution control agencies prepare a regional air quality plan to outline the measures by which both stationary and mobile sources of pollutants will be controlled to achieve all standards within the deadlines specified in the Clean Air Act.

TABLE 4.10-2
STATE AND FEDERAL AMBIENT AIR QUALITY STANDARDS AND ATTAINMENT STATUS FOR NORTH CENTRAL COAST AIR BASIN

Pollutant	Averaging Time	State Standards		Federal Standards	
		Concentration	Attainment Status	Concentration	Attainment Status
Ozone	8 Hour	0.070 ppm	N-T	0.070 ppm	U*
	1 Hour	0.09 ppm	N-T	N/A	N/A
Carbon Monoxide	8 Hour	9.0 ppm	U	9 ppm	U
Nitrogen Dioxide	Annual Average	0.030 ppm	A	0.053 ppm	U
	1 Hour	0.18 ppm	A	0.100 ppm	U
Sulfur Dioxide	24 Hour	0.04 ppm	A	N/A	N/A
	3 Hour	N/A	N/A	0.5 $\mu g/m^3$	A
	1 Hour	0.25 ppm	A	0.075 ppm	A
Respirable Particulate Matter (PM_{10})	Annual Arithmetic Mean	20 $\mu g/m^3$	N	N/A	N/A
	24 Hour	50 $\mu g/m^3$	N	150 $\mu g/m^3$	U
Fine Particulate Matter ($PM_{2.5}$)	Annual Arithmetic Mean	12 $\mu g/m^3$	A	12.0 $\mu g/m^3$	U
	24 Hour	N/A	N/A	35 $\mu g/m^3$	U
Sulfates	24 Hour	25 $\mu g/m^3$	A	N/A	N/A
Lead	30-Day Average	1.5 $\mu g/m^3$	A	N/A	N/A
	3-Month Rolling Average	N/A	N/A	0.15 $\mu g/m^3$	U
Hydrogen Sulfide	1 Hour	0.03 ppm	U	N/A	N/A
Vinyl Chloride	24 Hour	0.01 ppm	U	N/A	N/A
Visibility Reducing Particles	8 Hour	Extinction of 0.23/km; visibility of 10 miles or more	U	N/A	N/A

NOTES: A = attainment; N = nonattainment; N-T = nonattainment-transitional; U = unclassified but attainment can be assumed; N/A = not applicable or no applicable standard; ppm = parts per million; $\mu g/m^3$ = micrograms per cubic meter.

* On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm. Attainment status is relative to the previous 0.075 ppm standard. USEPA will make recommendations on attainment designations for 2015 standard by October 1, 2016, and issue final designations October 1, 2017.

SOURCES: CARB, 2015 and CARB, 2016b

The USEPA is responsible for implementing programs developed under the federal Clean Air Act, such as establishing and reviewing the federal standards for CO, ozone, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and lead. The federal Clean Air Act also requires the USEPA to designate areas (counties or air basins) as attainment or non-attainment with respect to each criteria pollutant, depending on whether the area meets the federal standards. If an area is designated as non-attainment, it does

not meet a federal standard and is required to create and maintain a SIP for achieving compliance with the applicable federal standard. Conformity to the SIP is defined under the 1990 Clean Air Act amendments as conformity with the plan's purpose in eliminating or reducing the severity and number of violations of the federal standards and achieving expeditious attainment of these standards.

The Clean Air Act General Conformity Rule helps states improve air quality in areas that do not attain the federal standards by ensuring that federal actions conform to the SIP. The MPWSP is not subject to the General Conformity Rule because it would be located in an area that meets federal standards and the area is not subject to a maintenance plan with conformity requirements.[1]

California Clean Air Act

The California Clean Air Act was approved in 1988 and requires each local air district in the state to prepare an air quality plan to achieve compliance with the state standards. CARB is the agency delegated responsibility for preparing and submitting the SIP to the USEPA. CARB also oversees air quality policies in California and has established state standards for NO_2, CO, PM_{10}, $PM_{2.5}$, SO_2, ozone, lead, sulfates, hydrogen sulfide, vinyl chloride, and visibility reducing particles. Similar to the USEPA, CARB designates counties or air basins in California as attainment or non-attainment with respect to the state standards.

Regulations for Mobile Sources of Air Pollutants

The following air quality regulations apply to mobile sources and are directly relevant to the project. On road vehicles with a gross vehicular weight rating of 10,000 pounds or greater shall not idle for longer than 5 minutes at any location (Title 13 California Code of Regulations (CCR) Section 2485). This restriction does not apply when vehicles remain motionless during traffic or when vehicles are queuing. Off-road equipment engines shall not idle for longer than 5 minutes (Title 13 CCR Section 2449(d)(3). Exceptions to this rule include: idling when queuing; idling to verify that the vehicle is in safe operating condition; idling for testing, servicing, repairing or diagnostic purposes; idling necessary to accomplish work for which the vehicle was designed (such as operating a crane); and idling required to bring the machine to operating temperature as specified by the manufacturer.

Attainment Status

Under amendments to the federal Clean Air Act, USEPA has classified air basins or portions thereof as either "attainment" or "non-attainment" for each criteria air pollutant, based on whether or not the federal standards have been achieved. The California Clean Air Act, which is

[1] The Phase 1 final rule to implement the 8-hour Ozone standard was published on April 30, 2004. The anti-backsliding provisions in that rule set forth specific requirements for areas that are designated attainment for the 8-hour Ozone standard and that were at the time of the 8-hour designations (generally June 15, 2004) either attainment areas with maintenance plans for the 1-hour standard, such as the Air Basin; or nonattainment for the 1-hour standard. Specifically, 40 CFR part 51, section 51.905(a)(3) and (4) requires these areas to submit a maintenance plan under section 110(a)(1) of the Clean Air Act. That maintenance plan must demonstrate maintenance for 10 years post designation; however, this maintenance plan does not carry with it any conformity obligations (unlike maintenance plans required under Section 175A of the Act).

patterned after the federal Clean Air Act, also requires areas to be designated as "attainment" or "non-attainment" for the state standards. Thus, areas in California have two sets of attainment/ non-attainment designations: one set with respect to the federal standards and one set with respect to the state standards. **Table 4.10-2** shows the attainment status of the Air Basin with respect to the federal and state ambient air quality standards for different criteria pollutants. As indicated in the table, the Air Basin is designated as attainment for all federal standards and is designated non-attainment for ozone and PM_{10} under the state standards.

California Coastal Act

The California Coastal Act (Public Resources Code Section 30000 et seq.) provides for the long-term management of lands within California's coastal zone boundary. Of primary relevance to air quality is a Coastal Act policy requiring that new development be consistent with applicable air pollution control district or the State Air Resources Board requirements. A preliminary assessment of project consistency with this priority is provided here. Final determinations regarding project consistency are reserved for the Coastal Commission. The MPWSP subsurface slant wells would use electricity from PG&E's electrical power grid; therefore, these facilities would not be subject to air district or State requirements. As such, the project would be consistent with Coastal Act policies related to air quality.

4.10.2.2 Regional Agencies and Regulations

Monterey Bay Unified Air Pollution Control District

The MBUAPCD is the regional agency responsible for air quality regulation within the North Central Coast Air Basin (Air Basin). The MBUAPCD regulates air quality through its planning and review activities. The MBUAPCD has permit authority over most types of stationary emission sources and can require stationary sources to obtain permits, impose emission limits, set fuel or material specifications, and establish operational limits to reduce air emissions. The MBUAPCD regulates new or expanding stationary sources of toxic air contaminants.

State law assigns local air districts the primary responsibility for control of air pollution from stationary sources, under CARB's oversight. The MBUAPCD is responsible for developing regulations governing emissions of air pollution, permitting and inspecting stationary sources of air pollution, monitoring of ambient air quality, and air quality planning activities, including implementation of transportation control measures (MBUAPCD, 2008).

Air Quality Management Plan for the Monterey Bay Region

In 1991, the MBUAPCD adopted the *Air Quality Management Plan for the Monterey Bay Region* (AQMP) in response to the California Clean Air Act of 1988, which established specific planning requirements to meet the ozone standards. The California Clean Air Act requires that AQMPs be updated every 3 years. The MBUAPCD has updated the AQMP five times. The most recent update, the *Triennial Plan Revision 2009-2011* (2012 AQMP), was adopted in 2013 (MBUAPCD, 2013). The 2012 AQMP relies on a multilevel partnership of federal, State, regional, and local governmental agencies. These agencies (USEPA, CARB, local governments,

Association of Monterey Bay Area Governments [AMBAG]), and the MBUAPCD are the primary agencies that implement the AQMP programs. The 2012 AQMP documents the MBUAPCD's progress toward attaining the state 8-hour ozone standard, which is more stringent than the state 1-hour ozone standard. The 2012 AQMP builds on information developed in past AQMPs and includes a review and update to the 2008 AQMP. The primary elements from the 2008 AQMP that were updated in the 2012 revision include the air quality trends analysis, emission inventory, and mobile source programs. The MPWSP would be potentially inconsistent with the 2012 AQMP because it would contribute to a temporary exceedance of an ozone ambient air quality standard. This issue is addressed in Impact 4.10-1.

Stationary emission sources continue to be the smallest portion of both the ROG and NO_x emissions inventories. Mobile sources are the main contributor to ROG and NO_x emissions in the region. The 2012 AQMP identifies a continued trend of declining ozone emissions in the Air Basin primarily related to lower vehicle miles traveled. Based on monitoring data for 2009-2011, there were fewer exceedance days in the time period 2009-2011 compared to 2006-2008. Therefore, the control measures presented in the 2008 AQMP have not been implemented because the MBUAPCD determined progress was continuing to be made toward attaining the 8-hour ozone standard (MBUAPCD, 2013).

Rules for Stationary Sources

The MBUAPCD regulates new and modified stationary sources through its Rule 207, which incorporates state and federal requirements for new and modified stationary sources as well as MBUAPCD-specific regulations. When net emissions from a new or modified facility exceed State offset thresholds (i.e., 10 tons per year for any criteria pollutant), the increase must be offset from an existing source, with certain exceptions, such as emergency internal combustion engines used during power outages or operated less than 60 hours per year for emergency pumping of water. Rule 207 also requires application of Best Available Control Technology when a source would emit 25 pounds per day or more of ROG or NO_x emissions. All proposed stationary diesel engines would be subject to the MBUAPCD's air toxic control measures, which require emission controls and limits on testing and maintenance. In addition, pursuant to Rule 1010, the MBUAPCD requires permits for all emergency standby engines. Rule 1010, Subsection 3.2.1.3.1, requires the following operating requirements and diesel particulate emission standards for new stationary emergency standby diesel engines over 50 horsepower (hp) (MBUAPCD, 2010):

- Diesel particulate matter limit of less than 0.15 grams per brake horsepower-hour; or
- Off-road Engine Certification Standard for an off-road engine of the same hp rating; and
- Less than 50 hours per year for non-emergency operation.

Permits to operate each of the proposed emergency generators would be secured by CalAm from MBUAPCD. Therefore, the MPWSP would be consistent with MBUAPCD Rules 207 and 1010.

4.10.2.3 Applicable Land Use Plans, Policies, and Regulations

Table 4.10-3 presents the regional and local land use plans, policies, and regulations pertaining to air quality relevant to the MPWSP that were adopted for the purpose of avoiding or mitigating an environmental effect and indicates project consistency with such plans, policies, and regulations. Where the analysis concludes the proposed project would not conflict with the applicable plan, policy, or regulation, the finding is noted and no further discussion is provided. Where the analysis concludes the project would be potentially inconsistent with the applicable plan, policy, or regulation, the reader is referred to the specific impact in Section 4.10.5, Direct and Indirect Effects of the Project (Proposed Action). In that subsection, the significance of the potential conflict is evaluated. Where the effect of the potential conflict would be significant, feasible mitigation is identified to resolve or minimize that conflict.

TABLE 4.10-3
APPLICABLE REGIONAL AND LOCAL LAND USE PLANS AND POLICIES RELEVANT TO AIR QUALITY

Project Planning Region	Applicable Plan	Plan Element/ Section	Project Component(s)	Specific Plan, Policy, or Ordinance	Relationship to Avoiding or Mitigating a Significant Environmental Impact	Project Consistency with Plan, Policy, or Ordinance
County of Monterey (coastal zone and inland areas)	Monterey County General Plan	Conservation and Open Space	Source Water Pipeline, MPWSP Desalination Plant, new Desalinated Water Pipeline, Brine Discharge Pipeline, Pipeline to CSIP Pond, Castroville Pipeline, Carmel Valley Pump Station, Main System–Hidden Hills Interconnection Improvements, and Ryan Ranch–Bishop Interconnection Improvements	***Policy OS-10.6:*** The Monterey Bay Unified Air Pollution Control District's air pollution control strategies, air quality monitoring, and enforcement activities shall be supported.	This policy is intended to protect and enhance Monterey County's air quality.	Potentially Inconsistent: Construction activities in unincorporated Monterey County would generate emissions in the air basin that could conflict with implementation of the applicable air quality plan. This is addressed in Impact 4.10-1.
County of Monterey (coastal zone and inland areas)	Monterey County General Plan	Conservation and Open Space		***Policy OS-10.8:*** Air quality shall be protected from naturally occurring asbestos by requiring mitigation measures to control dust and emissions during construction, grading, quarrying, or surface mining operations. This policy shall not apply to Routine and Ongoing Agricultural Activities except as required by state and federal law.	This policy is intended to protect and enhance Monterey County's air quality with respect to naturally occurring asbestos.	Consistent: The components of the MPWSP are not proposed in areas that are likely to contain naturally occurring asbestos.
County of Monterey (coastal zone and inland areas)	Monterey County General Plan	Conservation and Open Space		***Policy OS-10.9:*** The County of Monterey shall require that future development implement applicable Monterey Bay Unified Air Pollution Control District control measures. Applicants for discretionary projects shall work with the Monterey Bay Unified Air Pollution Control District to incorporate feasible measures that assure that health-based standards for diesel particulate emissions are met. The County of Monterey will require that future construction operate and implement MBUAPCD PM_{10} control measures to ensure that construction-related PM_{10} emissions do not exceed the MBUAPCD's daily threshold for PM_{10}. The County shall implement MBUAPCD measures to address off-road mobile source and heavy duty equipment emissions as conditions of approval for future development to ensure that construction-related NO_x emissions from non-typical construction equipment do not exceed the MBUAPCD's daily threshold for NO_x.	This policy is intended to protect and enhance Monterey County's air quality with respect to criteria pollutants.	Consistent: Pursuant to Rule 1010, Subsection 3.2.1.3.1, emergency generators would be required to follow operating requirements and diesel particulate emission standards for new stationary emergency standby diesel engines over 50 hp (see Section 4.10.2.2). Construction-related PM_{10} emissions would be mitigated to ensure that emissions would not exceed the MBUAPCD's daily threshold for PM_{10}. Although NO_x emissions from all construction equipment would exceed the MBUAPCD's significance threshold, it is unlikely that emissions from only non-typical construction equipment would exceed the MBUAPCD's daily threshold for NO_x.
City of Seaside (coastal zone and inland areas)	Seaside Municipal Code	Chapter 8.40 Air Pollution	New Transmission Main, ASR Conveyance Pipeline, ASR Pump-to-Waste Pipeline, ASR Recirculation Pipeline, Terminal Reservoir	***Section 8.40.030 Prohibited Discharges.*** A. No person shall discharge into the atmosphere from any single source of emission whatsoever any air contaminant for a period or periods aggregating more than three minutes in any one hour which is: 1. As dark or darker in shade as that designated as No. 2 on the Ringlemann Chart, as published by the United States Bureau of Mines; or 2. Of such opacity as to obscure an observer's view to a degree equal to or greater than does smoke described in subdivision 1 of this subsection. B. No person shall discharge into the atmosphere from any single source particulate matter in excess of 0.4 grains per cubic foot of gas at a gas temperature of sixty degrees Fahrenheit and a gas pressure of 14.7 pounds per square inch absolute. C. No person shall discharge into the atmosphere from any single source of emission whatsoever sulfur compounds exceeding 0.2 percent by volume calculated as sulfur dioxide (SO_2) at the point of discharge.	This section is intended to protect the people of the city from undesirable air contaminants.	Potentially Inconsistent: Short-term construction activities in the city of Seaside would generate fugitive dust emissions that could conflict with this municipal code. This issue is addressed in Impact 4.10-1, which identifies mitigation measures that would minimize or avoid this potential inconsistency.
City of Seaside (coastal zone and inland areas)	Seaside Municipal Code	Chapter 8.40 Air Pollution	New Transmission Main, ASR Conveyance Pipeline, ASR Recirculation Pipeline, ASR Pump-to-Waste Pipeline, and Terminal Reservoir	***Section 8.40.040: Nuisance declared – Abatement.*** No person shall discharge from any source whatsoever such quantities of air contaminants or other material as will: A. Cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public; or B. Endanger the comfort, repose, health, or safety of any such persons or public; or C. Cause or have a natural tendency to cause injury or damage to business or property. Such discharge is declared to be a public nuisance and shall be abated.	This section is intended to protect the people of the city from undesirable air contaminants.	Potentially Inconsistent: Short-term construction activities in the city of Seaside would generate fugitive dust and fuel exhaust emissions that could conflict with this municipal code. This issue is addressed in Impact 4.10-1, which identifies mitigation measures that would minimize or avoid this potential inconsistency.

SOURCE: Monterey County, 2010.

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4.10.3 Evaluation Criteria

Implementation of the proposed project would have a significant impact related to air quality if it would:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors);
- Expose sensitive receptors to substantial pollutant concentrations; or
- Create objectionable odors affecting a substantial number of people.

This EIR/EIS relies on the significance criteria established by MBUAPCD to assess the impacts of the proposed project on air quality. Because the MBUAPCD is a responsible agency under CEQA, the criteria pollutant thresholds and analytical guidelines developed by the MBUAPCD are framed in the context of CEQA; however, given that the MPWSP is not subject to the federal General Conformity Rule because it would be located in an area that meets federal standards and the area is not subject to a maintenance plan with conformity requirements, a separate discussion of air quality analysis requirements for NEPA is not provided.

The MBUAPCD has adopted two different sets of CEQA guidelines: Guidelines for Implementing the California Environmental Quality Act (2016 guidelines) for the MBUAPCD's implementation of CEQA as a lead or responsible agency (MBUAPCD, 2016a), and CEQA Air Quality Guidelines (2008 guidelines) that provide guidance for lead agencies that prepare project-specific CEQA and NEPA documentation for projects within the air district (MBUAPCD, 2008). The 2016 guidelines establish criteria pollutant significance thresholds for construction emissions, which were not included in the 2008 guidelines. Although the purpose of the 2016 guidelines is to describe the MBUAPCD's procedures for enforcing CEQA, the MBUAPCD recommends that lead agencies use the new criteria pollutant mass emissions thresholds identified in the 2016 guidelines for projects that would include a large construction effort (MBUAPCD, 2016b).

Due to the substantial amount of project-related construction activities that would occur within the Air Basin, the CPUC and Sanctuary have determined that the criteria pollutant mass emissions significance thresholds identified in the MBUAPCD's 2016 guidelines are appropriate to evaluate the regional air quality impacts that would be associated with the project. The 2016 guidelines state that a project would not have a significant air quality effect on the environment if construction or operation of the project would emit less than 137 pounds per day of NO_x or ROG, 82 pounds per day of PM_{10}, 55 pounds per day of $PM_{2.5}$, or 550 pounds per day of CO.

For the purpose of this EIR/EIS analysis, the MBUAPCD considers temporary emissions of a carcinogenic TAC that can result in a hazard index greater than 1 for acute or chronic impacts

and/or a cancer risk greater than 10 incidents per population of 1,000,000 to be significant (MBUAPCD, 2016a).

4.10.4 Approach to Analysis

Evaluation of potential impacts on air quality from construction and operation of the proposed project included reviewing relevant regulatory guidelines, characterizing the existing air quality environment throughout the project area, and estimating pollutant emissions from construction and operation of project facilities. Individual and cumulative impacts were assessed by comparing the MBUAPCD significance thresholds to estimated levels of pollutant emissions. The following discussions provide an overview of the approach to analysis for air quality impacts.

4.10.4.1 Consistency with Air Quality Plans

Any project that could conflict with the MBUAPCD's goal of attaining the state 8-hour ozone standard would be considered to conflict with the intent of the 2012 AQMP. The measures for determining whether a project would conflict with the intent of the 2012 AQMP is consistency with the CEQA mass emissions thresholds of significance for NO_x and ROG, and/or whether a project would contribute to population growth not accounted for in the 2012 AQMP. If the CEQA thresholds of significance are exceeded, or if the project would result in population growth not accounted for the 2012 AQMP, then the project would be considered to conflict with the intent of the 2012 AQMP and the associated impact would be significant.

4.10.4.2 Violate a Standard or Contribute to a Violation

Construction Emissions

For the purposes of this evaluation, the NO_x significance threshold represents emissions of all oxides of nitrogen, including NO_2. Given the low ambient levels of SO_2 and lead in the Air Basin, short-term construction-related SO_2 and lead emissions associated with the proposed project are not expected to result in significant effects and were not calculated.

For off-road equipment, emissions were estimated using the California Emissions Estimator Model version 2013.2.2 (CalEEMod v2013.2.2), with assumptions for construction equipment inventories, equipment horsepower ratings, and construction phasing developed by the CPUC and the Sanctuary in coordination with CalAm for this EIR/EIS analysis. It is assumed that each piece of equipment associated with construction of the proposed MPWSP Desalination Plant would operate for up to 12 hours per day, the drill rigs required to excavate the slant wells and ASR injection/extraction wells would operate for up to 24 hours per day, the other equipment required to construct the slant wells and associated facilities would operate for up to 12 hours per day, and construction equipment associated with all other proposed components (e.g., pipelines, pump stations, ASR facilities) would operate up to 8 hours per day. Emission factors for on-road trucks and worker vehicles were derived using CARB's EMFAC2014 Burden Model. The worst-case daily trip rates for each project component are presented in **Table 4.9-4** of Section 4.9, Traffic and Transportation.

Emission factors and process information from *AP-42, Compilation of Air Pollutant Emission Factors* (USEPA, 2006) and the CalEEMod emissions model results were used to calculate fugitive dust emissions from project-related construction activities. Maximum daily fugitive dust emissions were evaluated for the following activities: general site preparation and earthmoving for the MPWSP Desalination Plant, subsurface slant wells, ASR-5 and ASR-6 Wells, Carmel Valley Pump Station, and Terminal Reservoir; soil handling associated with 1,250 feet of trenching for seven pipeline segments (assuming pipeline installation rates of 150 to 250 feet per day); and travel on unpaved roads. For general site preparation and earth-moving activities, an emission rate of 20 pounds of PM_{10} per acre graded per day was used (CARB, 2002). Fugitive dust that would be associated with pipeline trench excavation activities was estimated using emission factors of 0.001 pound PM_{10} and 0.0002 pound per $PM_{2.5}$ per cubic yard material handled based on the truck loading emission factor formula used by CalEEMod (CAPCOA, 2013). $PM_{2.5}$ fractions for soil disturbance activities developed by the South Coast Air Quality Management District (SCAQMD) were used to estimate $PM_{2.5}$ fugitive dust emissions that would be associated with site preparation activities (SCAQMD, 2006). Fugitive dust in the form of PM_{10} and $PM_{2.5}$ resulting from travel on unpaved roads was estimated using USEPA methodology identified in *AP-42, Compilation of Air Pollutant Emission Factors* (USEPA, 2006). The MBUAPCD does not recommend quantification of entrained road dust from travel on paved roads (MBUAPCD, 2008).

ROG off-gassing that would be associated with project-related asphalt paving activities was estimated using the CalEEMod emission factor of 2.62 pounds ROG per acre paved per day (CAPCOA, 2013).

Operational Emissions

Long-term emissions estimates for the proposed project were based on the proposed emergency generators at the MPWSP Desalination Plant site, and the Carmel Valley Pump Station, vehicle trips associated with commuting workers and truck deliveries, and off-road equipment use associated with periodic maintenance at the slant well sites. Although the emergency generators would be relatively large (between 68 hp and 1,000 hp), it is anticipated that operation of the generators would be limited to 50 hours per year per generator and less than 5 hours per month for testing per generator based on MBUAPCD requirements. Emission factors for the emergency generators were obtained from the dealer specifications of standby diesel generator sets similar to the size of the proposed emergency generators, with an adjustment to particulate emissions limits per MBUAPCD Rule 1010. Emissions associated with vehicle trips were estimated using emission factors derived from CARB's EMFAC2014 Burden Model. Vehicle trips associated with operation of the proposed facilities were estimated as part of the impact analysis presented in Section 4.9, Traffic and Transportation (see **Table 4.9-4**). For off-road equipment associated with operational maintenance of the slant wells that would be required every five years, emissions were estimated using CalEEMod v2013.2.2, under the assumption that four pieces of heavy-duty off-road equipment would operate between five and eight hours per day for periods of up to 18 weeks.

4.10.4.3 Impacts on Sensitive Receptors

Construction of the proposed project would result in short-term diesel exhaust emissions from onsite heavy duty equipment and from material deliveries and hauling of excess spoils and debris. Particulate exhaust emissions from diesel-fueled engines (i.e., DPM) were identified as a TAC by CARB in 1998. Construction of the project would pose a potential cancer and chronic health risk. These risks would primarily result when construction would be located in close proximity to sensitive receptors for an extended duration.

Construction of several components of the proposed project would occur in the immediate vicinity (i.e., within 1,000 feet) of sensitive receptor locations for durations ranging from several days to 6 months. Pipeline construction activities would proceed linearly at a rate of 150 feet to 250 feet per day, which would limit the duration of exposure for any given receptor. The three construction sites that pose the highest health risks include the Carmel Valley Pump Station and the ASR-5 and ASR-6 Wells. A health risk assessment was conducted for each of these three construction sites. The assessment includes estimations of DPM emissions based on PM_{10} exhaust emissions estimates made using the CalEEMod model that were then converted to maximum emissions concentrations, which were used to generate the maximum concentrations to estimate health risks. DPM concentrations for the three sites were modeled using the USEPA's AERMOD dispersion model (version 12060). The AERMOD modeling used several technical assumptions and inputs, including:

- rural dispersion coefficients;
- five years of meteorological data collected at the Monterey Airport from 2009 through 2013;
- PM10 emission rates for onsite construction exhaust estimated using CalEEMod;
- an area source (or sources) representing the construction area; and
- x, y, and z coordinates for sensitive receptors located in the project vicinity.

The maximum concentrations were converted to cancer and chronic health risks using the health risk assessment guidance issued by the California Office of Environmental Health Hazard Assessment (OEHHA, 2015) and the anticipated construction durations for each of the project facilities. The cancer risk estimate assumed a six-month exposure for sensitive receptors near the two pump station sites, with three months of exposure in the third trimester of pregnancy and three months in the 0 to 2 year age category. For the ASR-5 and ASR-6 Wells, a one-year DPM exposure period was used, with three months of exposure in the third trimester of pregnancy and nine months in the 0 to 2 year age category. For these three facilities the cancer risks for the third trimester assumed a daily breathing rate of 361 liters of air per kilogram of body weight-day, a child risk factor of 10, and 85 percent of the time spent at home. The health risk for the 0 to 2 year age category assumed a daily breathing rate of 1,090 liters of air per kilogram of body weight-day, a child risk factor of 10, and 85 percent of the time spent at home.

Operation of the proposed project would result in negligible long-term onsite TAC emissions, which would not be in the vicinity of any sensitive receptors that could pose a public health risk; therefore, the health risk analysis in this EIR/EIS relative to long-term project operations is qualitative.

4.10.5 Direct and Indirect Effects of the Proposed Project

Table 4.10-4 provides a summary of air quality impacts for the MPWSP.

TABLE 4.10-4
SUMMARY OF IMPACTS – AIR QUALITY

Impacts	Significance Determinations
Impact 4.10-1: Generate emissions of criteria air pollutants and contribute to a violation of an ambient air quality standard during construction.	SU
Impact 4.10-2: Construction activities could conflict with implementation of the applicable air quality plan.	SU
Impact 4.10-3: Expose sensitive receptors to substantial pollutant concentrations and/or *Coccidioides immitis* spores or create objectionable odors affecting a substantial number of people during construction.	LS
Impact 4.10-4: Long-term increase of criteria pollutant emissions that could contribute to a violation of an ambient air quality standard during operations.	LS
Impact 4.10-5: Expose sensitive receptors to substantial pollutant concentrations or create objectionable odors affecting a substantial number of people during operations.	LS
Impact 4.10-C: Cumulative impacts related to air quality.	SU

NOTES:
LS = Less than Significant impact, no mitigation required
LSM = Less than Significant impact with Mitigation
SU = Significant and Unavoidable, even with implementation of mitigation

4.10.5.1 Construction Impacts

Impact 4.10-1: Generate emissions of criteria air pollutants that could contribute to a violation of an ambient air quality standard during construction. (*Significant and Unavoidable, even with implementation of mitigation*)

Project construction would involve the use of a variety of off-road diesel-fueled equipment, including graders, backhoes, excavators, loaders, etc., that would emit exhaust containing air pollutants at the construction sites. In addition, construction vehicles and workers' vehicles would generate exhaust emissions offsite, and fugitive dust would be generated by onsite ground disturbing and material handling activities as well as by truck travel on unpaved roads. Average daily emissions associated with the construction components that could occur simultaneously were combined to determine the "worst-case" scenario for daily emissions. The worst-case daily emissions scenario is estimated to occur in May and June of 2019 and includes simultaneous construction of the proposed subsurface slant wells, MPWSP Desalination Plant, Source Water Pipeline, Brine Discharge Pipeline, Castroville Pipeline, Pipeline to CSIP, new Transmission Main, Terminal Reservoir, ASR Pipelines, ASR Injection and Extraction Wells, and Carmel Valley Pump Station. Emissions summaries are presented below for off-road (e.g., tractors, graders, backhoes) and on-road (i.e., light duty trucks and heavy haul trucks) exhaust sources as well as for sources of fugitive dust (e.g., dust entrainment from travel on unpaved roads and earth moving activities such as grading and excavation) and ROG off-gassing from paving.

Assumptions used to estimate construction emissions are summarized in Section 4.10.4, above, and are presented in detail in **Appendix G1**. A summary of the estimated maximum daily construction emissions is presented in **Table 4.10-5**.

TABLE 4.10-5
ESTIMATED MAXIMUM DAILY CONSTRUCTION EMISSIONS (pounds/day)

Emission Source	ROG	NOx	CO	PM_{10}	$PM_{2.5}$
Off-road Construction Equipment and On-road Vehicle Exhaust*					
Desalination Plant	6.39	90.11	48.47	3.36	2.71
Subsurface Slant Wells	3.57	48.28	23.09	1.84	1.56
Source Water Pipeline	2.51	31.10	19.34	1.31	1.12
Brine Discharge Pipeline	2.34	26.99	17.21	1.18	1.04
Castroville Pipeline	2.39	27.59	17.61	1.19	1.06
Pipeline to CSIP	2.34	26.99	17.21	1.18	1.04
New Transmission Main	2.54	31.52	19.62	1.32	1.13
Terminal Reservoir	2.40	36.30	16.99	1.29	1.01
ASR Pipelines	2.47	30.74	19.10	1.30	1.10
ASR Injection and Extraction Wells	1.45	20.36	10.73	0.70	0.55
Carmel Valley Pump Station	1.09	13.62	7.56	0.51	0.44
Subtotal	**29.48**	**383.59**	**216.91**	**15.16**	**12.76**
Fugitive Dust	N/A	N/A	N/A	263.92	36.04
Off-gassing from Paving	4.53	N/A	N/A	N/A	N/A
Total	**34.01**	**383.59**	**216.91**	**279.08**	**48.80**
MBUAPCD CEQA Significance Threshold	137	137	550	82	55
Exceeds Threshold Without Mitigation?	No	Yes	No	Yes	No
Exceeds Threshold With Mitigation?	No	Yes	No	No	No

NOTE: N/A = not applicable.

* The on-road vehicle emissions of PM_{10} and $PM_{2.5}$ identified in this table include emissions associated with break and tire wear.

SOURCE: ESA, 2016. See **Appendix G1**.

Gaseous Criteria Pollutant Emissions

As shown in Table 4.10-5, maximum daily construction equipment and vehicle exhaust emissions of NO_x would be approximately 384 pounds per day, which would exceed the MBUAPCD's significance threshold of 137 pounds per day, resulting in a significant impact. Emissions of ROG and CO would not exceed the MBUAPCD's respective significance criteria; therefore, impacts associated with these pollutants would be less than significant. Implementation of **Mitigation Measures 4.10-1a (Equipment with High-Tiered Engine Standards)** and **4.10-1b (Idling Restrictions)** would reduce NO_x emissions by requiring CalAm and/or its construction contractor(s) to make a good faith effort to use construction equipment that meets the highest USEPA-certified tiered emission standards as well as to ensure on-road and off-road equipment

idling is minimized. For the purpose of estimating mitigated construction emissions of NO_x, it is assumed that compliance with Mitigation Measure 4.10-1a would result in equipment emissions that would be equivalent to those that would be associated with use of engines that comply with Tier 3 engine standards. Implementation of this mitigation measure would decrease maximum daily construction emissions of NO_x to approximately 324 pounds per day, which would continue to result in a significant impact with respect to contributing to an exceedance of an ozone and/or NO_2 ambient air quality standard. With regard to the emission reductions that would be associated with Mitigation Measure 4.10-1b, because the emission estimates summarized in Table 4.10-5 do not include emissions associated with idling vehicles, implementation of this measure would not reduce NO_x exhaust emissions calculated for the proposed project.

Particulate Matter

The majority of PM_{10} construction emissions would result from fugitive dust associated with earth moving activities and vehicle travel on unpaved roadways. The worst-case scenario assumes that a total of up to approximately 4.3 acres would be disturbed on the maximum emissions day by grading and other earthmoving site preparation activities at the proposed MPWSP Desalination Plant (2 acres per day), slant wells (1 acre), ASR facilities (0.25 acre), Carmel Valley Pump Station (0.08 acre), and Terminal Reservoir (1 acre) sites. Regarding pipeline installation activities, it is assumed that a maximum of 3,556 cubic yards of soil material would be handled each day to excavate and backfill the pipeline trenches. For motor vehicle travel on unpaved roads, it is assumed that there would be a maximum of approximately 92 miles of vehicle travel on unpaved roads associated with construction of the subsurface slant wells, Castroville Pipeline, and the Terminal Reservoir.

As identified in **Table 4.10-5**, estimated maximum daily construction emissions of PM_{10} would be approximately 279 pounds per day, which would exceed the MBUAPCD's significance threshold of 82 pounds per day, resulting in a significant impact. Emissions of $PM_{2.5}$ would not exceed the MBUAPCD's respective significance criterion; therefore, impacts associated with this pollutant would be less than significant. Implementation of **Mitigation Measures 4.10-1a** and **4.10-1b** would reduce PM_{10} exhaust emissions by requiring CalAm and/or its construction contractor(s) to make a good faith effort to use construction equipment that meets the highest USEPA-certified tiered emission standards as well as to ensure on-road and off-road equipment idling is minimized. Implementation of Mitigation Measure 4.10-1a would decrease the maximum daily construction exhaust emissions of PM_{10} identified in Table 4.10-5 by approximately 2 pounds per day, while the decrease that would be associated with implementation of Mitigation Measure 4.10-1b cannot be quantified (see above).

With regard to reducing PM_{10} emissions of fugitive dust, **Mitigation Measure 4.10-1c (Construction Fugitive Dust Control Plan)**, would require CalAm to implement a comprehensive construction dust control plan. It is estimated that implementation of the Construction Fugitive Dust Control Plan would decrease fugitive dust emissions during earth disturbance activities by 65 percent, and would decrease unpaved road travel fugitive dust emissions in the vicinity of the subsurface slant wells at the CEMEX active mining area and the access road to the Castroville Pipeline by as much as 75 percent based on mitigation control

efficiency factors published by SCAQMD (SCAQMD, 2007; see **Appendix G1** for all mitigation reduction assumptions).

In addition, **Mitigation Measure 4.10-1d (Pave Terminal Reservoir Access Road)** would provide a substantial reduction in fugitive dust PM_{10} emissions by requiring the construction contractor to stabilize the unpaved access road to Terminal Reservoir. This measure would decrease unpaved road travel dust emissions along this access road by 100 percent. It should be noted that implementation of Mitigation Measure 4.10-1d would in itself result in minor short-term emissions of criteria pollutants associated with equipment that would be used to stabilize the road; however, these emissions would occur prior to the start of construction activities at the Terminal Reservoir site. Therefore, implementation of this measure would not change the worst-case daily emissions scenario presented in Table 4.10-5.

It is estimated that implementation of Mitigation Measures 4.10-1a through 4.10-1d (see below) would reduce maximum daily construction emissions of PM_{10} to approximately 75 pounds per day, which would be below the MBUAPCD PM_{10} significance threshold of 82 pounds per day. It should be noted that if CalAm is unsuccessful securing all equipment with Tier 3 engine standards, the PM_{10} emissions would continue to be less than significant, given the relatively low potential emission reductions that would be associated with Mitigation Measure 4.10-1a compared to Mitigation Measures 4.10-1c and 4.10-1d. Therefore, with implementation of mitigation, it can be concluded that short-term emissions associated with construction of the MPWSP would not contribute to an exceedance of a PM_{10} state or federal standard. Therefore, this impact would be mitigated to a less-than-significant level.

Consistency with Regulatory Requirements

As noted in Section 4.10.2, Regulatory Framework, the MPWSP would be potentially inconsistent with City of Seaside Municipal Code Sections 8.40.030 and 8.40.040. **Mitigation Measures 4.10-1a** through **2.10-1d** would reduce pollutant emissions, but project-related construction emissions could still be inconsistent with these municipal code sections.

Impact Conclusion

Short-term emissions associated with construction of the proposed project could contribute to an exceedance of a state and/or federal standard for ozone, NO_2, and, PM_{10} based on the estimated maximum daily mass emissions levels presented in Table 4.10-5, which would exceed the MBUAPCD significance threshold for PM_{10}. However, this impact with respect to the ozone and NO_2 standards would be significant and unavoidable even with implementation of Mitigation Measures 4.10-1a and 4.10-1b. This significant impact could increase the susceptibility of sensitive individuals to respiratory infections. With respect to the PM_{10} standards, this impact would be reduced to a less-than-significant level with implementation of Mitigation Measures 4.10-1a through 4.10-1d. Short-term construction emissions associated with other criteria pollutants, including ROG, CO, and $PM_{2.5}$, would not be expected to contribute to an exceedance of an ambient air quality standard and the associated impact for all other criteria pollutants would be less than significant.

Mitigation Measures

Mitigation Measure 4.10-1a applies to all of the proposed project components.

Mitigation Measure 4.10-1a: Equipment with High-Tiered Engine Standards.

For diesel-fueled off-road construction equipment of more than 50 horsepower, CalAm and/or its construction contractor shall make a good faith effort to use available construction equipment that meets the highest USEPA-certified tiered emission standards. For all pieces of equipment that would not meet at least Tier 3 emission standards, CalAm or its construction contractor shall provide to the CPUC documentation from two local heavy construction equipment rental companies that indicates that the companies do not have access to higher-tiered equipment for the given class of equipment. Such documentation shall be provided to the CPUC at least two weeks prior to the anticipated use of those pieces of equipment.

Mitigation Measure 4.10-1b applies to all proposed project components.

Mitigation Measure 4.10-1b: Idling Restrictions.

On road vehicle idling time shall be minimized and shall not exceed a five minute maximum. Additionally, off-road engines shall not idle for longer than five minutes per Section 2449(d)(3) of Title 13, Article 4.10, Chapter 9 of the California Code of Regulations. Clear signage of this requirement shall be provided for construction workers at all access points to construction areas.

Mitigation Measure 4.10-1c applies to all of the proposed project components.

Mitigation Measure 4.10-1c: Construction Fugitive Dust Control Plan.

CalAm shall require its construction contractor(s) to implement a dust control plan that includes, at minimum, the following dust control measures:

- Water all active construction areas at least twice daily;
- Cover all trucks hauling soil, sand, and other loose materials and require trucks to maintain at least 2 feet of freeboard;
- Apply water three times daily, or apply (non-toxic) soil stabilizers, on unpaved access roads, parking areas, and staging areas at construction sites;
- Sweep daily (with water sweepers) all paved access roads, parking areas, and staging areas at construction sites;
- Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets;
- Hydroseed or apply (non-toxic) soil stabilizers to inactive construction areas (previously graded areas inactive for 10 days or more);
- Enclose, cover, or water twice daily exposed stockpiles (dirt, sand, etc.);
- Limit traffic speeds on unpaved roads to 15 miles per hour;

- Install sandbags or other erosion control measures to prevent silt runoff to public roadways;
- Replant vegetation in disturbed areas as quickly as possible;
- Wheel washers shall be installed and used by truck operators at the exits of the construction sites to the MPWSP Desalination Plant, the slant wells, the ASR well facilities, and the Terminal Reservoir; and
- Post a publicly visible sign that specifies the telephone number and person to contact regarding dust complaints. This person shall respond to complaints and take corrective action within 48 hours. The phone number of the Monterey Bay Unified Air Pollution Control District (MBUAPCD) shall also be visible to ensure compliance with MBUAPCD rules.

Mitigation Measure 4.10-1d applies to the Terminal Reservoir access road.

Mitigation Measure 4.10-1d: Pave Terminal Reservoir Access Road.

CalAm shall require its construction contractor(s) to pave the existing access road to the Terminal Reservoir site. This access road shall be paved prior to the commencement of construction activities at the Terminal Reservoir site.

Impact 4.10-2: Construction activities could conflict with implementation of the applicable air quality plan. (*Significant and Unavoidable, even with implementation of mitigation*)

The most recently adopted air quality plan for the project area is the 2012 AQMP. The 2012 AQMP documents the MBUAPCD's progress toward attaining the state 8-hour ozone standard. Any project that could conflict with the MBUAPCD's goal of attaining the state 8-hour ozone standard would be considered to conflict with the intent of the 2012 AQMP. To determine whether construction of the proposed project would conflict with the intent of the 2012 AQMP, construction emissions were compared to the MBUAPCD thresholds for the ozone precursors NO_x and ROG.

As presented in the previous impact discussion, the project-related short-term construction emissions with mitigation measures incorporated would exceed the significance threshold for NO_X (see Impact 4.10-1, above); therefore, the project would not support the primary goal of the 2012 AQMP, and the impact associated with conflicting or obstructing implementation of the applicable air quality plan would be significant.

Consistency with Regulatory Requirements

As noted in Section 4.10.2, Regulatory Framework, the MPWSP would be potentially inconsistent with the 2012 AQMP, which was established to reduce ozone emissions to below ambient air quality standards, because it could contribute to a temporary exceedance of an ozone ambient air quality standard. As discussed in the preceding paragraphs, **Mitigation Measures 4.10-1a** and

4.10-1b would reduce ozone precursor emissions, but not to the extent that impacts contributing to ozone standard exceedances would be avoided.

Impact Conclusion

As identified under Impact 4.10-1, implementation of **Mitigation Measures 4.10-1a** and **4.10-1b** would not reduce project-related NO_X emissions to below the significance threshold. Therefore, this impact is considered to be significant and unavoidable, even with implementation of mitigation.

Mitigation Measures

Mitigation Measure 4.10-1a applies to the project as a whole.

> **Mitigation Measure 4.10-1a: Equipment with High-Tiered Engine Standards.**
>
> (See Impact 4.10-1, above, for description.)

Mitigation Measure 4.10-1b applies to all project components.

> **Mitigation Measure 4.10-1b: Idling Restrictions.**
>
> (See Impact 4.10-1, above, for description.)

Impact 4.10-3: Expose sensitive receptors to substantial pollutant concentrations and/or *coccidioides immitis* spores or create objectionable odors affecting a substantial number of people during construction. (*Less than Significant*)

Sensitive Receptor Exposure to TACs

Construction of the proposed project would result in the short-term generation of DPM emissions from the use of off-road diesel equipment. These emissions could result in the short-term exposure of local sensitive receptors to TACs (i.e., DPM). The dose to which receptors are exposed is the primary factor affecting health risk from TACs. Dose is a function of the concentration of a substance or substances in the environment and the duration of exposure to the substance.

As discussed in Section 4.10.4, the two construction sites that pose the greatest health risks include the Carmel Valley Pump Station and the ASR Injection/Extraction Wells site. PM_{10} exhaust emissions are conservatively used here as a surrogate for DPM. AERMOD, as described in Section 4.10.4, was used to estimate maximum annual PM_{10} concentrations at sensitive receptors in the vicinity of these sites and those concentrations were then converted to health risks. **Table 4.10-6** shows the maximum estimated DPM concentrations for each construction site as well as the associated estimated cancer risks and chronic health hazards. Construction of the Carmel Valley Pump Station would pose a cancer risk of 5.2 per million and a chronic health hazard of 0.027. Construction of the ASR Injection/Extraction Wells would pose a maximum cancer risk of 6.4 per million and a chronic health hazard of 0.034. For both sites, all values are

less than the cancer risk and health hazard index significance thresholds established by the MBUPACD (i.e., the proposed project would not result in a hazard index greater than 1 for acute or chronic impacts and/or cancer risk greater than 10 incident per 1,000,000 population). Therefore, impacts associated with the proposed project's potential to expose sensitive receptors to substantial pollutant concentrations would be less than significant.

TABLE 4.10-6
MAXIMUM DPM CONCENTRATIONS, CANCER RISKS, AND CHRONIC HEALTH INDICES

Construction Site	Maximum DPM Concentration (μg/m^3)	Cancer Risk (per million)	Chronic Health Index
Carmel Valley Pump Station	0.137	5.2	0.027
ASR Injection/Extraction Wells Site	0.168	6.4	0.034
Significance Threshold	---	10	1

SOURCE: ESA, 2016. See **Appendix G1**.

Sensitive Receptor Exposure to Coccidioides Immitis Spores

Construction activities that include ground disturbance would have the potential to release coccidioides immitis spores. However, it is likely that much of the population of Monterey County has already been exposed to Valley Fever and would continue to be exposed because of the various earthmoving activities that have historically occurred and continue to occur as a result of agricultural and construction activities throughout the region. As a result of the endemic nature of the disease and the number of earthmoving activities in the County (e.g., grading and excavation for agriculture, as well as new residential, commercial, and industrial development, and surface mining operations), there are new cases of Valley Fever documented in the County each year; however, many people who are exposed do not develop symptoms.

Valley Fever-related impacts associated with the project would not be considered significant because ongoing ground-disturbing activities in the County currently represent a continual source of spores that contribute to the low number of Valley Fever cases reported each year. Construction activities associated with the project would result in similar localized ground disturbing activities to those that occur continually within the County and the project would not result in a substantial increase in spore release. Therefore, construction of the project would not represent an increased risk to public health. In addition, implementation of Mitigation Measure 4.10-1c (see above), which requires implementation of fugitive dust control measures, would ensure that fugitive dust that could contain coccidioides immitis spores would be controlled to the maximum extent feasible. Valley Fever-related impacts would be less than significant.

Sensitive Receptor Exposure to Odors

Construction activities that would be associated with the proposed project could result in temporary odors from use of diesel-fueled equipment. 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.

Impact Conclusion

Short-term construction activities that would be associated with the MPWSP would not expose sensitive receptors to substantial pollutant concentrations or substantial increased risk associated with coccidioides immitis spores, and would not create objectionable odors that would affect a substantial number of people. The associated impact would be less than significant.

Mitigation Measures

None required.

4.10.5.2 Operational and Facility Siting Impacts

The proposed project would not conflict with or obstruct implementation of the applicable air quality plan during project operations. With regard to long-term operations, there would be no permanent stationary sources of air pollutant emissions associated with the proposed project, with the exception of emergency generator testing, and mobile sources would be limited. In addition, any additional growth that could be served by the proposed project would be consistent with the levels of growth anticipated in the adopted land use plans of jurisdiction in CalAm's Monterey District service area (see Section 6.3, Growth-Inducement). For these reasons, long-term operation of the proposed project would not conflict with or obstruct implementation of the 2012 AQMP and this issue is not addressed further in this EIR/EIS.

Impact 4.10-4: Long-term increase of criteria pollutant emissions that could contribute to a violation of an ambient air quality standard during operations. (*Less than Significant*)

Operation of the proposed project would rely on electrical power supplied from Pacific Gas and Electric Company (PG&E)'s existing regional power grid. It is generally not possible to determine the exact generation source(s) of electricity on the power grid that would supply the proposed project, or whether or not the electricity would even be generated within the Air Basin. Therefore, indirect emissions of criteria pollutants associated with electricity use from the regional power grid are not addressed in this air quality analysis because it would be impractical/impossible to do so.

MPWSP Desalination Plant, Carmel Valley Pump Station, and ASR Pump Station

Direct emission sources that would be associated with the proposed project include on-road vehicles, emergency generators at the MPWSP Desalination Plant, and the Carmel Valley Pump Station, and off-road equipment required for period maintenance of the slant wells. Mobile emission sources would include the daily commute trips of up to 30 facility operators and support personnel and three daily delivery truck trips that would be required to operate the desalination facilities. It is estimated that these activities would result in approximately 60 light-duty one-way truck trips and 6 heavy-duty one-way truck trips each day. Estimated mobile source emissions associated with the operations of the proposed project are presented below in **Table 4.10-7**. Refer

to **Appendix G1** for the calculation sheets that were used to estimate the operational emissions that would be associated with the proposed project.

TABLE 4.10-7
PROPOSED PROJECT OPERATIONAL EMISSIONS (pounds/day)

Source	ROG	NO_x	CO	PM_{10}	$PM_{2.5}$
On-road Vehicle Exhaust	0.09	1.46	2.36	0.10	0.04
Emergency Generator Testing	0.32	16.92	1.93	1.10	1.02
Slant Well Maintenance (off-road equipment)	0.94	8.28	6.30	0.31	0.29
Total	**1.35**	**26.66**	**10.59**	**1.51**	**1.35**
MBUAPCD CEQA Significance Threshold	137	137	550	82	55
Exceeds Threshold Without Mitigation?	No	No	No	No	No

NOTE: N/A = no applicable threshold.

SOURCE: ESA, 2016. See **Appendix G1**.

The only onsite emission sources that would be associated with the proposed project would be stand-by emergency diesel generators that would be installed at the MPWSP Desalination Plant and the Carmel Valley Pump Station to provide emergency back-up power, as well as off-road equipment that would be required every five years to maintain the slant wells. Securing permits from the MBUAPCD for the emergency standby generators would ensure less-than-significant operational impacts related to the use of such generators through adherence to MBUAPCD Rule 1010. Estimated emissions that would be associated with emergency generator testing and off-road equipment are presented above in **Table 4.10-7**.

All Other Proposed Project Components

None of the other proposed project components would result in the direct emission of criteria pollutants during operations and maintenance. Therefore, no impact would result.

Impact Conclusion

As identified in **Table 4.10-7**, combined operational emissions that would be associated with the MPWSP Desalination Plant, Carmel Valley Pump Station, and the slant wells 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. No impact would result from operation and maintenance of all other project components.

Mitigation Measures

None required.

Impact 4.10-5: Expose sensitive receptors to substantial pollutant concentrations or create objectionable odors affecting a substantial number of people during operations. (*Less than Significant*)

Sensitive Receptor Exposure to TACs

MPWSP Desalination Plant and Carmel Valley Pump Station. The only onsite DPM emissions sources that would be associated with the MPWSP would be the emergency generators at the MPWSP Desalination Plant and the Carmel Valley Pump Station. DPM emissions (in the form of $PM_{2.5}$) from routine testing and maintenance of these emergency generators would be less than 1 pound per day and would average up to 0.03 pound per day on an annual basis. Given the negligible amount of emissions that would be generated, long-term operations of the emergency generators would not exceed the MBUAPCD TAC significance threshold (i.e., the proposed project would not result in a hazard index greater than 1 for acute or chronic impacts and/or cancer risk greater than 10 incident per 1,000,000 population). Therefore, overall, the increased health risk from long-term project DPM emissions would be negligible and this impact would be less than significant.

All Other Proposed Facilities. None of the other proposed project facilities would include onsite DPM emissions sources, or emission sources of other TACs. Therefore, no impact related to the exposure of sensitive receptors to substantial pollutant concentrations would result from operation of all other project facilities.

Objectionable Odors

MPWSP Desalination Plant and ASR Wells. The chemical storage and chemical feed facilities at the MPWSP Desalination Plant and ASR-5 and ASR-6 wells would be closed systems. For open-air facilities, such as the backwash treatment facilities and residuals handling systems, including the sludge drying beds, odors would generally be managed through operational controls, such as to reduce detention times in basins. Operators could also use chemical stabilization techniques to control odor. For example, they could apply chemicals such as lime directly to the sludge drying bed and prevent odors from releasing to the atmosphere. Additionally, the MPWSP Desalination Plant would be co-located with the MRWPCA Regional Treatment Plant and the Monterey Regional Environmental Park, which are currently sources of odors in the area.

While operation of the MPWSP Desalination Plant could result in limited onsite odors associated with sludge management, due to the lack of nearby sensitive receptors in the immediate vicinity and the location of the site within an industrialized area that is an existing source of odor, the proposed project would not be expected to create objectionable odors that would affect a substantial number of people.

All Other Proposed Facilities. None of the other proposed project facilities would include onsite odor sources. Therefore, no impact related to the objectionable odors affecting a substantial number of people would result from operation of all other project facilities.

Impact Conclusion

Long-term operations that would be associated with the MPWSP would not expose sensitive receptors to substantial pollutant concentrations or create objectionable odors that would affect a substantial number of people. The impact would be less than significant.

Mitigation Measures

None required.

4.10.6 Cumulative Effects of the Proposed Project

The cumulative scenario and cumulative impacts methodology are described in Section 4.1.7. Table 4.1-2 lists potential cumulative projects.

Impact 4.10-C: Cumulative impacts related to air quality (*Significant and Unavoidable, even with implementation of mitigation*)

The geographic scope of analysis for potential cumulative air quality impacts is the North Central Coast Air Basin. As indicated in **Table 4.10-2**, the air basin does not attain the state standards for ozone or PM_{10}; however, it attains (or is unclassified for) all federal standards. Therefore, existing conditions in the air basin are considered to be cumulatively significant with respect to attaining the state standards for ozone and PM_{10}. The timeframe during which the MPWSP could contribute to cumulative air quality effects includes the construction phase, as well as the anticipated approximately 40-year operations phase.

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

Cumulative Construction Impacts

As described in the Impact 4.10-1 discussion, MPWSP construction activities would generate short-term NO_x emissions in quantities that would exceed the MBUAPCD threshold, even with implementation of **Mitigation Measures 4.10-1a (Equipment with High-Tiered Engine Standards)** and **4.10-1b (Idling Restrictions)**. Therefore, the cumulative impact of project construction emissions associated with the potential to contribute to a violation of an ambient air quality standard and conflict with implementation of the applicable air quality plan and would be significant when combined with the emissions associated with the cumulative projects in Table 4.1-2 would be significant, and the MPWSP's incremental contribution to the cumulative impact would be cumulatively considerable. No further feasible mitigation measures are available

that would reduce the project's incremental contribution to less than cumulatively considerable *(significant and unavoidable)*.

With regard to emissions of PM_{10}, proposed project emissions would be significant and would therefore have a cumulatively considerable contribution to a significant cumulative impact. However, **Mitigation Measures 4.10-1a** and **4.10-1b**, and **Mitigation Measures 4.10-1c (Construction Fugitive Dust Control Plan)** and **4.10-1d (Pave Terminal Reservoir Access Road)** would reduce emissions of PM_{10} during MPWSP construction activities to a level that would be below the MBUAPCD threshold. The air quality construction thresholds established by MBUAPCD were designed for the North Central Coast Air Basin and are intended to address the incremental contributions of individual projects on the quality of the air basin as a whole. Therefore, conformance with the MBUAPCD threshold ensures that an individual project would not have a cumulatively considerable impact with respect to overall air quality within the air basin. As a result, the MPWSP's incremental contribution of construction-related PM_{10} emissions would not be cumulatively considerable (*less than significant with mitigation*).

With regard to impacts on sensitive receptors, the total diesel particulate matter (DPM) and fugitive dust emissions exposure periods from onsite equipment that would be required to construct MPWSP components would be limited to between several days and 24 months depending on the specific facility (see Impact 4.10-3 discussion relative to sensitive receptor exposure to TACs and coccidioides immitis spores). Nearby cumulative projects with construction schedules that overlap with the MPWSP would also be expected to expose sensitive receptors to DPM emissions and coccidioides immitis spores. While these emissions could be substantial, they would be temporary and generally limited to a period of a couple years or less for a given project. In addition, the project would not result in a substantial increase in spore release relative to localized ground disturbing activities associated with the cumulative projects. Also, none of the cumulative project locations illustrated in Figure 4-1, *Cumulative Projects*, would be located within 0.5 mile of the ASR Injection/Extraction or Carmel Valley Pump Station construction sites. The effects of MPWSP construction and cumulative projects would not be expected to result in long-term exposure of sensitive receptors to TAC emissions. As a result, no significant cumulative impact would occur as a result of the identified projects (*less than significant*).

In addition, construction of the MPWSP would result in diesel emissions-based odors, which would result in a negligible and short-term effect on nearby sensitive receptors (see Impact 4.10-3 discussion relative to sensitive receptor exposure to odors). Cumulative projects could also contribute to increases in diesel emissions-based odors. However, as noted previously, such increases would be limited in duration and extent. As a result, no significant cumulative effect related to odors would occur as a result of the proposed project (*less than significant*).

Cumulative Operational Impacts

Noted previously, pursuant to MBUAPCD CEQA Guidelines, a project's operational emissions would have a cumulatively considerable contribution to a significant cumulative impact if they exceed adopted significance thresholds. As discussed in Impacts 4.10-4 and 4.10-5, MPWSP operations would not cause emissions that would exceed the MBUAPCD significance thresholds.

Therefore, the MPWSP would not have a cumulatively considerable incremental contribution to a significant cumulative impact related to emissions of criteria pollutants (*less than significant*).

With regard to impacts on sensitive receptors, onsite DPM emissions from project operation would be limited to emergency generators at the MPWSP Desalination Plant and the Carmel Valley Pump Station. DPM emissions (in the form of $PM_{2.5}$) from routine testing and maintenance of these emergency generators would be less than 1 pound per day and would average up to 0.03 pound per day on an annual basis. As discussed in Impact 4.10-5, such emissions would be negligible and would not result in a cumulatively considerable contribution to a significant cumulative impact (*less than significant*).

Also discussed in Impact 4.10-5, MPWSP operation would not contribute substantially to offsite exposure of sensitive receptors to objectionable odors. To the extent the MPWSP would result in any objectionable odors, they would likely result from MPWSP Desalination Plant operation. The MPWSP Desalination Plant site is located within an industrial area with no sensitive receptors in the immediate vicinity. As a result, the MPWSP would not result in a cumulatively considerable contribution to a significant cumulative impact with respect to TACs or odors (*less than significant*).

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4.11 Greenhouse Gas Emissions

Sections	Tables
4.11.1 Setting/Affected Environment	4.11-1 California GHG Emissions
4.11.2 Regulatory Framework	4.11-2 Summary of Impacts – GHG Emissions
4.11.3 Evaluation Criteria	4.11-3 Total GHG Emissions from Project Construction
4.11.4 Approach to Analysis	4.11-4 Total GHG Emissions from Project Operations
4.11.5 Direct and Indirect Effects of the Proposed Project	4.11-5 Total Amortized GHG Emissions
4.11.6 Cumulative Effects of the Proposed Project	

This section evaluates issues related to greenhouse gas (GHG) emissions resulting from implementation of the Monterey Peninsula Water Supply Project (MPWSP or proposed project). The section presents an overview of climate change; describes the various GHGs that have been identified as sources of climate change; discusses pertinent regulations, including those relevant at the federal and state levels; identifies the criteria used for determining the significance of environmental impacts; and analyzes the potential GHG impacts that would be associated with implementation of the MPWSP. Mitigation measures are prescribed to address significant impacts. For discussion of effects related to climate change-induced sea level rise, refer to the *Coastal Flooding and Sea Level Rise* discussion in Section 4.3.1.4 and Impact 4.3-11, *Exposure of people or structures to a significant risk of loss, injury, or death from flooding due to sea level rise*, in Section 4.3.5.2.

The CPUC received several comment letters related to the GHG emissions analysis in the April 2015 Draft EIR. Some commenters requested that emissions generated during periodic maintenance of the subsurface slant wells be included in the operational emissions. Subsequent to the release of the April 2015 Draft, the layout for the seawater intake system at the CEMEX active mining area was modified such that the well heads, valves, and other slant well facilities are now aboveground and readily accessible for maintenance, thereby reducing the disturbance activities and related GHG emissions associated with periodic maintenance. See Impact 4.11-1 for a quantification of GHG emissions associated with project operations, including emissions from slant well maintenance. Other commenters questioned the efficacy of the mitigation measures that were identified to reduce GHG emissions and suggested that CalAm be required to purchase offsets from the State's cap-and-trade program to lower the project's emissions to less than significant and comments were received requesting that CO_2 degassing from intake water to the atmosphere be analyzed. These issues are addressed under Impact 4.11-1.

4.11.1 Setting/Affected Environment

The study area for impacts related to GHGs is the state of California.

4.11.1.1 Climate Change

Overview

There is scientific consensus that climate change is occurring and that human activity contributes in some measure (perhaps substantially) to that change. Gases that trap heat in the atmosphere are often called GHGs. Emissions of GHGs, if not sufficiently curtailed, are likely to contribute further to increases in global temperatures. The potential effects of climate change in California include sea level rise and reductions in snowpack, as well as an increased number of extreme-heat days per year, high ozone days, large forest fires, and drought years (CARB, 2009). Globally, climate change could affect numerous environmental resources through potential, though uncertain, changes in future air temperatures and precipitation patterns. According to the International Panel on Climate Change (IPCC), the projected effects of climate change are likely to vary regionally, but are expected to include the following direct effects (IPCC, 2007):

- Higher maximum temperatures and more hot days over nearly all land areas;
- Higher minimum temperatures (fewer cold days and frost days over nearly all land areas);
- Reduced diurnal temperature range over most land areas;
- Increase in heat index over most land areas; and
- More intense precipitation events.

In addition, many secondary effects are projected to result from climate change, including a global rise in sea level, ocean acidification, impacts on agriculture, changes in disease vectors, and changes in habitat and biodiversity. The possible outcomes and feedback mechanisms involved are not fully understood, and much research remains to be done; however, over the long term, the potential exists for substantial environmental, social, and economic consequences. Secondary effects of climate change with the most potential to affect the project area include sea level rise and ocean acidification. For discussion of effects related to climate change-induced sea level rise, refer to the *Coastal Flooding and Sea Level Rise* discussion in Section 4.3.1.4. See below for discussion of climate change-induced ocean acidification.

Ocean Acidification

Atmospheric CO_2 has risen by about 40 percent above pre-industrial levels. The ocean absorbs about a quarter of human-caused emissions of CO_2 annually, which is changing seawater chemistry and decreasing pH, making seawater more acidic. Surface ocean pH has declined by 0.1 units, equivalent to a 30 percent increase in ocean acidity, since pre-industrial times. Ocean acidification will continue in the future due to the interaction of atmospheric CO_2 and ocean water. Regional differences in ocean pH occur as a result of variability in regional or local conditions, such as upwelling that brings subsurface waters up to the surface. Locally, coastal waters and estuaries can also exhibit acidification as the result of pollution and excess nutrient inputs (GCRP, 2014).

More acidic waters disrupt the marine food chain. For example, calcium carbonate is a skeletal component of a wide variety of organisms in the oceans, including corals. The chemical changes caused by the uptake of CO_2 make it more difficult for these living things to form and maintain calcium carbonate shells and skeletal components and increases erosion of coral reefs, resulting in alterations in marine ecosystems that will become more severe as present-day trends in acidification continue or accelerate (GCRP, 2014). It should be noted that ocean acidification has little effect on the operations of desalination plants since the reverse osmosis process is not affected by pH.

4.11.1.2 Greenhouse Gas Emissions

GHG emissions that result from human activities primarily include carbon dioxide (CO_2), with much smaller amounts of nitrous oxide (N_2O), methane (CH_4, often from unburned natural gas), sulfur hexafluoride (SF_6) from high-voltage power equipment, and hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs) from refrigeration/chiller equipment. Because these GHGs have different warming potentials (i.e., the amount of heat trapped in the atmosphere by a certain mass of the gas), and CO_2 is the most common reference gas for climate change, GHG emissions are often quantified and reported as CO_2-equivalent (CO_2e) emissions. For example, while SF_6 represents a small fraction of the total annual GHGs emitted worldwide, this gas is very potent, with 22,800 times the global warming potential of CO_2. Therefore, an emission of 1 metric ton of SF_6 would be reported as 22,800 metric tons CO_2e. The global warming potential of CH_4 and N_2O are 25 times and 298 times that of CO_2, respectively (CARB, 2016a). The principal GHGs resulting from human activity that enter and accumulate in the atmosphere are described below.

Carbon Dioxide

CO_2 is a naturally occurring gas that enters the atmosphere through natural as well as anthropogenic (human) sources. Key anthropogenic sources include the burning of fossil fuels (e.g., oil, natural gas, and coal), solid waste, trees, wood products, and other biomass, as well as industrially relevant chemical reactions such as those associated with manufacturing cement. CO_2 is removed from the atmosphere when it is absorbed by plants as part of the biological carbon cycle.

Methane

Like CO_2, CH_4 is emitted from both natural and anthropogenic sources. Key anthropogenic sources of CH_4 include gaseous emissions from landfills, releases associated with mining and materials extraction industries (in particular coal mining), and fugitive releases associated with the extraction and transport of natural gas and crude oil. CH_4 emissions also result from livestock and agricultural practices. Small quantities of CH_4 are released during fossil fuel combustion.

Nitrous Oxide

N_2O is also emitted from both natural and anthropogenic sources. Important anthropogenic sources include industrial activities, agricultural activities (primarily the application of nitrogen fertilizer), the use of explosives, combustion of fossil fuels, and decay of solid waste.

Fluorinated Gases

HFCs, PFCs, and SF_6 are synthetic gases emitted from a variety of industrial processes, and they contribute substantially more to the greenhouse effect on a pound for pound basis than the GHGs described previously. Fluorinated gases are often used as substitutes for ozone-depleting substances (i.e., chlorofluorocarbons, hydrochlorofluorocarbons, and halons). These gases are typically emitted in small quantities, but because of their potency they are sometimes referred to as "high global warming potential gases." Fluorinated gases would not be emitted by any of the proposed construction or operational equipment that would be associated with the proposed project.

4.11.1.3 Greenhouse Gas Sources

Anthropogenic GHG emissions in the United States are derived mostly from the combustion of fossil fuels for transportation and power production. Energy-related CO_2 emissions resulting from fossil fuel exploration and use account for approximately three-quarters of the human-generated GHG emissions in the United States, primarily in the form of CO_2 emissions from burning fossil fuels. More than half of the energy-related emissions come from large stationary sources, such as power plants; approximately one-third derive from transportation; and a majority of the remaining sources include: industrial processes, agriculture, commercial, and residential (USEPA, 2016a).

Statewide emissions of GHG from relevant source categories for 2008 through 2014 are summarized in **Table 4.11-1**. Specific contributions from individual air basins, such as the North Central Coast Air Basin (Air Basin), which encompasses the project area, are included in the emissions inventory but are not itemized by air basin. In 2014, California produced 441.5 million gross metric tons of CO_2e emissions. Transportation was the source of 37 percent of the state's GHG emissions, followed by industrial at 24 percent, electricity generation at 20 percent, commercial and residential sources at 11 percent, and agriculture and forestry comprised the remaining 8 percent (CARB, 2016b). Although not included as an emission inventory category, water use requires significant amounts of energy. Approximately one-fifth of the electricity and one-third of the non-power plant natural gas consumed in the state are associated with water delivery, treatment, and use.

Existing Greenhouse Gas Emissions at the Project Site

No industrial, residential, or other emitters of GHGs currently are located or operating at the MPWSP Desalination Plant site, slant wells site, Carmel Valley Pump Station site, ASR injection well sites, or the Terminal Reservoir site. There are no other existing onsite operations that result in the combustion of fossil fuel, or otherwise result in direct anthropogenic emissions of GHGs at the project sites. There is, however, existing grassland or scrub type vegetation located at these project sites that provide ongoing natural carbon uptake. The natural carbon uptake expressed in CO_2 associated with grassland and scrub vegetation types are 4.3 metric tons and 14.3 metric tons of CO_2 per acre-year, respectively (CAPCOA, 2013). These rates of carbon uptake were calculated by multiplying total biomass (metric tons dry matter per acre) from IPCC data by the carbon fraction in plant material (i.e., 0.47), then using the ratio of molecular weights (44/12) to convert from metric tons of carbon to metric tons of CO_2.

TABLE 4.11-1
CALIFORNIA GHG EMISSIONS (million metric tons CO_2E)

Emission Inventory Category	2008	2009	2010	2011	2012	2013	2014	
Transportation	176.17	169.51	166.20	162.90	162.94	161.46	163.02	37%
Electricity Generation (In State)	54.50	53.51	46.92	41.36	51.18	49.60	51.81	12%
Electricity Generation (Imports)	65.92	48.13	43.67	46.94	44.15	40.24	36.56	8%
Commercial	17.74	18.74	20.20	20.85	21.11	21.64	21.63	5%
Industrial	99.31	97.26	100.88	100.76	101.09	103.76	104.22	24%
Residential	30.55	30.33	31.43	32.25	30.30	31.47	27.40	6%
Agriculture and Forestry	36.37	34.06	34.92	35.85	36.78	35.36	36.11	8%
Not Specified (Solvents & Chemicals)	0.85	0.79	0.82	0.79	0.78	0.79	0.79	0%
Total Gross Emissions	**481.4**	**452.3**	**445.0**	**441.7**	**448.3**	**444.3**	**441.5**	100%

NOTE: The GHG percentages of the total gross emissions for year 2014 were rounded to the nearest whole number.

SOURCE: CARB, 2016b.

4.11.2 Regulatory Framework

This section provides an overview of federal, state, and local environmental laws, policies, plans, and regulations relevant to GHGs. A summary of each is provided, along with a finding regarding the proposed project's consistency with those regulatory requirements. The consistency findings concern the proposed project without mitigation. Where the proposed project would be consistent with the applicable regulatory requirement, no further discussion of project consistency with that regulatory requirement is provided. Where the proposed project would be potentially inconsistent with the applicable regulatory requirement, the reader is referred to a specific impact discussion in Section 4.11.5, Direct and Indirect Effects of the Project (Proposed Action), below, where the potential inconsistency is discussed in more detail.

4.11.2.1 Federal Regulations

Council on Environmental Quality NEPA Guidance

The Council on Environmental Quality (CEQ) issued Final Guidance for Federal and Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in NEPA Reviews in August 2016 (CEQ, 2016). This guidance indicates that NEPA analyses should consider the potential effects of a proposed project on climate change as indicated by assessing GHG emissions as a proxy to the effects of climate change (e.g., to include, where applicable, carbon sequestration), and the effects of climate change on a proposed project and its environmental impacts. The guidance recommends that agencies quantify a proposed agency action's projected direct and indirect GHG emissions, taking into account available data and GHG quantification tools. Qualitative analysis may be substituted if tools, methodologies, or data inputs are not reasonably available to support calculations for a quantitative analysis. The guidance is intended to assist agencies in disclosing and considering the effects of GHG emissions and climate change along with the other reasonably foreseeable

environmental effects of their proposed actions. However, the guidance does not identify any particular quantity of GHG emissions as "significantly" affecting the quality of the human environment or give greater consideration to the effects of GHG emissions and climate change over other effects on the human environment.

Clean Air Act

On April 2, 2007, in *Massachusetts v. USEPA* (549 US 497), the Supreme Court found that GHGs are air pollutants covered by the Clean Air Act. The Court held that the USEPA must determine whether emissions of GHGs from new motor vehicles cause or contribute to air pollution that may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision. In making such decisions, the USEPA is required to follow the language of Section 202(a) of the Clean Air Act, which obligates it to prescribe (and from time to time revise) standards applicable to the emission of any air pollutant from any class or classes of new motor vehicles or new motor vehicle engines. The Supreme Court decision resulted from a petition for rulemaking under Section 202(a) filed by more than a dozen environmental, renewable energy and other organizations.

On April 17, 2009, the USEPA Administrator signed proposed "endangerment" and "cause or contribute" findings for GHGs under Section 202(a) of the Clean Air Act. The USEPA found that six GHGs, taken in combination, endanger both the public health and the public welfare of current and future generations. The USEPA also found that the combined emissions of these GHGs from new motor vehicles and new motor vehicle engines contribute to the greenhouse effect as air pollution that endangers public health and welfare under Clean Air Act Section 202(a). Pursuant to 40 CFR Part 52, *Proposed Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring Rule*, USEPA has mandated that Prevention of Significant Deterioration (PSD) and Title V requirements apply to facilities whose stationary source CO_2e emissions exceed 100,000 tons per year (USEPA, 2016b). The proposed project would not trigger PSD or Title V permitting under this regulation because it would generate less than 100,000 tons of CO_2e emissions per year.

U.S. Supreme Court Decision in Utility Air Regulatory Group v. USEPA

On June 23, 2014, the U.S. Supreme Court held that USEPA may not treat GHG emissions as an air pollutant for purposes of determining whether a source is a major source required to obtain a PSD or Title V permit. The Court also held that PSD permits that are otherwise required (based on emissions of other pollutants) may continue to require limitations on GHG emissions based on the application of Best Available Control Technology (BACT). In accordance with the Supreme Court decision, on April 10, 2015, the D.C. Circuit issued an amended judgment in *Coalition for Responsible Regulation, Inc. v. U.S. Environmental Protection Agency*, which vacated the PSD and Title V regulations under review in that case to the extent that they require a stationary source to obtain a PSD or Title V permit solely because the source emits or has the potential to emit GHGs above the applicable major source thresholds. The D.C. Circuit also directed USEPA to consider whether any further revisions to its regulations are appropriate, and if so, to undertake to make such revisions. In response to the Supreme Court decision and the D.C. Circuit's amended

judgment, the USEPA intends to conduct future rulemaking action to make appropriate revisions to the PSD and operating permit rules (USEPA, 2016b).

4.11.2.2 State Regulations

A variety of statewide rules and regulations mandate the quantification and, if emissions exceed established thresholds, the reduction of GHGs. CEQA requires Lead Agencies to evaluate project-related GHG emissions and the potential for projects to contribute to climate change and to provide appropriate mitigation in cases where the Lead Agency determines that a project would result in a significant addition of GHGs to the atmosphere.

Executive Order S-3-05

In June 2006, Governor Arnold Schwarzenegger signed Executive Order S-3-05, which established the following statewide emission-reduction targets through the year 2050:

- By 2010, reduce GHG emissions to 2000 levels;
- By 2020, reduce GHG emissions to 1990 levels; and
- By 2050, reduce GHG emissions to 80 percent below 1990 levels.

This executive order does not contain any requirements that directly pertain to the proposed project; however, future actions taken by the State of California to implement these goals may affect the proposed project, depending on the specific implementation measures that are developed.

Assembly Bill 32

California Assembly Bill (AB) 32, *the Global Warming Solutions Act of 2006*, required the California Air Resources Board (CARB) to establish a statewide GHG emissions cap for 2020 based on 1990 emission levels. AB 32 required CARB to adopt regulations that identify and require selected sectors or categories of emitters of GHGs to report and verify their statewide GHG emissions, and CARB is authorized to enforce compliance with the program. Under AB 32, CARB also was required to adopt a statewide GHG emissions limit equivalent to the statewide GHG emissions levels in 1990, which must be achieved by 2020. CARB established this limit in December 2007 at 427 million metric tons of CO_2e. This is approximately 30 percent below forecasted "business-as-usual" emissions of 596 million metric tons of CO_2e in 2020, and about 10 percent below average annual GHG emissions during the period of 2002 through 2004 (CARB, 2009). In the interest of achieving the maximum technologically feasible and cost-effective GHG emission reductions, AB 32 permits the use of market-based compliance mechanisms and requires CARB to monitor compliance with and enforce any rule, regulation, order, emission limitation, emissions reduction measure, or market-based compliance mechanism that it adopts.

Climate Change Scoping Plan (AB 32 Scoping Plan)

In December 2008, CARB approved the AB 32 Scoping Plan outlining the State's strategy to achieve the 2020 GHG emissions limit. The Scoping Plan estimates a reduction of 174 million metric tons CO_2e (about 191 million tons) from the transportation, energy, agriculture, forestry, and high climate-change-potential sectors, and proposes a comprehensive set of actions designed to reduce overall GHG emissions in California, improve the environment, reduce dependence on oil, diversify California's energy sources, save energy, create new jobs, and enhance public health. The Scoping Plan must be updated every five years to evaluate the mix of AB 32 policies to ensure that California is on track to achieve the 2020 GHG reduction goal. Appendices C and E of the adopted 2008 AB 32 Scoping Plan include a list of 39 recommended action measures to reduce GHG emissions (CARB, 2009). Of the action measures, *W-3: Water System Energy Efficiency*, is the only measure that is directly applicable to the proposed project. The purpose of this measure is to reduce the magnitude and intensity of energy use in California's water systems through implementation of energy-efficient production, treatment, and conveyance infrastructure. CARB has set a 20 percent electricity use reduction target from 2006 levels for this measure. The CPUC cannot substantiate that the proposed project's electricity use would be reduced by 20 percent; therefore, the MPWSP would be potentially inconsistent with Measure W-3. This issue is addressed in Impact 4.11-3.

The AB 32 Scoping Plan must be updated every five years to evaluate the adopted mix of AB 32 policies to ensure that California is on track to achieve the 2020 GHG reduction goal. CARB released its first Scoping Plan Update in May 2014 (CARB, 2014). There are no recommended actions identified in the Scoping Plan Update that are directly applicable to the proposed project.

Mandatory Reporting Requirements

Pursuant to California Code of Regulations Title 17, Sections 95100 through 95158, operations of large industrial stationary combustion and process emissions sources that emit 10,000 metric tons CO_2e or more per calendar year are required to report and verify their GHG emissions to CARB. As indicated in **Table 4.11-5** under Impact 4.11-1, below, the total amortized GHG emissions for the proposed project would be 7,638 metric tons per year, which is below the AB 32 reporting threshold; therefore, the proposed project would not be subject to the AB 32 mandatory reporting requirements.

Market-Based "Cap-and-Trade" Compliance Mechanism

AB 32 allows the use of market-based compliance mechanisms to achieve the maximum technologically feasible and cost-effective GHG emission reductions. AB 32 also requires CARB to monitor compliance with and enforce any rule, regulation, order, emission limitation, emissions reduction measure, or market-based compliance mechanism that it adopts. In response, CARB adopted a cap-and-trade program that covers major sources of GHG emissions such as refineries and power plants. The program includes an annual emissions cap that declines over time. CARB's cap-and-trade program applies to facilities that would emit 25,000 metric tons or more of CO_2e per year. Since the total amortized GHG emissions for the proposed project are estimated at 7,638 metric tons per year, the cap-and-trade program would not apply to the

proposed project (see Section 4.11.5 for a discussion and breakdown of the construction-related and operational GHG emissions associated with the proposed project).

Senate Bill 97

In 2007, the California State Legislature passed SB 97, which required amendment of the CEQA Guidelines to incorporate analysis of, and mitigation for, GHG emissions from projects subject to CEQA. The amendments took effect March 18, 2010. The amendments added Section 15064.4 to the CEQA Guidelines, specifically addressing the potential significance of GHG emissions. Section 15064.4 calls for a "good faith effort" to "describe, calculate or estimate" GHG emissions and indicates that the analysis of the significance of any GHG impacts should include consideration of the extent to which the project would:

- Increase or reduce GHG emissions;
- Exceed a locally applicable threshold of significance; or
- Comply with "regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions."

The CEQA Guidelines also state that a project may be found to have a less-than-significant impact related to GHG emissions if it complies with an adopted plan that includes specific measures to sufficiently reduce GHG emissions (14 Cal. Code Regs. §15064(h)(3)). Importantly, however, the CEQA Guidelines do not require or recommend a specific analytical methodology or provide quantitative criteria for determining the significance of GHG emissions.

Executive Order B-30-15

In April 2015, Governor Edmund G. Brown Jr. issued an executive order to establish a California GHG reduction target of 40 percent below 1990 levels by 2030. Reaching this emission reduction target will make it possible for California to reach its ultimate goal of reducing emissions 80 percent under 1990 levels by 2050, as identified in Executive Order S-3-05. Executive Order B-30-15 also specifically addresses the need for climate adaptation and directs state government to:

- Incorporate climate change impacts into the State's Five-Year Infrastructure Plan;
- Update the Safeguarding California Plan, the state climate adaption strategy to identify how climate change will affect California infrastructure and industry and what actions the state can take to reduce the risks posed by climate change;
- Factor climate change into state agencies' planning and investment decisions; and
- Implement measures under existing agency and departmental authority to reduce GHG emissions (OGB, 2015).

Executive Order B-30-15 requires CARB to update the AB 32 Climate Change Scoping Plan to incorporate the 2030 target. The 2030 Draft Scoping Plan (Draft Scoping Plan) will serve as the framework to define the State's climate change priorities for the next 15 years and beyond. In June 2016, CARB released the 2030 Target Scoping Plan Update Concept Paper to describe

potential policy concepts to achieve the 2030 target that can be incorporated in the Draft Scoping Plan. The concept paper presents four potential high-level concepts for achieving the needed GHG reductions (CARB, 2016c). The MPWSP would be potentially inconsistent with Executive Order B-30-15's GHG emissions goal because it would generate direct and indirect emissions of GHG emissions that could have a significant impact on the environment. This issue is addressed in Impacts 4.11-1 and 4.11-2.

4.11.2.3 Applicable Regional and Local Land Use Plans and Policies

As described above, the AB 32 Scoping Plan outlines the State's overall strategy to achieve the 2020 GHG emissions limit. Although state, regional, and local land use plans, policies, and regulations generally do not address GHG emissions at the project level, numerous state, regional, and local agencies with jurisdiction over the proposed project have adopted plans, policies, and regulations related to air quality and energy consumption that also have the effect of reducing GHG emissions. Project consistency with such plans, policies, and regulations is analyzed in Sections 4.10, Air Quality, and 4.18, Energy Conservation, of this EIR/EIS.

4.11.3 Evaluation Criteria

Implementation of the proposed project would have a significant impact related to GHG emissions if it would:

- Generate GHG emissions, either directly or indirectly, that could have a significant impact on the environment; or
- Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions.

The GHG analysis in this EIR/EIS relies on significance criteria identified by staff of the local air pollution control district, Monterey Bay Unified Air Pollution Control District (MBUAPCD). In February 2014, the MBUAPCD staff recommended that its Board of Directors approve an operational significance threshold of 10,000 metric tons CO_2e per year for stationary source projects that rely on operational processes and equipment that are subject to MBUAPCD permitting requirements. For land use projects, the MBUAPCD staff recommended to its board in February 2014 that it adopt the following options (i.e., if adopted, land use projects would be required to apply one of these options to demonstrate a less-than-significant impact): (a) a "bright line" significance threshold of 2,000 metric tons CO_2e per year; (b) incorporate mitigation measures to reduce all project GHG emissions by 16 percent compared to unmitigated emissions; or (c) or demonstrate compliance with an applicable adopted GHG reduction plan/climate action plan (MBUAPCD, 2014). In February 2016, the MBUAPCD adopted the staff-recommended significance threshold of 10,000 metric tons for stationary source projects (MBUAPCD, 2016a). As of June 2016, the MBUAPCD Board of Directors has not adopted any of the thresholds recommended by its staff for land use projects (MBUAPCD, 2016b). However, for the reasons set forth below, this EIR/EIS nonetheless uses the significance threshold of 2,000 metric tons

CO_2e per year to evaluate whether the proposed project's emissions could have a significant impact on the environment.

For land use projects, the MBUAPCD staff-recommended bright line significance threshold is 2,000 metric tons CO_2e per year, which is based on a similar threshold that has been developed for Ventura County and represents an "emissions capture rate" of 75 percent of all commercial and residential land use development projects in Ventura County.[1] This recommended threshold is based on emissions data suggesting that commercial and residential projects that emit greater than 2,000 metric tons CO_2e per year are responsible for 75 percent of GHG emissions associated with those land uses. Therefore, use of this threshold effectively requires mitigation for the top 75 percent of emissions generated by new land use projects. If all land use-project emissions are mitigated to below this threshold, it would represent an overall reduction in new land use project-related emissions of up to 75 percent. Since Executive Order B-30-15 GHG emissions reductions goal of lowering GHG emissions to 40 percent below 1990 levels by 2030 is roughly equivalent to reducing emissions by 44 percent below current levels. This analysis uses the staff-recommended bright line threshold to determine if the proposed project would generally be consistent with this goal.

It is acknowledged that the 2,000 metric ton significance threshold focuses on new commercial and residential development rather than industrial uses; however, similar to the emissions that would be associated with the proposed project, GHG emissions associated with commercial and residential development projects tend to be indirect in nature, primarily as a result of automobile and electricity use. This significance threshold falls short of meeting the Executive Order S-3-05 emissions reduction goal of lowering emissions to 80 percent below 1990 levels by 2050, which is equivalent to lowering emissions to 84 percent below current levels. The MBUAPCD staff and CARB have not yet provided guidance or recommendations for significance thresholds to evaluate consistency with the 2050 emissions reduction goal.[2]

MBUAPCD staff has not identified a specific significance threshold for short-term construction-related GHG emissions. Therefore, GHG emissions from MPWSP construction and periodic slant well maintenance are evaluated based on guidance developed by the San Luis Obispo County Air Pollution Control District (SLOCAPCD). For construction-related GHGs, SLOCAPCD recommends that total emissions from construction be amortized over a period equal to the estimated life of the project (in this case 40 years) and added to operational emissions, and then compared to the operational significance threshold (SLOCAPCD, 2012).

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1 A "75 percent emissions capture rate" means that 75 percent of the total emissions from all new projects would be subject to analysis in an environmental impact report prepared pursuant to CEQA, including analysis of feasible alternatives and imposition of feasible mitigation measures.

2 The CPUC is aware not only of the Court of Appeals decision in Cleveland National Forest Foundation v. SANDAG, which would require an EIR for a regional transportation plan to include an analysis of the plan's consistency with the GHG emission reduction goal for 2050 as reflected in Executive Order No. S-3-05, but also that the California Supreme Court has granted a petition for review of this question. The case was fully briefed as of late 2015, but has not yet been set for oral argument. While the Supreme Court is considering the issue, the effect of the Appellate Court decision is stayed and does not govern the preparation of this EIR/EIS or whether it complies with the requirements of CEQA.

4.11.4 Approach to Analysis

The following discussions provide an overview of the approach to analysis for GHG emissions impacts. The assumptions used to estimate construction and operational GHG emissions are provided in **Appendix G1**.

4.11.4.1 Construction Emissions

Assumptions regarding construction equipment, equipment horsepower (hp) ratings, and construction phasing were developed by the CPUC and the Sanctuary in coordination with CalAm to populate the off-road equipment GHG emissions model used in this analysis. For off-road equipment, emissions were estimated using the California Emissions Estimator Model version 2013.2.2 (CalEEMod v2013.2.2). It is assumed that each piece of equipment associated with construction of the proposed MPWSP Desalination Plant would operate for up to 12 hours per day, the drill rigs for installation of the subsurface slant wells and ASR-5 and ASR-6 Wells would operate for up to 24 hours per day, the other equipment required to construct the slant wells and associated facilities would operate for up to 12 hours per day, and construction equipment associated with all other project components (e.g., Terminal Reservoir, pipelines, and pump stations) would operate up to 8 hours per day.

GHG emissions from project-related on-road construction vehicles were estimated using CARB's most recent version of its motor vehicle emissions burden model (EMFAC2014). Since the EMFAC2014 model provides GHG emissions factors for CO_2 only, N_2O emission factors for gasoline and diesel combustion were obtained from The Climate Registry (TCR, 2016). GHG emissions in the form of CO_2e were calculated by multiplying the estimated total miles that would be traveled by construction worker vehicles and haul trucks by the GHG emission factors, multiplying the N_2O and CH_4 emissions by their respective global warming potential, and adding the CO_2, N_2O, and CH_4 emissions. Consistent with the SLOCAPCD's recommended approach for construction emissions, this analysis amortizes the proposed project's construction emissions over a 40-year project lifetime and adds them to the proposed project's estimated annual operational emissions, and then compares the total combined emissions to the 2,000 metric tons CO_2e per year significance threshold.

4.11.4.2 Operational Emissions

Indirect Emissions

The existing power demand needed to produce, treat, and convey water supplies for the Monterey District Service area used in this analysis is based on the average annual actual energy used in 2011, 2012, 2013, and 2015, multiplied by the 10-year average (2006 through 2015) of water production. Existing operational power demand is approximately 11,466 megawatt-hours (MWh) per year (CalAm, 2016). This amount represents the baseline electrical demand for this analysis.

The indirect emissions associated with the proposed project's electricity use were estimated using Pacific Gas and Electric Company's (PG&E) power grid emission factor for year 2020 [i.e., 290 pounds CO_2 per MWh; PG&E, 2015], which would be the first year the project would be

operational. N_2O and CH_4 emission factors for electricity use were obtained from TCR (2016). CalAm estimates that the proposed project's annual electricity demand would be approximately 63,164 MWh per year (CalAm, 2016). Therefore, the net increase in electrical power demand as of 2020 would be approximately 51,698 MWh per year. GHG emissions were estimated for CO_2, N_2O, and CH_4, the total CO_2e associated with project power demand was calculated by multiplying the N_2O and CH_4 emissions by their respective global warming potential, and then those values were added to the CO_2 emissions.

Exhaust Emissions

GHG emissions would also be generated from project-related vehicle travel during project operations and maintenance, from emergency generator testing at the MPWSP Desalination Plant, Monterey Pump Station, and Carmel Valley Pump Station, and off-road equipment use associated with periodic maintenance of the subsurface slant wells. GHG emissions from vehicles that would be used during project operations and maintenance were estimated using the same methodology described above for construction-related vehicle emissions. Emissions associated with up to 30 commuting workers each day and up to 3 material deliveries per day were calculated using EMFAC2014 emissions factors for light-duty trucks and heavy-duty diesel trucks, and multiplied by the respective estimated long-term vehicle miles per year for each vehicle type.

Routine operation of the emergency generators would be limited to 50 hours per year per generator for testing and maintenance. Fuel consumption factors for the emergency generators were obtained from manufacturer specifications of standby diesel generator sets similar to the size of the proposed emergency generators. GHG emissions associated with emergency generator testing were estimated by multiplying the total diesel fuel estimated to be consumed by CO_2, N_2O, and CH_4 emission factors obtained from TCR (TCR, 2016). N_2O and CH_4 emission values were multiplied by their respective global warming potentials and added to the CO_2 emissions to obtain CO_2e emissions.

For off-road equipment associated with maintenance of the slant wells that would be required every five years, GHG emissions were estimated using CalEEMod v2013.2.2. It was assumed that this maintenance would require four pieces of heavy-duty off-road equipment operating between six and eight hours per day in the CEMEX active mining area for periods ranging from 12 weeks to 18 weeks. Because this maintenance work would occur every five years, this analysis amortizes the slant well maintenance emissions over the five-year maintenance interval for comparison to the 2,000 metric ton significance threshold.

Brine Degassing Emissions

CO_2 degassing from groundwater to the atmosphere has been identified by a member of the public as a potential GHG emissions issue associated with the proposed project. Groundwater CO_2 partial pressures are typically 10 to 100 times higher than atmospheric CO_2 partial pressures. Therefore, when groundwater is extracted and brought to the surface, CO_2 degassing from the groundwater to the atmosphere occurs. To determine the amount of CO_2 degassing from subsurface water extraction that occurs when the groundwater equilibrates with the atmosphere, geochemical speciation modeling of the water would be required (Macpherson, 2009).

The GHG emissions analysis in this EIR/EIS includes consideration of the CO_2 that would be released from the discharged brine. The source water would be extracted from below the ocean floor using subsurface slant wells and conveyed to the desalination plant in an enclosed pipe. Therefore, the source water would behave like extracted groundwater, and degassing would occur when it would be brought to the surface if not treated. Approximately 43 percent of the water would pass through the seawater reverse osmosis system and become drinking water. The drinking water would be treated with lime to elevate the pH such that no CO_2 would be released. The remaining 57 percent would be discharged to the brine storage basin where it would temporarily be stored prior to being discharged back into the ocean where it would have the opportunity to come to equilibrium with the atmosphere and CO_2 would be released. To calculate the amount of CO_2 that could be released from source water during operation of the proposed project, Trussell Technologies (2016) used data from water quality samples drawn from the test slant well in June 2016 (see Appendix G2). The State Water Resources Control Board and the Central Coast Regional Water Quality Control Board have peer reviewed Trussell Technologies' analysis and the results of the Trussell Technologies analysis is included in this EIR/EIS.

Carbon Sequestration

The rate of existing carbon sequestration that occurs at the proposed project sites that would be permanently disturbed has been estimated under the assumption that the ongoing natural carbon uptake by vegetation and biological soil crusts associated with the general vegetation types of grassland and scrub are equivalent to 4.3 metric tons and 14.3 metric tons of CO_2 per acre, respectively (see Section 4.11.1.3, *Greenhouse Gas Sources*). The acreages of vegetation types that would be permanently disturbed by the proposed project or one of the action alternatives were obtained from Section 4.6, *Terrestrial Biological Resources*.

4.11.4.3 Evaluation of GHG Emissions

The proposed project would include three new emergency backup generators that would be operated intermittently. With the exception of these backup generators that would emit less than one half of one percent of the total annual project-related GHG emissions (see Table 4.11-4), the proposed project would include no other stationary sources of emissions that would require a MBUAPCD permit. Although the proposed project would be a heavy industrial land use type, it would primarily result in indirect emissions associated with use of electricity from PG&E's electrical grid by stationary sources at power plants. These sources are regulated and permitted by local air districts throughout California; however, they are outside of the control of CalAm and are not under the jurisdiction of the CPUC. Because the sources of the indirect emissions are already regulated and permitted by the local air districts where the power plants reside, no permit or other MBUAPCD approval would be required for the proposed project's demand for electricity. For this reason, the stationary source threshold of 10,000 metric tons CO_2e per year is not an appropriate threshold to gauge impact significance for the proposed project; use of one of the threshold options developed for land use projects, which do not require MBUAPCD permits for stationary sources, is more appropriate. While this particular significance threshold is not used, indirect emissions associated with electricity consumption are calculated and impacts are fully assessed in this chapter.

As mentioned above and elaborated in the discussion of Impact 4.11-1, below, the vast majority of GHG emissions associated with the proposed project would be indirect emissions related to the project's use of electricity from PG&E's electrical power grid. The estimated future average annual energy use for the proposed project is based on aggregate energy use factors for the existing and proposed production facilities and the volume of desalinated product water that would be produced from each. The energy requirements for desalination depend on several factors, including source water, RO membrane properties, and pre- and post-treatment requirements. However, based on the information currently available for the proposed project, it is not possible to quantify with reasonable certainty whether or not the proposed project emissions can be reduced by 16 percent (even with implementation of mitigation discussed in the analysis, below), as recommended by MBUAPCD staff as one of the options to demonstrate a less-than-significant impact, as described above in Section 4.11.3. In addition, there is no existing local or regional GHG reduction plan/climate action plan that would be applicable to the proposed project, such that compliance with an applicable adopted GHG reduction plan/climate action plan could be demonstrated for this project. Therefore, neither the mitigated 16-percent reduction in GHG emissions nor the compliance with an GHG reduction plan/climate action plan thresholds for assessment of land use projects are considered practicable for evaluation of the proposed project.

4.11.5 Direct and Indirect Effects of the Proposed Project

Table 4.11-2 summarizes the proposed project's GHG-related impacts and significance determinations.

TABLE 4.11-2
SUMMARY OF IMPACTS – GHG EMISSIONS

Impacts	Significance Determinations
Impact 4.11-1: Incremental contribution to climate change from GHG emissions associated with the proposed project.	SU
Impact 4.11-2: Conflict with the Executive Order B-30-15 Emissions Reduction Goal.	SU
Impact 4.11-3: Conflict with AB 32 Climate Change Scoping Plan.	SU
Impact 4.11-C: Cumulative impacts related to greenhouse gas emissions	SU

NOTE:
SU = Significant and Unavoidable, even with implementation of mitigation.

Impact 4.11-1: Incremental contribution to climate change from GHG emissions associated with the proposed project. (*Significant and Unavoidable, even with implementation of mitigation*)

Implementation of the proposed project would result in short-term construction and long-term operational emissions. Construction and operation emissions that would be associated with the proposed project are discussed separately below; however, the impact conclusion is based on the sum of amortized construction emissions and the operational emissions (see Section 4.11.3.2,

Approach to Analysis, for additional information regarding the methods used to estimate the proposed project's short-term construction and long-term operation emissions).

Construction Emissions

As shown in **Table 4.11-3**, GHG emissions generated by construction of the proposed project would total approximately 15,573 metric tons CO_2e over the 24-month construction period, which equates to a 40-year amortized annual average value of approximately 389 metric tons CO_2e (refer to Section 4.11.4.1, Construction Emissions, for details on the approach this analysis uses relative to short-term construction emissions; and **Appendix G1** for all assumptions associated with the GHG construction emissions).

TABLE 4.11-3
TOTAL GHG EMISSIONS FROM PROJECT CONSTRUCTION

Construction Emission Source	CO_2e
Desalination Plant	7,087.22
Subsurface Slant Wells	1,880.56
Source Water Pipeline	575.17
Brine Discharge Pipeline	198.02
Castroville Pipeline	271.09
Pipeline to CSIP	189.61
New Desalinated Water Pipeline	571.10
New Transmission Main	873.98
Terminal Reservoir	1,876.08
ASR Pipelines	472.24
ASR-5 and ASR-6 Wells	866.65
Carmel Valley Pump Station	249.65
Ryan Ranch-Bishop Interconnection Improvements	264.03
Main System-Hidden Hills Interconnection Improvements	198.02
Total Emissions	**15,573.42**
40-Year Amortized Annual Average	**389.34**

SOURCE: ESA, 2016. See **Appendix G1.**

Operational Emissions

The proposed project would generate long-term GHG emissions associated with electrical power consumption, vehicle travel, operation of diesel-fueled emergency generators, and off-road equipment use associated with periodic maintenance at the slant well sites. Indirect emissions would result from a total project-related net increase in electricity demand of approximately 51,698 MWh per year. Other emission sources that would occur during operations of the proposed project would include up to 66 one-way vehicle trips per day associated with commuting workers and material deliveries, up to 50 hours per year of routine testing and maintenance of each of the two emergency generators at the MPWSP Desalination Plant site

(1,000 hp) and at the Carmel Valley Pump Station (68 hp), off-road equipment that would be required every five years to maintain the slant wells, CO_2 degassing from discharged brine water, and loss of carbon sequestration due to permanent vegetation removal. The estimated annual emissions that would be associated with each of these operational sources are presented in **Table 4.11-4**. As indicated in the table, total net CO_2e emissions associated with operation of the proposed project would be approximately 7,981 metric tons per year.

TABLE 4.11-4
TOTAL GHG EMISSIONS FROM PROJECT OPERATIONS

Operation Emissions Source	Operational Emissions (total metric tons)			
	CO_2	N_2O	CH_4	CO_2e
Baseline Electricity Consumption	1,508.27	0.03	0.16	1,521.11
Electricity Consumption with Project	8,308.83	0.16	0.89	8,379.53
Net Increase in Electricity Consumption	6,800.56	0.13	0.73	6,858.42
Vehicle Trips	233.58	0.02	0.01	239.66
Emergency Generator Testing	24.86	<0.01	<0.01	25.09
Off-road Equipment for Slant Well Maintenance (amortized over 5 years)	14.81	<0.01	<0.01	14.86
Degassing from Discharged Brine Water*	735.00	---	---	735.00
Loss of Carbon Sequestration	107.98	---	---	107.98
Total	**7,916.79**	**0.15**	**0.74**	**7,981.01**

SOURCES: ESA, 2016. See **Appendix G1** and Trussell, 2016, **Appendix G2**.

As listed in **Table 4.11-4**, the vast majority of GHG emissions associated with long-term operation of the proposed project would be indirect emissions from the project's use of electricity, which would be provided by the local PG&E electrical power grid.

Due to California's Renewables Portfolio Standard (RPS) program that requires investor-owned utilities to increase procurement from eligible renewable energy sources to 33 percent of total procurement by 2020, PG&E has steadily increased the amount of renewables in its energy production portfolio, which lowers the overall indirect emissions associated with use of its electricity. The mix of sources of electricity that PG&E delivered to its customers in 2015 is described in Section 4.18.1.2 and Table 4.18-2. In fact, indirect emissions associated with use of PG&E's electricity will continue to drop as more and more electricity from renewable power generators is brought onto the grid. PG&E estimates that its emissions rate for its current (i.e., year 2016) energy production portfolio is 370 pounds of CO_2 per MWh generated, and that its emissions rate estimate for year 2020 is 290 pounds of CO_2 per MWh generated (PG&E, 2015). This will equal a reduction in indirect GHG emissions associated with electricity use in the PG&E service area of approximately 22 percent over the next four years. In addition, in January 2015, Governor Brown proposed an expansion of the RPS program goal to 50 percent by 2030. As of July 2016, state policymakers have not enacted this RPS program expansion into law. However, if the

expansion is approved, PG&E's electricity emissions rate (and the carbon footprint of the proposed project) would continue to decrease throughout the life of the proposed project.

Consistency with Regulatory Requirements

As noted in Section 4.11.2, Regulatory Framework, the MPWSP would be potentially inconsistent with Executive Order B-30-15's GHG emissions goal because it would generate direct and indirect emissions of GHG emissions that could have a significant impact on the environment. As discussed in the following paragraphs of Impact 4.11-1 conclusions and under Impact 4.11-2, **Mitigation Measures 4.18-1 (Construction Equipment Efficiency Plan)** and **4.11-1 (GHG Emissions Reduction Plan)** would reduce the carbon footprint of the proposed project but the impact associated with GHG emissions would remain significant and unavoidable.

Impact Conclusion

As shown in **Table 4.11-5**, the sum of the 40-year amortized construction GHG emissions and the total net operation emissions that would be associated with the proposed project is approximately 8,370 metric tons CO_2e per year. These emissions would exceed the 2,000 metric tons per year significance threshold; therefore, a significant impact would occur, and the proposed project would be considered to contribute to the primary and secondary adverse effects of climate change, such as increases in global temperatures, global rise in sea level, ocean acidification, impacts on agriculture, changes in disease vectors, and changes in habitat and biodiversity. Of these adverse effects, global rise in sea level would have the most potential to impact the project. See Impact 4.3-11, *Exposure of people or structures to a significant risk of loss, injury, or death from flooding due to sea level rise*, in Section 4.3.5.2, for a discussion of how global rise in sea level would affect the project.

TABLE 4.11-5
TOTAL AMORTIZED GHG EMISSIONS

Emissions Source	CO_2e (metric tons per year)
40-Year Amortized Construction Emissions	389
Total Net Operational Emissions	7,981
Total Project Emissions	**8,370**

SOURCE: ESA, 2016. See **Appendix G1**.

Implementation of **Mitigation Measure 4.18-1 (Construction Equipment Efficiency Plan)** would ensure that construction activities are conducted in a fuel-efficient manner (see Impact 4.18-1 in Section 4.18, Energy Conservation), which would also limit the generation of GHG construction-related emissions.

With regard to operation-related GHG emissions, the vast majority of emissions would be a result of increased electricity consumption. The MPWSP Desalination Plant is being designed with state of the art energy recovery and energy efficient features; however, additional energy-reducing

features may be available to further reduce the electrical consumption associated with the proposed project. In addition, it may be feasible for CalAm to obtain "clean" renewable energy for operations of the proposed project, which would reduce the overall carbon footprint of the project. Therefore, implementation of **Mitigation Measure 4.11-1 (GHG Emissions Reduction Plan)** is required to reduce the overall carbon footprint of the proposed project.

Although implementation of **Mitigation Measures 4.11-1** and **4.18-1** would ensure that the proposed project is constructed and operated in an energy-efficient manner that would reduce the overall carbon footprint of the proposed project as much as feasible, based on the information currently available, it is not possible to substantiate numerically that the GHG emissions would be reduced to a less-than-significant level. Therefore, this impact is considered to be significant and unavoidable, even with implementation of mitigation.

CARB's cap-and-trade program applies to facilities that would emit 25,000 metric tons or more of CO_2e per year. As discussed above, the proposed project would primarily result in indirect emissions associated with electricity use from PG&E's power grid that would be substantially less than 25,000 metric tons CO_2e per year. MBUAPCD considers operations of any project that would be in accordance with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions [such as, sources subject to the Cap-and-Trade requirements pursuant to Title 17, Article 5 (California Cap on Greenhouse Gas Emissions and Market-based Compliance Mechanisms)] to be less than significant. The fossil fuel power plants that would generate the electricity that would be used by the project are already subject to and participate in CARB's cap-and-trade program. For these reasons, it does not make practical sense to recommend mitigation to offset emissions associated with PG&E's power portfolio because those emissions have already been regulated pursuant to cap-and-trade legislation and are therefore considered to be consistent with CARB's current strategy for reducing GHG emissions consistent with the State's GHG reduction goals. As a result, this EIR/EIS focuses on mitigation strategies that are aimed at reducing the project's consumption of electricity from PG&E's electrical power grid.

Mitigation Measures

Mitigation Measure 4.11-1 applies to the project as a whole.

Mitigation Measure 4.11-1: GHG Emissions Reductions Plan.

(a) ***Energy Conservation Technologies.*** CalAm shall have a qualified professional prepare and submit a GHG Emissions Reduction Plan (Plan) to the CPUC and the Sanctuary for approval prior to the start of project construction activities. Once approved by the CPUC and the Sanctuary, the Plan shall be implemented. The Plan shall include a detailed description of the carbon footprint for all operational components of the approved project (e.g., slant well pumping, the MPWSP Desalination Plant, transmission of source and product water, ASR system) based on manufacturer energy usage specification data for piece of equipment and the most current PG&E power system emissions factor for GHG emissions.

The Plan shall include a summary of state-of-the-art energy recovery and conservation technologies available for utility scale desalination facilities and shall include a commitment by CalAm to incorporate all available feasible energy recovery and conservation technologies; or, if CalAm finds that any of the technologies will not be feasible for the project, the Plan shall clearly explain why such technology is considered to be infeasible. The carbon footprint estimate for the project shall include consideration of all proposed energy recovery and conservation technologies that will be employed by the project, and shall describe the approximate GHG emissions reductions that will be associated with each technology.

(b) ***Renewable Energy.*** CalAm shall make good faith efforts to ensure that at least 20 percent of the approved project's operational energy use requirements are achieved with "clean" renewable energy, including but not necessarily limited to: the use of methane gas from the existing Monterey Regional Waste Management District (MRWMD) landfill-gas-to-energy (LFGTE) facility located adjacent to the MPWSP Desalination Plant site; and installation of solar photovoltaic (PV) panels at or adjacent to the desalination plant. The carbon footprint estimate for the project shall include consideration of all renewable energy that would directly be available and used by the project in the form of kilowatt hours per year, and shall describe the approximate GHG emissions reductions that will be associated with the use of the renewable energy.

Mitigation Measure 4.18-1 applies to all project components.

Mitigation Measure 4.18-1: Construction Equipment Efficiency Plan.

(See Impact 4.18-1 in Section 4.18, Energy Conservation, for description.)

Impact 4.11-2: Conflict with the Executive Order B-30-15 Emissions Reduction Goal. (*Significant and Unavoidable, even with implementation of Mitigation*)

All Proposed Project Facilities

As discussed under Impact 4.11-1, above, GHG emissions associated with the proposed project would exceed the emissions significance threshold, which indicates that implementation of the project would not be consistent with the GHG emission reduction goals for year 2030 identified in Executive Order B-30-15. Therefore, the proposed project would conflict with Executive Order B-30-15 and would result in a potentially significant impact.

Implementation of **Mitigation Measure 4.11-1 (GHG Emissions Reduction Plan)** described under Impact 4.11-1, above, and **Mitigation Measure 4.18-1 (Construction Equipment Efficiency Plan)** described under Impact 4.18-1 (see Section 4.18, Energy Conservation), respectively, would require CalAm to develop and implement a GHG Emissions Reduction Plan and a Construction Equipment Efficiency Plan, which would reduce project-related GHG emissions to the extent feasible. However, the CPUC cannot substantiate that the mitigated GHG emissions would be reduced to a less-than-significant level. Therefore, this impact is considered to be significant and unavoidable, even with implementation of mitigation.

Mitigation Measures

Mitigation Measure 4.11-1 applies to the project as a whole.

Mitigation Measure 4.11-1: GHG Emissions Reduction Plan.

(See Impact 4.11-1, above, for description.)

Mitigation Measure 4.18-1 applies to all project components.

Mitigation Measure 4.18-1: Construction Equipment Efficiency Plan.

(See Impact 4.18-1 in Section 4.18, Energy Conservation, for description.)

Impact 4.11-3: Conflict with AB 32 Climate Change Scoping Plan. (*Significant and Unavoidable, even with implementation of mitigation*)

As identified in Section 4.11.2, Regulatory Framework, the only plan that would be directly applicable to the proposed project would be AB 32 Scoping Plan Measure W-3, Water System Energy Efficiency. CARB has set a 20 percent electricity use reduction target from 2006 levels for this measure. The intent of Measure W-3 is to compel water purveyors to: incorporate advanced technologies in the design and construction of water supply systems to lower energy consumption; examine opportunities to use energy sources that have lower GHG emissions; and identify new and innovative technologies and measures for mutually achieving energy and water efficiency savings. As described in Chapter 3, Description of the Project (Proposed Action), Section 3.2.2.2, Reverse Osmosis System, CalAm proposes to incorporate process and energy recovery systems that would utilize pressure-exchange technologies to transfer energy from the high-pressure brine stream to the source water stream to reduce energy demand as well as source water pumping requirements. The use of modern reverse osmosis technology would also ensure that the energy would be used efficiently. These recent technological advancements include less energy intensive membrane materials and more efficient pumps (Pacific Institute, 2013). In addition, the design and construction of the MPWSP Desalination Plant would incorporate various energy efficient design elements into building support systems, electrical and treatment equipment, and process design that would reduce operational energy demand (see Section 3.4.5 in Chapter 3, Description of the Proposed Project). These project elements would increase energy efficiency and reduce energy demand, thereby reducing indirect emissions of GHGs.

In addition to the proposed energy recovery system and use of energy efficient design elements, variable-frequency drives would be used where appropriate to reduce the operating speed of pumps to closely match the pump discharge pressure requirements, which would reduce energy usage (CDM Smith, 2014). Variable-frequency drives, which are electronic controllers that adjust the speed of an electric motor by modulating the power being delivered, provide continuous control, matching motor speed to the specific demands of the work being performed (CPUC, 2016). In addition, energy-efficient motors, also called premium or high-efficiency motors, would be used for project motors ranging in size from 5 to 800 hp. These motors are up to 8 percent more efficient than standard motors. Energy-efficient motors contain design improvements

including, for example, lengthening the core and using lower-electrical-loss steel, thinner stator laminations, more copper in the windings to reduce electrical losses, improved bearings, and smaller, more aerodynamic cooling fans (CPUC, 2016). Also, the pipeline system materials and sizing that would be used for the proposed project would be designed to limit pressure losses and reduce pumping and energy demand requirements (CDM Smith, 2014).

Impact Conclusion

CARB has set a 20 percent electricity use reduction target for Measure W-3. As described above, the MPWSP Desalination Plant designs already include state of the art energy recovery and energy efficient features in place of standard energy saving systems; although there may be additional feasible energy reducing features available to further reduce the electrical consumption associated with the project. Therefore, implementation of **Mitigation Measure 4.11-1 (GHG Emissions Reduction Plan)** is required to ensure that the proposed project is operated in an energy-efficient manner to the extent feasible. However, the CPUC cannot substantiate that the proposed project's electricity use would be reduced to a less-than-significant level. Therefore, this impact is considered to be significant and unavoidable, even with implementation of mitigation.

Mitigation Measure

Mitigation Measure 4.11-1 applies to the project as a whole.

> **Mitigation Measure 4.11-1: GHG Emissions Reduction Plan.**
>
> (See Impact 4.11-1, above, for description.)

4.11.6 Cumulative Effects of the Proposed Project

The cumulative scenario and cumulative impacts methodology are described in Section 4.1.7. Table 4.1-2 lists potential cumulative projects.

Impact 4.11-C: Cumulative impacts related to greenhouse gas emissions (*Significant and unavoidable with implementation of mitigation*)

Because GHG emissions have global climate change implications, the evaluation of GHG emissions impacts is inherently a cumulative impact analysis. Through Executive Orders S-3-05 and B-30-15, as well as AB 32, the State has established goals and policies for reducing its contribution of GHG emissions. Accordingly, these policy documents provide goals against which the significance of individual projects' emissions can be measured. Consistent with the emissions reduction goal for 2030 identified in Executive Order B-30-15, the numeric significance criterion used to evaluate operational emissions plus construction emissions amortized over the project's estimated 40-year lifetime is 2,000 metric tons CO_2e per year. The analysis also considers the MPWSP's consistency with applicable AB 32 Scoping Plan Measure W-3. If MPWSP construction and operations would result in GHG emissions greater than 2,000 metric tons CO_2e per year, or conflict with AB 32 Scoping Plan Measures, the MPWSP would not be considered consistent with

the State's GHG reduction goals and the associated impact would be cumulatively considerable. The timeframe during which the MPWSP could contribute to cumulative GHG emissions effects includes the 24-month construction phase, as well as the anticipated approximately 40-year operations phase.

As discussed in Impact 4.11-1, the MPWSP construction activities would generate approximately 15,573 metric tons CO_2e over the 24-month construction period. Amortized over the project's estimated 40-year lifetime, annual average emissions would be approximately 389 metric tons CO_2e (refer to **Appendix G1** for all assumptions associated with the GHG construction emissions). The Impact 4.11-1 discussion also discloses that the MPWSP operations total net emissions would be approximately 7,981 metric tons CO_2e per year, resulting in a significant impact and a cumulatively considerable contribution to the overall significant cumulative impact associated with climate change. Thus, the combined amortized annual construction emissions and annual operations emissions would be approximately 8,370 metric tons CO_2e. **Mitigation Measure 4.11-1 (GHG Emissions Reduction Plan)** requires CalAm to prepare and implement a GHG Emissions Reduction Plan to address project emissions. The plan would identify specific technologies CalAm would implement to maximize energy efficiency and use of renewable energy technologies, and would be subject to CPUC review prior to the start of construction. In addition, CalAm would be required to implement **Mitigation Measure 4.18-1 (Construction Equipment Efficiency Plan)** to ensure project construction activities are conducted in a fuel-efficient manner, which would also limit the generation of GHG construction-related emissions.

Although implementation of these measures would reduce the overall carbon footprint of the project, the Lead Agencies cannot substantiate that the mitigated GHG emissions would be reduced to a less-than-significant level. Therefore, with mitigation, the project's incremental contribution to the significant cumulative climate change impact related to GHG emissions would remain cumulatively considerable (*significant and unavoidable*).

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

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4.12 Noise and Vibration

Sections	Figures
4.12.1 Key Concepts and Terminology	4.12-1 Noise Monitoring Locations
4.12.2 Setting/Affected Environment	
4.12.3 Regulatory Framework	
4.12.4 Evaluation Criteria	
4.12.5 Approach to Analysis	
4.12.6 Direct and Indirect Effects of the Proposed Project	
4.12.7 Cumulative Effects of the Proposed Project	

Tables

4.12-1 Short-term Noise Measurements	4.12-9 Maximum Construction Noise Levels – ASR Pipelines
4.12-2 Long-term Noise Measurement – MPWSP Desalination Plant	4.12-10 Summary of Vibration Levels at Sensitive Receptors during Construction
4.12-3 Applicable Regional and Local Land Use Plans and Policies Relevant to Noise and Vibration	4.12-11 Maximum Operational Noise Levels – ASR-5 and ASR-6 Wells
4.12-4 Vibration Thresholds	4.12-12 Maximum Operational Noise Levels –Carmel Valley Pump Station
4.12-5 Summary of impacts – Noise and Vibration	4.12-13 Maximum Operational Noise Levels – Booster Stations (Main System–Hidden Hills Interconnection Improvements)
4.12-6 Summary of Noise Levels at Sensitive Receptors during Construction	4.12-14 Typical Construction Noise Levels
4.12-7 Construction Noise Levels – Pipelines North of Reservation Road	
4.12-8 Maximum Construction Noise Levels – New Transmission Main	

This section evaluates the potential noise and vibration impacts associated with construction and operation of the Monterey Peninsula Water Supply Project (MPWSP or proposed project). This section describes the existing noise environment and identifies nearby sensitive receptors, presents relevant local noise ordinances and standards, and evaluates the potential for the proposed project to result in noise and vibration impacts. This section focuses on noise and vibration impacts on humans and structures; potential noise and vibration effects on marine and terrestrial wildlife are addressed in Sections 4.5, Marine Biological Resources, and 4.6, Terrestrial Biological Resources, respectively.

4.12.1 Key Concepts and Terminology

4.12.1.1 Noise

Sound is mechanical energy transmitted by pressure waves through a medium such as air or water; the manner in which sound travels through this medium is influenced by the physical properties of the medium (such as temperature, density, and humidity). Noise is often defined as unwanted sound. Of the various noise descriptors used to characterize the loudness of a sound, the sound pressure level has become the most common.

The human ear is not equally sensitive to all frequencies on the audible sound spectrum; for this reason, human response is factored into sound descriptions in a process called "A-weighting," expressed as "dBA." The dBA, or A-weighted decibel, is a scale of noise measurement that approximates the range of sensitivity of the human ear to sounds of different frequencies. On this scale, the normal range of human hearing extends from about 0 dBA to about 140 dBA.

Sound can vary in intensity by over 1 million times within the range of human hearing; for this reason, the decibel scale is based on logarithms (a system used to shorten calculations in mathematics), which keeps sound pressure measurements within a convenient and manageable range. Because the decibel scale is logarithmic in nature, two noise sources do not combine in a simple additive fashion. For example, if two sources each produce noise levels of 50 dBA, the combined sound level would be 53 dBA, not 100 dBA. The noise levels presented in this section are expressed in dBA, unless otherwise indicated.

Stationary noise sources such as idling vehicles or onsite construction equipment are considered "point sources," and noise originating from these sources "attenuates," or decreases, based on certain physical principles (e.g., spherical spreading[1]). In accordance with these principles, this analysis assumes that noise originating from a point source within 200 feet of a receiver attenuates at a rate of 6.0 dBA per doubling of distance, and noise from a point source greater than 200 feet away attenuates at a rate of 7.5 dBA per doubling of distance (Caltrans, 2009). Application of these attenuation rates account for such factors as the absorption of noise waves into ground surfaces, vegetation, and intervening structures.

Noise Exposure and Community Noise

The sound pressure level is a measure of noise experienced by an individual at a given moment, and noise exposure is a measure of noise experienced over a period of time. However, consistent noise levels rarely persist over a long period of time. In fact, community noise varies continuously with time and in relation to the contributing sources of sound within the noise environment. Community noise is primarily the product of many distant noise sources that combine to create a relatively stable background noise environment, and individual contributors to the community noise level are generally unidentifiable. Background noise levels change throughout a typical day, but do so gradually, corresponding with the addition and subtraction of distant noise sources as well as changes in atmospheric conditions. The addition of short-duration, single-event noise sources (e.g., aircraft flyovers, motor vehicles, sirens) makes community noise constantly variable throughout a day.

To appropriately characterize the community noise environment and evaluate noise impacts, noise exposure must be measured over a period of time. This time-varying nature of environmental noise is characterized using statistical noise descriptors. In addition to dBA, the following noise descriptors are used in this evaluation:

1 Noise attenuates as sound waves spherically spread over hard and soft surfaces.

dB — The decibel (dB) scale is used to quantify sound intensity, with 0 dB corresponding roughly to the threshold of human hearing, and 120 to 140 dB corresponding to the threshold of pain.

dBA — A-weighted decibels (dBA) are measured using a filter that de-emphasizes the frequencies below 1,000 hertz (Hz) and above 5,000 Hz in a manner corresponding to the human ear's decreased sensitivity to low and extremely high frequencies.

L_{eq} — The energy-equivalent sound level (L_{eq}) provides a single numerical value for noise measured over a specified period of time. The L_{eq} is the average noise exposure level for the given time period.

L_{max} — The instantaneous maximum noise level (L_{max}) measured during the measurement period.

L_{dn} or DNL — The day-night average sound level (DNL) is the average of the A-weighted sound levels occurring during a 24-hour period and accounts for the greater sensitivity of most people to noise at night. DNL "penalizes" noise occurring between 10:00 p.m. and 7:00 a.m. by adding 10 dBA to nighttime noise levels.

CNEL — Similar to DNL, the community noise equivalent level treats each evening noise event as though it were three, which adds a 4.77-dB "penalty" for noise events occurring between 7:00 p.m. and 10:00 p.m. Nighttime events are multiplied by ten, which adds a 10-dB penalty to noise events occurring between 10:00 p.m. and 7:00 a.m.

Effects of Noise on People

The effects of noise on people can be placed into three categories: the subjective effects of annoyance, nuisance, and dissatisfaction; interference with activities such as speech, sleep, and learning; and physiological effects such as hearing loss or sudden startling. Environmental noise typically produces effects in the first two categories. Workers at industrial plants often experience noise in the third category. A wide variation exists in the individual thresholds of annoyance, and different tolerances to noise tend to develop based on an individual's past experiences with noise.

Thus, an important method of predicting human reactions to a new noise environment is to compare the new noise level to the existing noise level to which one has adapted (i.e., the ambient noise level). In general, the more a new noise level exceeds the former ambient noise level, the less acceptable the new noise environment will be judged. A California Department of Transportation (2009) study reports the following human responses to changes in noise levels:

- Except in carefully controlled laboratory experiments, a change of 1 dBA cannot be perceived.
- Outside of the laboratory, a 3-dBA increase is considered a "barely perceptible" difference (i.e., the change in noise is perceived but does not cause a human response).
- An increase of at least 5 dBA is considered a "readily perceptible" difference or the change required to elicit a noticeable change in human response.
- A 10-dBA increase is subjectively heard as an approximate doubling in loudness.

4.12.1.2 Groundborne Vibration

Vibration is an oscillatory motion through a solid medium. In contrast to airborne noise, groundborne vibration is not a common environmental problem. It is unusual for individuals to perceive vibration from sources such as buses and trucks, even in locations near major roads. However, some common vibration sources produce groundborne vibration that can be felt (e.g., construction activities such as blasting, pile driving, and operating heavy equipment).

There are several methods employed to quantify vibration. The measurement used in this analysis—peak particle velocity (PPV)—is defined as the maximum instantaneous peak of the vibration signal. PPV is used to describe vibration impacts on buildings and structures and is expressed in inches per second (in/sec). Typically, groundborne vibration generated by human activity attenuates rapidly with distance from the source of the vibration. Sensitive receptors for vibration include structures (especially older masonry structures); people (residents, especially the elderly and sick); and locales with vibration-sensitive equipment such as hospitals and research labs.

4.12.2 Setting/Affected Environment

The study area for evaluation of noise and vibration impacts encompasses the project area and the nearest potentially affected sensitive receptors to the proposed facilities. There are no MBNMS resources that would be affected by impacts identified in this section; all impacts related to noise and vibration would occur outside of MBNMS boundaries. Therefore MBNMS resources are not described in the environmental setting/affected environment.

Applying a worst case daytime noise level (pile driving at 101 dBA at 50 feet) and the most restrictive daytime noise threshold (exterior speech interference level of 70 dBA, L_{eq}) results in a maximum potential impact distance of 1,800 feet without mitigation. Beyond this distance, all daytime construction noise impacts would be less than significant. Similarly, applying a worst case nighttime noise level (well drilling or open trench work at 81 dBA at 50 feet) and the most restrictive nighttime noise threshold (exterior sleep interference level of 60 dBA, L_{eq}) results in a maximum potential impact distance of 600 feet without mitigation. Beyond this distance, all nighttime construction noise impacts would be less than significant. Consequently, the study area extends 1,800 feet from all trenchless construction receiving pits and 600 feet from all other project elements, including operational sources.

4.12.2.1 Existing Noise Environment

Much of the study area experiences relatively moderate (50 to 60 dBA, L_{eq}) noise levels due to its proximity to noise sources. Vehicle traffic is the predominant source of noise throughout the project area. During peak traffic hours, vehicle noise generally ranges between 50 and 80 dBA, L_{eq} depending on distance from the major roadways. Coastal winds can commonly generate noise levels in the range of 50 to 60 dBA, L_{max}. Typical noise sources in the vicinity of the proposed project components are described below.

Typical Noise Sources

Coastal Dunes and Agricultural Areas

Land uses in the vicinity of the proposed seawater intake system, MPWSP Desalination Plant, and new Desalinated Water Pipeline are dominated by farmland, grazing land, and industrial uses such as the CEMEX sand mining facility at the coast, and the Monterey Regional Water Pollution Control Agency (MRWPCA) Regional Wastewater Treatment Plant and Monterey County Landfill to the east and southeast of the MPWSP Desalination Plant site, respectively. The proposed new Transmission Main would be aligned north-south along the Monterey Peninsula Recreational Trail, through the City of Marina and then crossing over to the west side of Highway 1. Once across Highway 1 the primary sources of noise in these areas are vehicle traffic along Highway 1, farm equipment, industrial vehicles (i.e., truck hauling) and equipment, and coastal winds.

Residential Areas

Southern portions of the new Desalinated Water Pipeline, new Transmission Main, ASR pipelines, ASR-5 and ASR-6 Wells, Carmel Valley Pump Station, and Main System–Hidden Hills Interconnection Improvements are located in residential areas. The primary noise sources are vehicle traffic, school children, and household appliances.

Inland Open Space Areas

The proposed Terminal Reservoir would be located in an undeveloped portion of the former Fort Ord military base. The noise environment includes the distant sound of vehicles traveling along General Jim Moore Boulevard amid naturally occurring sounds such as wind and chirping birds.

Office/Industrial Areas

Land uses adjacent to the proposed Ryan Ranch–Bishop Interconnection Improvements are primarily office and industrial, including various medical facilities and a school. Vehicles traveling along Ragsdale Drive and Highway 68 are the primary source of noise.

Noise Measurements

Short-term and long-term noise measurements were collected in March 2013, April 2014 and June 2016 to characterize ambient noise conditions at sensitive receptors located near project components. Short-term (10-minute) L_{eq} and L_{max} measurements were taken at thirteen locations during daytime hours. At locations where the potential exists for nighttime construction work, L_{eq} and L_{max} measurements were also taken during nighttime hours. **Tables 4.12-1** and **4.12-2** present the measured short-term and long-term noise levels, respectively. **Figure 4.12-1** shows the noise monitoring locations where representative measurements were collected for each project component.

As indicated in **Table 4.12-1**, average short-term daytime noise measurements ranged from 44.7 to 75.1 dBA L_{eq}, while maximum noise levels ranged from 60.3 to 93.3 dBA L_{max}. Although noise sources varied from location to location, automobile traffic was the predominant source of noise at most monitoring locations.

TABLE 4.12-1
SHORT-TERM NOISE MEASUREMENTS[a]

Map ID[b]	Measurement Location	Time	L_{eq}	L_{max}	Predominant Noise Source(s) during Monitoring
S1	Neponset Road and Lapis Road ❼ Rural residence located 3,900 feet west of MPWSP Desalination Plant site	10:43 a.m. to 10:53 a.m.[c]	61.8	75.0	Vehicle traffic on Highway 1 and trucks at adjacent Dole Food Company processing plant
		10:51 p.m. to 11:01 p.m.[d]	50.5	65.2	
S2	Cosky Road ❼ Residential area in northern Marina, 600 feet east of the new Desalinated Water Pipeline	11:05 a.m. to 11:15 a.m.[c]	66.4	79.8	Vehicle traffic, barking dog
		11:27 p.m. to 11:37 p.m.[d]	42.3	47.6	
S3	Dunes Drive ❼ Marina Dunes RV Park, 3,700 feet west of the new Desalinated Water Pipeline and 4,000 feet south of subsurface slant wells	10:51 a.m. to 11:01 a.m.[d]	54.5	60.3	Distant vehicle traffic on Highway 1
		11:08 p.m. to 11:18 p.m.[d]	51.5	57.1	
S4	Ardennes Circle ❼ Fitch Park military housing area, 50 feet northeast of ASR-5 Well site	12:02 p.m. to 12:12 p.m.[c]	54.3	62.4	Vehicle traffic
		11:55 p.m. to 12:05 a.m.[d]	52.0	72.9	
S5	Mescal Street ❼ Residential area in Seaside, 1,600 feet west of Terminal Reservoir	12:22 p.m. to 12:32 p.m.[c]	59.1	70.9	Vehicle traffic
S6	Tierra Grande Drive ❼ Residential area in unincorporated Monterey County, adjacent to proposed Main System–Hidden Hills Interconnection Improvements	3:13 p.m. to 3:23 p.m.[c]	44.7	64.7	Wind, birds
S7	Rancho San Carlos Road Drive ❼ Residential area in rural Monterey adjacent to Carmel Valley Pump Station	10:04 a.m. to 10:14 a.m.[e]	61.5	73.7	Vehicle traffic
S8	York School located on York Road, 900 feet northeast of Ryan Ranch-Bishop Interconnection Improvements	10:24 a.m. to 10:34 a.m.[d]	45.8	60.1	Distant vehicle traffic
S9	Monte Road ❼Agricultural residences adjacent to proposed Castroville Pipeline on north side of Salinas River	1:00 p.m. to 1:10 p.m.[e]	75.1	93.3	Vehicle traffic on Highway 1, truck traffic on Monte Road and adjacent Dole Food Company processing plant
		11:51 p.m. to 12:01 a.m.[e]	56.8	65.8	
S10	4th Army Road Drive ❼ Residential area in Seaside 200 feet from new Transmission Main	12:37 p.m. to 12:47 p.m.	50.1	62.3	Vehicle traffic
		12:14 a.m. to 12:24 a.m.	51.4	70.7	
S11	CEMEX active mining area	12:02 p.m.	57.9	60.0	Wave action on shore

NOTES:
[a] Noise measurements were taken at representative locations (see **Figure 4.12-1**) to characterize the existing noise environment in the project area.
[b] Map ID = Noise monitoring locations shown on **Figure 4.12-1**.
[c] Short-term (10-minute) noise measurement collected on March 20, 2013.
[d] Short-term (10-minute) noise measurement collected on April 13, 2014.
[e] Short-term (10-minute) noise measurement collected on June 15, 2016.

SOURCE: ESA, 2013; 2014; 2016.

TABLE 4.12-2
LONG-TERM NOISE MEASUREMENT – MPWSP DESALINATION PLANT

Map ID[a]	Measurement Location	Daytime L_{eq} (7:00 a.m. to 10:00 a.m.)	Nighttime L_{eq} (10:00 p.m. to 7:00 a.m.)	DNL	Predominant Noise Sources during Monitoring
L1	Charles Benson Road, adjacent to MPWSP Desalination Plant site	62	49	62	Agricultural and industrial equipment, haul trucks

NOTE:

[a] Map ID = Noise monitoring locations shown on **Figure 4.12-1**.

SOURCE: ESA, 2013.

One long-term (24-hour) noise measurement was collected at the proposed MPWSP Desalination Plant site (see **Figure 4.12-1**) on March 21 and 22, 2013. This measurement demonstrates that the MPWSP Desalination Plant would operate in a location where the daytime ambient noise environment is dominated by truck traffic and agricultural operations. See **Table 4.12-2** for the measured average daytime L_{eq} (7:00 a.m. to 10:00 p.m.), nighttime L_{eq} (10:00 p.m. to 7:00 a.m.), and DNL values.

Sensitive Receptors

Human response to noise varies considerably from one individual to another. Noise at various levels can interfere with sleep, concentration, and communication and cause physiological and psychological stress and hearing loss. Given these effects, some land uses are considered more sensitive to ambient noise levels than others. In general, residences, schools, hotels, hospitals, and nursing homes are considered to be the most sensitive to noise. Places such as churches, libraries, and cemeteries (i.e., where people engage in prayer, study, and contemplation) are also sensitive to noise. Commercial and industrial uses are considered the least noise-sensitive land uses. The distance of the sensitive receptors to project elements is provided in Figure 4.12-1.

4.12.3 Regulatory Framework

This section provides an overview of federal, state, and local environmental laws, policies, plans, and regulations relevant to noise and vibration and indicates whether the proposed project would be consistent with those regulatory requirements. The consistency findings concern the proposed project, without mitigation. Where the proposed project would be consistent with the applicable regulatory requirement, no further discussion of project consistency with that regulatory requirement is provided. Where the proposed project would be potentially inconsistent with the applicable regulatory requirement, the reader is referred to a specific impact topic within Section 4.12.5, Direct and Indirect Effects of the Proposed Project, where the potential inconsistency is addressed in more detail. Where applicable, the discussion in Section 4.12.5 identifies feasible mitigation that would resolve the potential inconsistency.

Federal, state, and local agencies regulate different aspects of environmental noise. Federal and state agencies generally set noise standards for mobile sources such as aircraft and motor vehicles, whereas local agencies regulate stationary sources within their jurisdictions. Local noise regulation involves the implementation of general plan policies and noise ordinance standards. Local general plans identify broad principles intended to guide and influence development plans; local noise ordinances establish standards and procedures for addressing specific noise sources and activities.

4.12.3.1 Federal Regulations

Federal regulations establish noise limits for medium and heavy duty trucks (more than 4.8 gross tons) under the Code of Federal Regulations, Title 40, Part 205, Subpart B. The federal truck passby noise standard is 80 dBA, L_{max} at 50 feet from the vehicle pathway centerline. These standards are implemented through regulatory controls on truck manufacturers. The MPWSP would be consistent with the federal regulation regarding truck noise because they are required by law and implemented by truck manufacturers. Consequently all trucks used to haul materials to construct the proposed project would be consistent with these federal regulations.

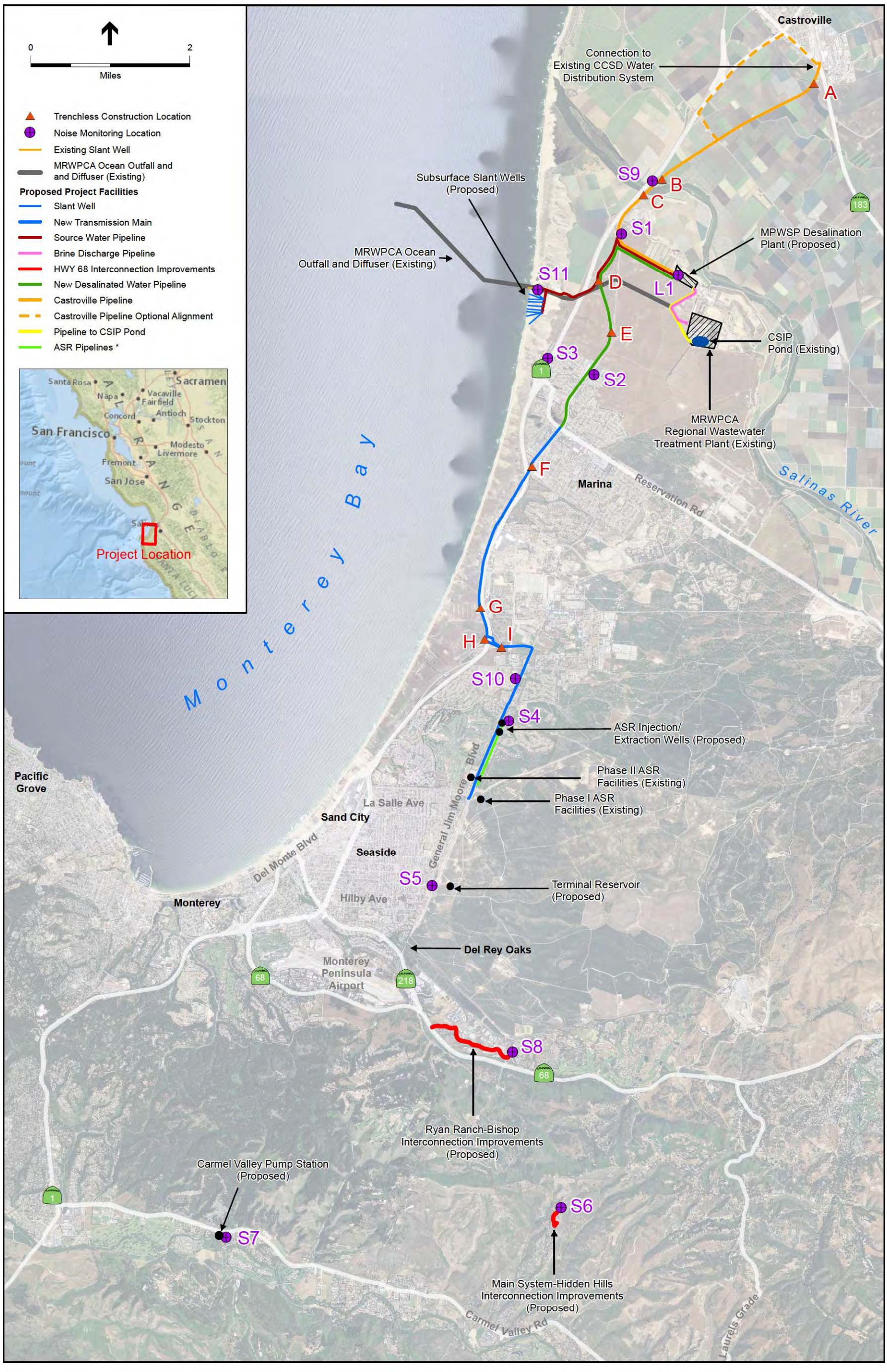
4.12.3.2 State Regulations

State noise regulations consist of requirements for the construction of new hotels, motels, and multi-family dwellings that are not applicable to a water supply project.

The MPWSP would be consistent with the State Title 24 requirements because CalAm would not be constructing residential land uses or any other land use that might be considered a sensitive noise receptor.

4.12.3.3 Applicable Regional and Local Land Use Plans and Policies

Table 4.12-3 presents the state, regional, and local land use plans, policies, and regulations pertaining to noise and vibration that were adopted for the purpose of avoiding or mitigating an environmental effect. Table 4.12-3 also indicates project consistency with such plans, policies, and regulations. Where the analysis concludes the proposed project would be consistent with the applicable plan, policy, or regulation, the finding is noted and no further discussion is provided. Where the analysis concludes the proposed project would be potentially inconsistent with the applicable plan, policy, or regulation, the reader is referred to the specific impact in Section 4.12.5, Direct and Indirect Effects of the Proposed Project. In that subsection, the significance of the potential conflict is evaluated. Where the effect of the potential conflict would be significant, feasible mitigation is identified to resolve or minimize that conflict.



NOTE:
*The ASR Pipelines are the ASR Conveyance Pipeline, the ASR Pump-to-Waste Pipeline, and the ASR Recirculation Pipeline. See Figure 3-9a for the individual pipeline alignments.

SOURCE: ESA, 2016

205335.01 Monterey Peninsula Water Supply Project

Figure 4.12-1
Noise Monitoring Locations

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TABLE 4.12-3
APPLICABLE REGIONAL AND LOCAL LAND USE PLANS AND POLICIES RELEVANT TO NOISE AND VIBRATION

Project Planning Region	Applicable Plan	Plan Element/ Section	Project Component(s)	Specific Plan, Policy, or Ordinance	Relationship to Avoiding or Mitigating a Significant Environmental Impact	Project Consistency with Plan, Policy, or Ordinance
City of Marina (coastal zone and inland areas)	City of Marina General Plan	Community Design and Development	Subsurface slant wells, Source Water Pipeline, new Desalinated Water Pipeline, and new Transmission Main	**Maximum Allowable Noise** **Duration** / **Day (7:00 a.m. to 10:00 p.m.)** / **Night (10:00 p.m. to 7:00 a.m.)** Hourly L_{eq} in dB[a,b] / 50 / 45 Maximum Level in dB[a,b] / 70 / 65 Maximum Impulsive Noise in dB[a,c] / 65 / 60 NOTES: a As determined at the property line of the closest receptor. Noise barriers or other noise attenuation features may be used to achieve the noise standards at the closest sensitive receptor. b Sound level measurements should be made with slow meter response. c Sound level measurements should be made with fast meter response. SOURCE: City of Marina, 2006.	These noise standards are intended to prevent new or modified stationary noise sources from disrupting adjacent or nearby residential or other noise-sensitive land uses.	Consistent: Subsurface slant wells would each operate on a 300-hp submersible pump encased in a concrete vault and would be located 4,000 feet from the nearest receptor. As discussed in Impact 4.12-5, operational noise levels from slant well pumps would be attenuated to 29 dBA which is well below the allowable noise standards. There would be no stationary noise sources associated with operation of the new Desalinated Water Pipeline or the new Transmission Main.
City of Marina (coastal zone and inland areas)	Marina Municipal Code	Chapter 15.04 – General Provisions	Subsurface slant wells, Source Water Pipeline, new Desalinated Water Pipeline, and new Transmission Main	***Section 15.04.055 - Construction hours and noise.*** Applies to any construction activities that require a building, grading, demolition, use, or other city permit. This section limits outside construction, repair work, or related activities that produce noise adjacent to residential uses, including transient lodging, to the hours of 7:00 a.m. to 7:00 p.m. (standard time) Monday through Saturday, and 10:00 a.m. to 7:00 p.m. (standard time) on Sundays and holidays. During daylight savings time, construction hours may be extended to 8:00 p.m. However, no construction activities, tools, or equipment may produce a noise level of more than 60 dBA for twenty-five percent of an hour at any receiving property line.	This ordinance is intended to reduce construction noise levels and limit noisy construction activity to the least sensitive hours of the day.	Potentially Inconsistent: All construction activity is assessed with respect to noise level standards in local and regional plans and policies in Impact 4.12-2. Construction of the new Desalinated Water Pipeline, and new Transmission Main could occur as close as 100 feet from existing residences and could be deemed inconsistent if nighttime construction work were conducted or if daytime construction work were to exceed 60 dBA, L_{25}. Mitigation Measures 4.12-1b (General Noise Controls for Construction Equipment) and 4.12-1c (Noise Control Plan for Nighttime Pipeline Construction) would ensure that construction of the new Desalinated Water Pipeline, and new Transmission Main would be consistent with the Marina Municipal Code. Nighttime construction of the subsurface slant wells and the Source Water Pipeline would not occur adjacent to a residential use.
Fort Ord Dunes State Park	Fort Ord Dunes State Park General Plan and Environmental Impact Report	Physical Resources	New Transmission Main	**NOI-3:** Develop noise abatement measures as part of the planning and design process for area-specific projects, to minimize disturbance to park visitors, neighbors, and sensitive wildlife identified as occurring in the area during construction. The following construction measures should be considered: ● Restrict construction activities to daytime hours, where feasible ● Use best available noise control techniques wherever feasible, including those for vehicles and construction equipment ● Use hydraulically or electrically powered impact tools when feasible ● Locate stationary noise sources as far from sensitive receptors as feasible ● To the extent feasible, avoid construction during the nesting/breeding seasons of sensitive wildlife known to occur in the project vicinity.	This policy is intended to minimize noise disturbance to park visitors, neighbors, and sensitive wildlife during construction.	Potentially Inconsistent: Construction of the new Transmission main would occur within the jurisdiction of Fort Ord Dunes State Park and could occur during nesting/breeding seasons of sensitive wildlife. This inconsistency is assessed in Impact 4.12-2 as well as in Impact 4.6-1 of the Terrestrial Biology Section. Implementation of Mitigation Measures 4.12-1a (Neighborhood Notice), 4.12-1b (General Noise Controls for Construction Equipment), and 4.12-1c (Noise Control Plan for Nighttime Pipeline Construction) would ensure that construction of the new Transmission Main would be consistent with Policy NOI-3 of the Fort Ord Dunes State Park General Plan. Additionally, Mitigation Measures 4.6-1b, 1c, 1e, 1f, 1g, 1g, 1h. 1h, 1i, 1j, 1l and 1n of the Terrestrial Biology section address avoidance of construction impacts during wildlife nesting and breeding seasons.

TABLE 4.12-3 (Continued)
APPLICABLE REGIONAL AND LOCAL LAND USE PLANS AND POLICIES RELEVANT TO NOISE AND VIBRATION

<table>
<tr><th>Project Planning Region</th><th>Applicable Plan</th><th>Plan Element/ Section</th><th>Project Component(s)</th><th>Specific Plan, Policy, or Ordinance</th><th>Relationship to Avoiding or Mitigating a Significant Environmental Impact</th><th>Project Consistency with Plan, Policy, or Ordinance</th></tr>
<tr><td>City of Monterey (inland areas)</td><td>Monterey City Code</td><td>Chapter 38 – Zoning Ordinance</td><td>Ryan Ranch-Bishop Interconnection Improvements</td><td>Section 38-112.2 – Limitation on Construction Hours. The following time restrictions are placed on construction activities: Monday through Friday, 7:00 a.m. to 7:00 p.m.; Saturday, 8:00 a.m. to 6:00 p.m.; and Sunday, 10:00 a.m. to 5:00 p.m. The City will consider requests to perform construction outside of these time limits under certain circumstances.</td><td>This ordinance is intended to limit noisy construction activity to the least sensitive hours of the day.</td><td><u>Potentially Inconsistent:</u> Nighttime construction work could occur where allowed by ordinance. This inconsistency is assessed in Impact 4.12-4. All nighttime construction work would be conducted only with prior approval from the relevant jurisdictions.</td></tr>
<tr><td>City of Monterey (inland areas)</td><td>Monterey City Code</td><td>Chapter 38 – Zoning Ordinance</td><td>Ryan Ranch-Bishop Interconnection Improvements</td><td>Section 38-111A – Performance Standards. Identifies performance standards for each zoning district, as shown below. Decibel levels must be compatible with neighboring uses, and new uses cannot cause ambient noise levels to exceed these standards. If the noise exposure resulting from a project would be greater than that identified in the table, the City of Monterey's community development director may require the project sponsor to perform an acoustical study.

CITY OF MONTEREY – MAXIMUM NOISE STANDARDS[a]
<table>
<tr><th>Zone of Property Receiving Noise</th><th>Maximum Noise Level (dBA)</th></tr>
<tr><td>OS – Open Space District</td><td>60</td></tr>
<tr><td>R – Residential Districts</td><td>60</td></tr>
<tr><td>PS – Public and Semi-Public District</td><td>60</td></tr>
<tr><td>C – Commercial District</td><td>65</td></tr>
<tr><td>I – Industrial Districts</td><td>70</td></tr>
<tr><td>PD – Planned Development</td><td>Study Required</td></tr>
</table>
NOTE:
a These noise standards shall be modified as follows to account for the effects of time and duration on the impact of noise levels: In R districts, the noise standard shall be 5 dB lower between 10:00 p.m. and 7:00 a.m.; noise that is produced for no more than a cumulative period of five minutes in any hour may exceed the standards above by 5 dB; and noise that is produced for no more than a cumulative period of one minute in any hour may exceed the standards above by 10 dB.
SOURCE: City of Monterey, 2008.</td><td>These noise standards are intended to prevent new or modified stationary noise sources from disrupting adjacent or nearby residential or other noise-sensitive land uses.</td><td><u>Consistent:</u> There are no stationary noise sources proposed for the Ryan Ranch-Bishop Interconnection Improvements.</td></tr>
<tr><td>City of Seaside (coastal zone and inland areas)</td><td>Seaside General Plan</td><td>Circulation</td><td>New Transmission Main, ASR Conveyance Pipeline, ASR Pump-to-Waste Pipeline, ASR Recirculation Pipeline, ASR, Terminal Reservoir</td><td>Policy C-1.7: Reduce impacts on residential neighborhoods from truck traffic and related noise.</td><td>This policy is intended to protect residential areas from disruptive truck traffic and related noise. This policy is implemented through two measures: (1) establish truck routes for the trucking industry and (2) restrict truck parking within the city.</td><td><u>Consistent:</u> Construction trucks would remove excavated material and bring in clean fill for pipelines. Construction-related truck trips would be dispersed throughout the day and would not substantially increase noise, as these trips would only marginally increase traffic on the local road network.</td></tr>
<tr><td>City of Seaside (coastal zone and inland areas)</td><td>Seaside General Plan</td><td>Noise</td><td>New Transmission Main, ASR Conveyance Pipeline, ASR Pump-to-Waste Pipeline, ASR Recirculation Pipeline, and Terminal Reservoir</td><td>Policy N-1.1: Ensure that new development and reuse/revitalization projects can be made compatible with the noise environment and existing development
Implementation Plan N-1.1.1 Compatible Development: Review discretionary development proposals for potential on- and offsite stationary and vehicular noise impacts per the California Environmental Quality Act (CEQA). Any proposed development located within a 60 dB or higher noise contour shall be reviewed for potential noise impacts and compliance with the noise and land use compatibility standards. The thresholds established in the Zoning Ordinance, Noise Ordinance, the Noise Contours Map and Tables of the Noise Element (seen in the table below) will be used to determine the significance of impacts.
If potential impacts are identified, mitigation in the form of noise reduction designs/ structures will be required to reduce the impact to a level less than significant. If the impact cannot be reduced to a level less than significant or avoided with accepted noise reduction methods, the proposed project will be determined "Clearly Unacceptable" and will not be approved.</td><td>These noise standards are intended to prevent new or modified stationary and vehicular noise sources from disrupting adjacent or nearby residential or other noise-sensitive land uses.</td><td><u>Potentially Inconsistent:</u> Operational noise from the ASR-5 and ASR-6 well pumps to exceed the land use compatibility standards This inconsistency is assessed in Impact 4.12-5. Only the ASR-5 and ASR-6 wells would have stationary noise sources (pumps) after construction and these would be enclosed. None of the other project components proposed in Seaside and on lands within federal jurisdiction would exceed the allowable noise standards for non-construction-related noise sources. While the potential exists for the ASR-5 and ASR-6 well pumps to exceed the land use compatibility standards, Mitigation Measure 4.12-5 Stationary Source Noise Controls would ensure project consistency with Policy N-1.1.</td></tr>
</table>

TABLE 4.12-3 (Continued)
APPLICABLE REGIONAL AND LOCAL LAND USE PLANS AND POLICIES RELEVANT TO NOISE AND VIBRATION

<table>
<tr><th>Project Planning Region</th><th>Applicable Plan</th><th>Plan Element/ Section</th><th>Project Component(s)</th><th>Specific Plan, Policy, or Ordinance</th><th>Relationship to Avoiding or Mitigating a Significant Environmental Impact</th><th>Project Consistency with Plan, Policy, or Ordinance</th></tr>
<tr><td>City of Seaside (coastal zone and inland areas)

(cont.)</td><td></td><td></td><td></td><td>
CITY OF SEASIDE – LAND USE COMPATIBILITY GUIDELINES
<table>
<tr><th rowspan="2">Land Use Category</th><th colspan="6">Community Noise Equivalent Level (CNEL)</th></tr>
<tr><th>55</th><th>60</th><th>65</th><th>70</th><th>75</th><th>80</th></tr>
<tr><td>Residential – Single-Family, Multifamily, and Duplex</td><td>A</td><td>A</td><td>B</td><td>B</td><td>C</td><td>U</td><td>U</td></tr>
<tr><td>Residential – Mobile homes</td><td>A</td><td>A</td><td>B</td><td>C</td><td>C</td><td>U</td><td>U</td></tr>
<tr><td>Transient Lodging – Hotels and Motels</td><td>A</td><td>A</td><td>B</td><td>B</td><td>C</td><td>C</td><td>U</td></tr>
</table>
NOTES:
A = Normally Acceptable. Specified land use is satisfactory based on the assumption that any new structures are conventional construction, without any special noise insulation requirements.
B = Conditionally Acceptable. New construction or development may be undertaken only after completion of a detailed noise analysis and appropriate noise insulation features have been incorporated into the project design. New development is assumed to be conventional construction, but with closed windows and air circulation systems or air conditioning.
C = Normally Unacceptable. New construction or development shall generally be discouraged. If it does proceed, a detailed analysis of the noise reduction requirements shall be made and needed noise insulation features included in the design.
U = Clearly Unacceptable. New construction or development that includes the specified land use is discouraged.
</td><td></td><td></td></tr>
<tr><td>City of Seaside (coastal zone and inland areas)</td><td>Seaside General Plan</td><td>Noise</td><td>New Transmission Main, ASR Conveyance Pipeline, ASR Pump-to-Waste Pipeline, ASR Recirculation Pipeline, and Terminal Reservoir</td><td>Policy N-2.1: Reduce noise impacts associated with motorized vehicles, aircraft and trains.</td><td>This qualitative noise ordinance is intended to protect the public from motorized vehicle, aircraft, and train noise.</td><td><u>Consistent.</u> Project components proposed for Seaside would generate a small number of vehicle trips for occasional maintenance. Such trips would not cause substantial increases in traffic volumes or associated transportation noise. The proposed project would not generate increases in aircraft or train operations.</td></tr>
<tr><td>City of Seaside (coastal zone and inland areas)</td><td>Seaside General Plan</td><td>Noise</td><td>New Transmission Main, ASR Conveyance Pipeline, ASR Pump-to-Waste Pipeline, ASR Recirculation Pipeline, and Terminal Reservoir</td><td>Policy N-3.1: Reduce the impacts of noise-producing land uses, activities, and businesses on noise-sensitive land uses.

Implementation Plan N-1.3.1: Enforcement of non-transportation noise standards. Enforce the noise limits and construction and operation regulations contained in this Noise Element and in the City's Municipal Code.

Implementation Plan N-1.3.3: Construction noise limits. Require all construction activity to comply with the limits (maximum noise levels, hours and days of allowed activity) established in the City noise regulations (Title 24 California Code of Regulations, Zoning Ordinance and Chapter 21A of the Municipal Code).</td><td>This policy is intended to prevent construction and new or modified stationary noise sources from disrupting adjacent or nearby noise-sensitive land uses.</td><td><u>Potentially Inconsistent:</u>

The project components proposed for Seaside would conflict with Implementation Plan N-1.3.3. Nighttime construction may be required for the new Transmission Main, which would exceed the time limits set forth in the City's noise regulations. This issue is addressed in Impact 4.12-4.Cal Am would seek prior approval from the City of Seaside to work outside of these hours. Because the City of Seaside Municipal Code could allow construction activity outside listed hours under certain circumstances, the construction activities would not violate local regulations.</td></tr>
<tr><td>City of Seaside (coastal zone and inland areas)</td><td>Seaside Municipal Code</td><td>Chapter 17.30 - Standards for All Development and Land Uses</td><td>New Transmission Main, ASR Conveyance Pipeline, ASR Pump-to-Waste Pipeline, ASR Recirculation Pipeline, and Terminal Reservoir</td><td>Section 17.30.060 - establishes noise standards designed to ensure that noise producers do not adversely affect sensitive receptors. The table below identifies Seaside's regulatory noise levels.
CITY OF SEASIDE – MAXIMUM EXTERIOR AND INTERIOR NOISE STANDARDS
<table>
<tr><th rowspan="2">Land Use</th><th colspan="2">Noise Standard in Community Noise Equivalent Level (CNEL)</th></tr>
<tr><th>Exterior (dBA)</th><th>Interior (dBA)</th></tr>
<tr><td>Residential</td><td>65</td><td>45</td></tr>
<tr><td>Mixed-Use Residential</td><td>70</td><td>45</td></tr>
<tr><td>Commercial</td><td>70</td><td>---</td></tr>
<tr><td>Office</td><td>70</td><td>50</td></tr>
<tr><td>Industrial</td><td>75</td><td>55</td></tr>
<tr><td>Public Facilities</td><td>70</td><td>50</td></tr>
<tr><td>Schools</td><td>80</td><td>50</td></tr>
</table></td><td>These noise standards are intended to prevent new or modified stationary noise sources from disrupting adjacent or nearby residential or other noise-sensitive land uses.</td><td><u>Potentially Inconsistent:</u> This inconsistency is assessed in Impact 4.12-5. Only the ASR-5 and ASR-6 wells would have stationary noise sources (pumps) after construction and these would be enclosed. None of the other project components proposed in Seaside and on lands within federal jurisdiction would exceed the allowable noise standards for non-construction-related noise sources. While the potential exists for the ASR-5 and ASR-6 well pumps to exceed exterior noise standards, Mitigation Measure 4.12-5 Stationary Source Noise Controls would ensure project consistency with Policy N-1.1.</td></tr>
</table>

TABLE 4.12-3 (Continued)
APPLICABLE REGIONAL AND LOCAL LAND USE PLANS AND POLICIES RELEVANT TO NOISE AND VIBRATION

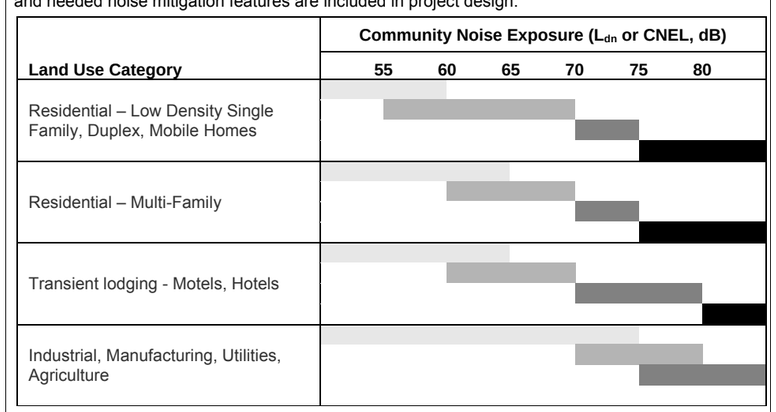
Project Planning Region	Applicable Plan	Plan Element/ Section	Project Component(s)	Specific Plan, Policy, or Ordinance	Relationship to Avoiding or Mitigating a Significant Environmental Impact	Project Consistency with Plan, Policy, or Ordinance
City of Seaside (coastal zone and inland areas)	Seaside Municipal Code	Chapter 9.12 – Noise Regulations	New Transmission Main, ASR Conveyance Pipeline, ASR Pump-to-Waste Pipeline, ASR Recirculation Pipeline, and Terminal Reservoir	***Section 9.12.030 (D) -*** sets time limits for construction activities, including demolition, excavation, erection, alteration, or repair. These activities may not occur before 7:00 a.m. or after 7:00 p.m. (except on Saturday, Sunday, and holidays, when the allowable construction hours are 9:00 a.m. to 7:00 p.m.) unless authorized in writing by a building official.	This ordinance is intended to limit noisy construction activity to the least sensitive hours of the day.	Potentially Inconsistent: Some of the project components proposed for Seaside would be constructed during nighttime hours, outside of those specified in the municipal code. This issue is addressed in Impact 4.12-4. Cal Am would seek prior approval from the City of Seaside to work outside of these hours. Because the City of Seaside Municipal Code could allow construction activity outside listed hours under certain circumstances, the construction activities would not violate local regulations.
County of Monterey (coastal zone and inland areas)	Monterey County Code	Chapter 10.60 – Noise Control	Source Water Pipeline, MPWSP Desalination Plant, new Desalinated Water Pipeline, Brine Discharge Pipeline, Pipeline to CSIP Pond, Castroville Pipeline, Carmel Valley Pump Station, Main System-Hidden Hills and Ryan Ranch-Bishop Road Interconnection Improvements	***Chapter 10.60.030 - Operation of noise-producing devices restricted.*** No person shall, within the unincorporated limits of the County of Monterey, operation of any machine, mechanism, device, or contrivance that produces a noise level exceeding 85 dBA at 50 feet from the source. The code does not apply to such noise sources when they are operated farther than 2,500 feet from any occupied dwelling unit.	These noise standards are intended to prevent new or modified stationary noise sources from disrupting adjacent or nearby residential or other noise-sensitive land uses.	Consistent: The only equipment that is proposed for project components within unincorporated Monterey County that would generate a noise level in excess of 85 dBA at 50 feet would be sheet pile drivers for potential jack-and-bore or other trenchless installation technologies for the Source Water Pipeline or the new Desalinated Water Pipeline. However, the probable locations of such activity would be greater than 2,500 feet from sensitive receptors.
County of Monterey (coastal zone and inland areas)	Monterey County General Plan	Safety	Source Water Pipeline, MPWSP Desalination Plant, new Desalinated Water Pipeline, Brine Discharge Pipeline, Pipeline to CSIP Pond, Castroville Pipeline, Carmel Valley Pump Station, Main System-Hidden Hills and Ryan Ranch-Bishop Road Interconnection Improvements	***Policy S-7.2:*** New development projects must incorporate design elements necessary to minimize noise impacts on surrounding land uses and to reduce noise in indoor spaces to acceptable levels.	This qualitative noise policy is intended to prevent new sensitive receptors from being impacted by existing noise sources as well as to prevent new or modified stationary noise sources from disrupting adjacent or nearby noise-sensitive land uses.	Potentially Inconsistent: The Main System-Hidden Hills Interconnection Improvements would generate noise at levels that could disrupt nearby land uses and/or generate potentially unacceptable indoor noise levels at nearby receptors. This issue is addressed in Impact 4.12-5. Mitigation Measure 4.12-5: Stationary-Source Noise Controls is identified to ensure that operational pump noise is consistent with Policy S.7-2.
County of Monterey (coastal zone and inland areas)	Monterey County General Plan	Safety	Source Water Pipeline, MPWSP Desalination Plant, new Desalinated Water Pipeline, Brine Discharge Pipeline, Pipeline to CSIP Pond, Castroville Pipeline, Carmel Valley Pump Station, Main System-Hidden Hills and Ryan Ranch-Bishop Road Interconnection Improvements	***Policy S-7.4:*** New noise generators may be allowed in areas where projected noise levels are "conditionally acceptable" only after a detailed analysis of the noise reduction requirements is made and needed noise mitigation features are included in project design.  	This policy is intended to ensure new noise generators do not adversely affect existing or future noise-sensitive land uses.	Consistent: The Carmel Valley Pump Station would create a new stationary noise source in an area where the projected noise levels are conditionally acceptable (see Table 4.12-1). This issue is addressed n Impact 4.12-6 and analysis provided to demonstrate consistency with Policy S.7-4. No other Monterey County project components propose new stationary noise sources adjacent to sensitive land uses within such areas.

TABLE 4.12-3 (Continued)
APPLICABLE REGIONAL AND LOCAL LAND USE PLANS AND POLICIES RELEVANT TO NOISE AND VIBRATION

Project Planning Region	Applicable Plan	Plan Element/ Section	Project Component(s)	Specific Plan, Policy, or Ordinance	Relationship to Avoiding or Mitigating a Significant Environmental Impact	Project Consistency with Plan, Policy, or Ordinance
County of Monterey (coastal zone and inland areas)	Monterey County General Plan	Safety	Source Water Pipeline, MPWSP Desalination Plant, new Desalinated Water Pipeline, Brine Discharge Pipeline, Pipeline to CSIP Pond, Castroville Pipeline, Carmel Valley Pump Station, Main System-Hidden Hills and Ryan Ranch-Bishop Road Interconnection Improvements	***Policy S-7.5:*** New noise generators are discouraged in areas identified as "normally unacceptable." (see Table in Policy S-7.4) Where such new noise generators are permitted, mitigation to reduce both the indoor and outdoor noise levels are required.	This policy is intended to ensure new noise generators do not adversely affect noise-sensitive land uses.	Consistent: The proposed project would not create new stationary noise sources in areas identified as "normally unacceptable".
County of Monterey (coastal zone and inland areas)	Monterey County General Plan	Safety	Source Water Pipeline, MPWSP Desalination Plant, new Desalinated Water Pipeline, Brine Discharge Pipeline, Pipeline to CSIP Pond, Castroville Pipeline, Carmel Valley Pump Station, Main System-Hidden Hills and Ryan Ranch-Bishop Road Interconnection Improvements	***Policy S-7.6:*** Acoustical analysis shall be part of the environmental review process for projects when: b. Proposed noise generators are likely to produce noise levels exceeding the levels shown in the adopted Community Noise Ordinance when received at existing or planned noise-sensitive receptors.	This policy is intended to ensure new noise-sensitive land uses are compatible with existing uses on adjacent lands, and to protect existing noise-sensitive land uses from new stationary sources.	Consistent: None of the proposed project components within this jurisdiction would create new noise-sensitive land uses nor generate noise levels exceeding the levels in the Community Noise Ordinance.
County of Monterey (coastal zone and inland areas)	Monterey County General Plan	Safety	Source Water Pipeline, MPWSP Desalination Plant, new Desalinated Water Pipeline, Brine Discharge Pipeline, Pipeline to CSIP Pond, Castroville Pipeline, Carmel Valley Pump Station, Main System-Hidden Hills and Ryan Ranch-Bishop Road Interconnection Improvements	***Policy S-7.8:*** All discretionary projects that propose to use heavy construction equipment that has the potential to create vibrations that could cause structural damage to adjacent structures within 100 feet shall be required to submit a pre-construction vibration study prior to the approval of a building permit. Projects shall be required to incorporate specified measures and monitoring identified to reduce impacts. Pile driving or blasting are illustrative of the type of equipment that could be subject to this policy.	This policy is intended to protect existing structures from construction-related vibration damage.	Consistent: Construction of the MPWSP Desalination Plant, in-County portions of the Source Water Pipeline, Desalinated Water Pipeline, Brine Discharge Pipeline, and Salinas Valley Return Pipeline would require the use of construction equipment but (sheet) pile driving would only potentially occur for the Source Water Pipeline and the new Desalinated Water Pipeline which are greater than 100 feet from the nearest in-County receptor. Heavy equipment would not cause structural damage to adjacent structures within 100 feet of their respective project sites. No other project components proposed for Monterey County would operate such equipment.
County of Monterey (coastal zone and inland areas)	Monterey County General Plan	Safety	Source Water Pipeline, MPWSP Desalination Plant, new Desalinated Water Pipeline, Brine Discharge Pipeline, Pipeline to CSIP Pond, Castroville Pipeline, Carmel Valley Pump Station, Main System-Hidden Hills and Ryan Ranch-Bishop Road Interconnection Improvements	***Policy S-7.9:*** No construction activities pursuant to a County permit that exceed "acceptable" levels listed in *Policy S-7.1* shall be allowed within 500 feet of a noise sensitive land use during the evening hours of Monday through Saturday, or anytime on Sunday or holidays, prior to completion of a noise mitigation study. Noise protection measures, in the event of any identified impact, may include but not be limited to: ● Constructing temporary barriers; or ● Using quieter equipment than normal.	This policy is intended to protect noise-sensitive land uses from construction-related noise disruption.	Potentially Inconsistent: Construction of the Castroville Pipeline would generate noise in excess of acceptable levels and occur within 500 feet of a noise sensitive land use. This inconsistency is assessed in Impact 4.12-2. Implementation of Mitigation Measure 4.12-1c (Noise Control Plan for Nighttime Pipeline Construction) would ensure that construction activities would be consistent with Policy S-7.9 and reduce the nighttime construction noise impact to a less-than-significant level.
County of Monterey (coastal zone and inland areas)	Monterey County General Plan	Safety	Source Water Pipeline, MPWSP Desalination Plant, new Desalinated Water Pipeline, Brine Discharge Pipeline, Pipeline to CSIP Pond, Castroville Pipeline, Carmel Valley Pump Station, Main System-Hidden Hills and Ryan Ranch-Bishop Road Interconnection Improvements	***Policy S-7.10:*** Construction projects shall include the following standard noise protection measures: ● Construction shall occur only during times allowed by ordinance/code unless such limits are waived for public convenience; ● All equipment shall have properly operating mufflers; and ● Laydown yards and semi-stationary equipment such as pumps or generators shall be located as far from noise-sensitive land uses as practical.	This policy is intended to protect noise-sensitive land uses from construction-related noise disruption.	Potentially Inconsistent: Project components within unincorporated Monterey County that would require nighttime construction include a portion of the Source Water Pipeline, MPWSP Desalination Plant, new Desalinated Water Pipeline, Brine Discharge Pipeline, Castroville Pipeline and the Pipeline to the CSIP Pond. Construction of these facilities would operate equipment and require staging areas. This issue is addressed in Impacts 4.12-1 and 4.12-2.

TABLE 4.12-3 (Continued)
APPLICABLE REGIONAL AND LOCAL LAND USE PLANS AND POLICIES RELEVANT TO NOISE AND VIBRATION

Project Planning Region	Applicable Plan	Plan Element/ Section	Project Component(s)	Specific Plan, Policy, or Ordinance	Relationship to Avoiding or Mitigating a Significant Environmental Impact	Project Consistency with Plan, Policy, or Ordinance
Fort Ord Reuse Authority (Seaside)	Fort Ord Reuse Plan	Noise	New Transmission Main, ASR Conveyance Pipeline, ASR Pump-to-Waste Pipeline, ASR Recirculation Pipeline, and Terminal Reservoir	***Noise Policy B-2:*** By complying with the noise guidelines presented in Tables 4.5-3 and 4.5-4, the City shall ensure that new development does not adversely affect existing or proposed uses. ***Noise Policy B-3:*** The City shall require that acoustical studies be prepared by qualified acoustical engineers for all new development that could result in noise environments above noise range I (normally acceptable environment), as defined in Table 4.5-3. The studies shall identify the mitigation measures that would be required to comply with the noise guidelines, specified in Tables 4.5-3 and 4.5-4, to ensure that existing or proposed uses will not be adversely affected. The studies should be submitted prior to accepting development applications as complete.	This policy is intended to protect existing and potential future noise-sensitive land uses from new noise generators.	Potentially Inconsistent: Only the ASR-5 and ASR-6 wells would have stationary noise sources (pumps) after construction and these would be enclosed. None of the other project components proposed in FORA jurisdiction would exceed the allowable noise standards for non-construction-related noise sources. This inconsistency is assessed in Impact 4.12-6.While the potential exists for the ASR-5 and ASR-6 well pumps to exceed exterior noise standards, Mitigation Measure 4.12-5 Stationary Source Noise Controls would ensure project consistency with Policy B-2.
Fort Ord Reuse Authority (Seaside)	Fort Ord Reuse Plan	Noise	New Transmission Main, ASR Conveyance Pipeline, ASR Pump-to-Waste Pipeline, ASR Recirculation Pipeline, and Terminal Reservoir	***Noise Policy B-8:*** If the ambient DNL exceeds the normally acceptable noise range for public or institutional uses (passively and actively used open spaces; auditoriums, concert halls, and amphitheaters; schools, libraries, churches, hospitals and nursing homes; golf courses, riding stables, water recreation areas, and cemeteries), as identified in Table 4.5-3, new development shall not increase ambient L_{dn} by more than 3 dBA measured at the property line.	This policy is intended to limit noise level increases from new development to 3 dBA, if the existing noise levels exceed normally acceptable standards for public or institutional land uses.	Consistent: Proposed project components within FORA that would be located near a public or institutional land use include the ASR Conveyance Pipeline, ASR pump-to Waste Pipeline and the ASR recirculation Pipeline. Operation of these pipelines would not increase ambient L_{dn} by more than 3 dBA.
Fort Ord Reuse Authority (Seaside)	Fort Ord Reuse Plan	Noise	New Transmission Main, ASR Conveyance Pipeline, ASR Pump-to-Waste Pipeline, ASR Recirculation Pipeline, and Terminal Reservoir	***Noise Policy B-9:*** The City shall require construction contractors to employ noise-reducing construction practices.	This policy is intended to minimize construction noise.	Potentially Inconsistent: Construction activities within the city of Seaside and FORA jurisdiction would need to include noise-reducing construction practices to be consistent with this policy. This issue is addressed under Impact 4.12-2. Implementation of Mitigation Measure 4.12-1b (General Noise Controls for Construction Equipment) would ensure that construction contractors to employ noise-reducing construction practices. With implementation of this mitigation, the project would be consistent with the intent of Noise Policy B-9.
Fort Ord Reuse Authority (Monterey County)	Fort Ord Reuse Plan	Noise	Ryan Ranch–Bishop Interconnection Improvements	***Noise Policy B-2:*** By complying with the noise guidelines presented in Tables 4.5-3 and 4.5-4, the County shall ensure that new development does not adversely affect existing or proposed uses. ***Noise Policy B-3:*** The County shall require that acoustical studies be prepared by qualified acoustical engineers for all new development that could result in noise environments above noise range I (normally acceptable environment), as defined in Table 4.5-3. The studies shall identify the mitigation measures that would be required to comply with the noise guidelines, specified in Tables 4.5-3 and 4.5-4, to ensure that existing or proposed uses will not be adversely affected. The studies should be submitted prior to accepting development applications as complete.	This policy is intended to protect existing and potential future noise-sensitive land uses from new noise generators.	Potentially Inconsistent: Ryan Ranch–Bishop Interconnection Improvements would have stationary noise sources (pumps) after construction and these would be enclosed. This inconsistency is assessed in Impact 4.12-6. While the potential exists for the pumps to exceed exterior noise standards, Mitigation Measure 4.12-5 Stationary Source Noise Controls would ensure project consistency with Policy B-2 and B-3.
Fort Ord Reuse Authority (Monterey County)	Fort Ord Reuse Plan	Noise	Ryan Ranch–Bishop Interconnection Improvements	***Noise Policy B-8:*** If the ambient DNL exceeds the normally acceptable noise range for passively and actively used open spaces; auditoriums, concert halls, and amphitheaters; schools, libraries, churches, hospitals and nursing homes; golf courses, riding stables, water recreation areas, and cemeteries), as identified in Table 4.5-3, new development shall not increase ambient L_{dn} by more than 3 dBA measured at the property line.	This policy is intended to limit noise level increases from new development to 3 dBA, if the existing noise levels exceed normally acceptable standards for public or institutional land uses.	Consistent: Although the Ryan Ranch–Bishop Interconnection Improvements would be within 900 feet of a school, it would have no stationary sources.
Fort Ord Reuse Authority (Monterey County)	Fort Ord Reuse Plan	Noise	Ryan Ranch–Bishop Interconnection Improvements	***Noise Policy B-9:*** The County shall require construction contractors to employ noise-reducing construction practices.	This policy is intended to minimize construction noise.	Potentially Inconsistent: Construction activities of the Ryan Ranch–Bishop Interconnection Improvements within FORA jurisdiction would need to include noise-reducing construction practices to be consistent with this policy. This issue is addressed under Impact 4.12-2. Implementation of Mitigation Measure 4.12-1b (General Noise Controls for Construction Equipment) would ensure that construction contractors to employ noise-reducing construction practices. With implementation of this mitigation, the project would be consistent with the intent of Noise Policy B-9.

SOURCE: California State Parks, 2004; City of Marina, 2000; City of Seaside, 2004; FORA, 1997; Monterey County, 2010.

4.12.4 Evaluation Criteria

Implementation of the proposed project would have a significant impact related to noise and vibration if it would:

- 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;
- Expose people or structures to or generate excessive groundborne vibration or groundborne noise levels;
- Result in a substantial permanent increase in ambient noise levels in the project vicinity;
- Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity during construction;
- Conflict with the construction time limits established by the local jurisdiction;
- For a project located within an airport land use plan area, or, where such a plan has not been adopted, in an area within 2 miles of a public airport or public use airport, expose people residing or working in the area to excessive noise levels; or
- For a project located in the vicinity of a private airstrip, expose people residing or working in the project area to excessive noise levels.

Due to the nature of the proposed facilities, 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. The second criterion above relates to groundborne vibration and groundborne noise levels but only the issue of groundborne vibration is relevant to the proposed project. Groundborne noise occurs when vibrations transmitted through the ground result in secondary radiation of noise. Groundborne noise is generally associated with underground railway operations and with construction activities such as blasting, neither of which would result from project implementation. Operation of the Project would not involve equipment that would produce ground borne vibration; therefore no impacts related to the exposure of people or structures to, or the generation of, excessive groundborne noise levels would occur in connection with Project operations. The potential for construction activities to result in groundborne vibration is addressed in Impact 4.12-3.

Be located within an airport land use plan area or within 2 miles of a public airport or public use airport and expose people to excessive noise levels. The closest public airport to the project area is the Monterey Peninsula Airport, which is approximately 0.3 miles south of the new Transmission Main. The Marina Municipal Airport, which is located north of the intersection of Reservation Road and Imjin Road in Marina, is located 1.7 miles east of the new Desalinated Water Pipeline. In addition, the Ryan Ranch-Bishop Interconnection Improvements would be located within the 65 dBA CNEL noise contour on the "Noise Exposure Map for Forecast Conditions" in the *Comprehensive Land Use Plan for Monterey Peninsula Airport* (Monterey County Airport Land Use Commission, 1987). Even though some project components would be within 2 miles of an airport and certain facilities would be sited within the 65 dBA CNEL noise contour established in the applicable airport plan, none of the facilities located within 2 miles of an airport would result in operational noise increases, nor would they constitute noise-sensitive land uses (i.e., the proposed project does not include the construction of new housing or other noise-sensitive receptors that

would be subject to aviation noise). As a result, there would be no impacts related to the fifth criterion and this issue is not addressed further below.

Be located in the vicinity of a private airstrip and expose people to excessive noise levels. None of the proposed facilities would be sited in the vicinity of a private airstrip. Therefore, the proposed project would have no impact related to this criterion and this issue is not discussed further below.

4.12.5 Approach to Analysis

4.12.5.1 Temporary or Periodic Increases in Ambient Noise Levels

A "substantial" noise increase is defined as one that would interfere with human activities during the day and/or night (as opposed to an absolute, numerical increase over ambient noise levels).

This evaluation uses speech interference as an indicator that construction noise could cause a substantial adverse impact on daytime and evening activities, and sleep interference as an indicator that construction noise could cause a substantial adverse impact on nighttime activities. The speech and sleep interference criteria are based on objective research of speech and sleep interference (as opposed to subjective surveys of annoyance) can be used to evaluate a project's noise impacts. The speech and sleep interference criteria used in this EIR/EIS are defined below:

- **Speech Interference.** A speech interference threshold, in the context of impact duration and time of day, is used to identify substantial increases in noise from temporary construction activities. This analysis assumes noise peaks generated by construction equipment could result in speech interference in adjacent buildings if the noise level in the interior of the buildings exceeds 45 dBA. A typical building can reduce noise levels by approximately 25 dBA with the windows closed (USEPA, 1974). This noise reduction could be maintained only on a temporary basis in some cases, since it assumes windows must remain closed at all times. Assuming a 25 dBA reduction with the windows closed, an exterior noise level of 70 dBA L_{eq} would maintain an acceptable interior noise environment of 45 dBA during the day and evening hours. Noise levels would vary depending on the phase of construction and the types of construction equipment being used.

  In addition to the decibel level of noise, the duration of exposure at any given noise-sensitive receptor is an important factor in determining an impact's significance. Generally, temporary construction noise that occurs during the day for a relatively short period of time would not be significant because most people of average sensitivity who live in suburban or rural agricultural environments are accustomed to a certain amount of construction activity or heavy equipment noise from time to time. The loudest construction-related noise levels would be sporadic rather than continuous because different types of construction equipment would be used throughout the construction process. Therefore, an exterior noise level that exceeds 70 dBA Leq during the daytime is used as the threshold for substantial construction noise where the duration of construction noise exceeds two weeks.

- **Sleep Interference.** Based on available sleep data, an interior nighttime level of 35 dBA is considered acceptable for sleeping (USEPA, 1974). Assuming a 25 dBA reduction with the windows closed, an exterior noise level of 60 dBA would maintain an acceptable interior noise environment of 35 dBA at night. Therefore, a significant impact would occur if the proposed project were to generate exterior noise levels above the 60 dBA L_{eq} sleep interference threshold for one or more nights.

This analysis is based on monitored ambient noise levels at sensitive receptors throughout the project area (see **Table 4.12-1**),[2] the anticipated construction work hours for each facility, published equipment noise levels, and the attenuated construction equipment noise levels at the sensitive receptor, calculated using published noise propagation equations (FHWA, 2006). Standard mitigation measures to reduce construction-related noise levels have been demonstrated to reduce equipment noise by 5 to 10 dBA (Bolt et. al., 1971). Moveable sound barrier curtains can provide 15 dBA of sound attenuation (INC, 2014). Static sound barrier curtains can provide sound transmission loss of 16 to 40 dBA, depending on the frequency of the noise source (ENC, 2014).

Noise Levels Standards

Consistency with local noise standards are determined by comparing the applicable noise level standard to published equipment noise levels. In some cases this requires calculating noise levels at various distances (i.e., to a property line or sensitive receptor) using widely published noise propagation equations (FHWA, 2006) in order to assess whether a potential conflict could occur.

Separate assessments are made for noise generated during project construction (see Impact 4.12-2) versus noise generated during project operations (see Impact 4.12-5). While all of the jurisdictions have established land use noise compatibility standards for ambient noise levels, only a few jurisdictions have established noise level standards for construction. For jurisdictions that do not have established construction noise level standards, no analysis is provided for construction noise. The construction time limits adopted by many jurisdictions are not considered a significance threshold for the assessment of construction noise impacts related to the generation of noise levels in excess of established construction noise level standards; however, construction time limits are considered in the analysis of project consistency with regional and local plans and policies (see Impact 4.12-4).

Groundborne Vibration during Construction

The proposed project would result in significant impacts if it were to generate vibration levels substantial enough to damage nearby structures or buildings, or result in vibration levels that are commonly accepted as an annoyance to sensitive land uses.

With the exception of the *Monterey General Plan*, which specifies submission of a vibration study for projects that would involve pile driving or blasting, none of the other local regulations address vibration or provide numerical thresholds for identifying groundborne vibration impacts. In the absence of local standards for construction equipment vibration, the evaluation presented under Impact 4.12-3 uses the vibration thresholds presented in **Table 4.12-4**. For adverse human reaction, this analysis applies the “strongly perceptible” threshold of 0.1 in/sec PPV (Caltrans, 2004). For risk of architectural damage to historic buildings and structures, this analysis applies a threshold of 0.12 in/sec PPV (Wilson, Ihrig, & Associates et al., 2012). A threshold of 0.3 in/sec PPV is used for all other buildings. The Federal Transit Administration (FTA) provides an equation that may be used to estimate vibration at different distances based on a reference PPV of 25 feet for various construction equipment. Using the FTA equation, the distances at which

[2] Existing ambient noise levels were monitored at some but not all of the sensitive receptors; in some cases the ambient noise level is based on monitored ambient noise levels at representative sensitive receptor locations.

vibration-generating construction equipment would be lower than the annoyance or damage thresholds were calculated and compared to potential distances to receiving buildings.

TABLE 4.12-4
VIBRATION THRESHOLDS

	Maximum Peak Particle Velocity (PPV), inches per second (in/sec)
Adverse human reaction (human annoyance)[a] Historic buildings and structures[b]	0.1 0.12
All other structures	0.3

NOTE: The vibration criteria is based on continuous or frequent intermittent sources, including impact pile drivers, pogo-stick compactors, crack and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.

SOURCES: [a] Caltrans, 2004 ; [b] Wilson, Ihrig & Associates et al., 2012.

4.12.5.2 Permanent Increases in Ambient Noise Levels

For the analysis of long-term operational impacts on the existing ambient noise environment, impacts are considered significant if operation of the project facilities would result in a substantial increase in noise levels in the project area. This evaluation uses a 5-dBA increase in noise exposure—which Caltrans identifies as a readily perceptible noise increase (Caltrans, 2009) —to assess the significance of operational noise increases on ambient noise levels in the project vicinity.

4.12.6 Direct and Indirect Effects of the Proposed Project

Table 4.12-5 summarizes the MPWSP's impacts and significance determinations related to noise and vibration.

TABLE 4.12-5
SUMMARY OF IMPACTS – NOISE AND VIBRATION

Impacts	Significance Determinations
Impact 4.12-1: Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity during construction.	SU
Impact 4.12-2: Expose people to or generate noise levels in excess of standards established in the local general plan, noise ordinance, or applicable standards of other agencies during construction.	LSM
Impact 4.12-3: Expose people to or generate excessive groundborne vibration during construction.	LSM
Impact 4.12-4: Conflict with the construction time limits established by the local jurisdictions.	LSM
Impact 4.12-5: Result in a substantial permanent increase in ambient noise levels in the project vicinity during project operations.	LSM
Impact 4.12-6: Expose people to or generate noise levels in excess of standards established in the local general plan, noise ordinance, or applicable standards of other agencies during project operations.	LS
Impact 4.12-C: Cumulative impacts related to noise and vibration.	SU

LS = Less than Significant impact, no mitigation proposed
LSM = Less than Significant impact with Mitigation
SU = Significant and Unavoidable, even with implementation of mitigation

4.12.6.1 Construction Impacts

Impact 4.12-1: Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity during construction. (*Significant and Unavoidable, even with implementation of mitigation*)

Construction of the proposed facilities would occur over a 24-month period and would temporarily increase noise levels in the project vicinity. The noise levels generated during construction of each facility would vary, depending on the construction phase and the types of construction equipment being used.

Implementation of the subsurface slant wells, MPWSP Desalination Plant, and ASR-5 and ASR-6 Wells would require nighttime construction. The proposed pipelines and pump station would be constructed during daytime hours to the extent feasible. This analysis assumes that the ASR Recirculation Pipeline, ASR Conveyance Pipeline, ASR Pump-to-Waste Pipeline, Terminal Reservoir, and some portions of the new Desalinated Water Pipeline and the new Transmission Main within the City of Marina would be constructed only during daytime hours (see **Mitigation Measure 12.4-4 (Nighttime Construction Restrictions in Marina)**; however, nighttime construction could be required for all other pipelines to meet the project schedule. All nighttime construction work would be conducted only with prior approval from the relevant jurisdictions. Pipeline installation would occur at a rate of approximately 150 to 250 feet per day.

The operation of trucks, backhoes, bulldozers, excavators, front-end loaders, compactors, scrapers, and other heavy-duty construction equipment would generate relatively high noise levels. These types of equipment would typically be operated for 1 or 2 minutes at full power followed by 3 to 4 minutes at lower power settings, compared to other equipment such as directional drill rigs, which tend to operate at a continuous power level.

Table 4.12-6 presents the maximum noise levels that would be heard at the sensitive receptors during operation of the loudest pieces of construction equipment. The table shows the existing ambient noise levels at sensitive receptors, the construction equipment noise levels at 50 feet, and the attenuated construction equipment noise levels at the distance from the receptors, and the resultant noise levels at the residential receptors assuming all pieces of construction are operating simultaneously. The resultant noise level represents the maximum noise level that would be experienced by a person at the sensitive receptor location. As indicated in the table, at a distance of 50 feet from the construction work areas, individual pieces of non-impact construction equipment could generate noise levels as high as 84 dBA L_{max}. The attenuated construction equipment noise levels presented in **Table 4.12-6** are hourly average noise levels as calculated by the FHWA Roadway Construction Noise Model for the multiple pieces of equipment identified for each facility. Other construction-related noise would be brief and intermittent (e.g., placement of heavy equipment or materials into position, or the hydraulic movement of machinery lifts).

In addition to noise generated at the construction work areas, vehicle traffic related to materials and equipment deliveries, hauling of excess spoils, and construction worker commute trips would cause sporadic noise increases along project access routes. However, construction-related truck trips would be dispersed throughout the day and over the local road network and would not

TABLE 4.12-6
SUMMARY OF NOISE LEVELS AT SENSITIVE RECEPTORS DURING CONSTRUCTION

Project Facility	Construction Equipment (Number of Pieces)	Equipment Noise Level at 50 feet (dBA L_{max})[a]	Distance from Nearest Sensitive Receptor (feet)	Attenuated Construction Equipment Noise Level at Nearest Sensitive Receptor (dBA L_{eq})[b]	Existing Ambient Noise Level at Nearest Sensitive Receptor (dBA L_{eq})[c]	Resultant Noise Level at Nearest Sensitive Receptor during Construction (dBA L_{eq})[d]	Exceeds Speech (70 dBA L_{eq}) or Sleep (60 dBA L_{eq}) Interference Thresholds?
Subsurface Slant Wells	Mobile Cranes (2) Bore/Drill Rigs (2)	81 82	4,000	N/A – Outside Study Area	N/A	N/A	N/A
MPWSP Desalination Plant	Mobile Cranes (2) Dozer (1) Dump Truck (1)	81 82 76	2,200	N/A – Outside Study Area	N/A	N/A	N/A
Pipeline Installation (Open Trench Construction)	Backhoe (1) Compactor (1) Mobile Crane (1)	78 83 81	50[e]	80.4	Daytime – 75.1 Nighttime – 56.8	88.2 88.0	Speech – YES Sleep – YES[f]
Pipeline Installation (Trenchless Construction)	Bore/Drill Rigs (1) Pile Driver (1)	84 101	50[e]	94.3	Daytime – 59.1 Nighttime – 45.8	94.3	Speech – YES Sleep – YES[f]
Terminal Reservoir	Backhoe (1) Dump Truck (1) Mobile Crane (1)	78 76 81	1,600	N/A – Outside Study Area	N/A	N/A	N/A
ASR-5 and ASR-6 Wells	Backhoe (1) Bore/Drill Rigs (1) Compactor	78 84 83	50	80.8	Daytime – 54.3 Nighttime – 52.0	80.8 80.8	Speech – YES Sleep – YES
Main System-Hidden Hills Interconnection Improvements	Backhoe (1) Dump Truck (1) Mobile Crane (1)	78 76 81	50	77.7	Daytime – 44.7	77.7	Speech – YES Sleep – n/a
Ryan Ranch-Bishop Interconnection Improvements	Backhoe (1) Dump Truck (1) Mobile Crane (1)	78 76 81	900	N/A – Outside Study Area	N/A	N/A	N/A
Carmel Valley Pump Station	Backhoe (1) Dump Truck (1) Mobile Crane (1)	78 76 81	50	77.7	Daytime – 61.5	77.9	Speech – YES Sleep – n/a

NOTES:

n/a = This facility would not involve nighttime construction; therefore, the sleep interference threshold does not apply.

[a] With the exception of noise levels for the drill rig for the subsurface slant wells, which are based on empirical monitoring conducted for CalAm's test slant well, reference noise levels for construction equipment are derived from FHWA, 2006.

[b] Attenuated construction equipment noise levels at the nearest sensitive receptors were calculated using FHWA Roadway Construction Noise Model Version 1.1. This value represents hourly average noise levels based on the estimated percentage of time the various pieces of construction equipment would be operating.

[c] Based on ambient noise levels at representative noise monitoring locations (see **Figure 4.12-1** and **Table 4.12-1**).

[d] Resultant noise level is the result of logarithmic addition of the values in the two previous columns (i.e., the attenuated noise from operation of all pieces of construction equipment in combination with ambient noise level at the sensitive receptor). This represents the noise level that could be experienced by a human at the sensitive receptor location.

[e] Distance between the proposed pipeline alignments and the nearest sensitive receptors varies by pipeline.

[f] Construction work hours would vary by pipeline; not all pipelines are anticipated to involve nighttime construction.

substantially increase noise, as these trips would only marginally increase traffic noise on the regional roadways (which already have relatively high traffic volumes). Impact 4.9-1 of Section 4.9 Traffic and Transportation identified construction-related traffic increases of no more than 2.8 percent. A doubling of traffic volumes would result in a 3-dBA increase in traffic noise levels which Caltrans characterizes as a barely perceptible increase in roadway noise. Because construction traffic would not double local traffic volumes, the increase in noise levels from construction-related vehicle trips would be minimal.

Subsurface Slant Wells

Up to 9 new subsurface slant wells[3] would be constructed in the CEMEX active mining area in northern Marina. Multiple slant wells would be constructed simultaneously, for a total of 15 months of slant well construction. Construction of the slant wells could occur anytime during the 24-month construction period and would occur 24 hours a day, 7 days a week.

The two closest sensitive receptors to the subsurface slant wells are residences at the Marina Dunes RV Park on Dunes Drive in Marina (4,000 feet to the south) and residences on Drew Street in Marina (4,300 feet to the southeast) and are beyond the 600 foot study area for noise from non-impact construction equipment (see **Section 4.12-2**) because construction-related noise increases at sensitive receptors would not exceed the speech interference threshold of 70 dBA, or 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.

MPWSP Desalination Plant

Implementation of the proposed MPWSP Desalination Plant would involve the construction and installation of various structures and treatment facilities in an industrial and agricultural area of unincorporated Monterey County. The desalination facilities include a pretreatment system, a reverse osmosis system, a post-treatment system, pump station, storage tanks, pipelines, various support structures, and buildings. Construction at the MPWSP Desalination Plant site on Charles Benson Road would occur over 24 months construction period and would require 24-hour construction.

The nearest sensitive receptors to the MPWSP Desalination Plant site are two rural residences on Neponset Road that are located 2,200 feet and 3,900 feet to the west, respectively which are beyond the 600 foot study area for noise from non-impact construction equipment (see **Section 4.12-2**) because construction-related noise increases at sensitive receptors would not exceed the speech interference threshold of 70 dBA, or exceed the sleep interference threshold of 60 dBA. Therefore, impacts related to nighttime noise level increases from construction activities at the MPWSP Desalination Plant site would be less than significant.

[3] The seawater intake system would include up to 10 permanent slant wells. As part of the proposed project, CalAm proposes to convert the test slant well into a permanent well and construct up to nine additional subsurface slant wells.

Pipelines North of Reservation Road

Under the proposed project, the following pipelines would be constructed north of Reservation Road: the Source Water Pipeline, new Desalinated Water Pipeline, Pipeline to the CSIP Pond, Brine Discharge Pipeline, and the Castroville Pipeline. To the extent feasible, pipelines would be installed during daytime hours. However, nighttime construction could be required at certain locations to meet the project schedule or avoid peak hour traffic impacts. CalAm would abide by local noise ordinances (including obtaining variances where needed) with regard to nighttime construction operations.

Table 4.12-7 presents the estimated resultant noise levels at the closest sensitive receptors during pipeline installation activities based on the anticipated construction method that would be used. Most pipelines would be installed using open trench construction methods. However, trenchless methods would be required at railroad crossings, river crossings, highway crossings, and other locations where open trench construction is not feasible.

As discussed in Section 4.12.5 Approach to Analysis, a significant construction noise impact would occur if noise levels at sensitive noise receptors remained above the 70 dBA speech interference threshold for longer than two consecutive weeks. Construction of the pipelines located north of Reservation Road would progress at a rate of approximately 250 feet per day, so the maximum noise levels at any one location would be limited to a period of 1 to 3 days. Thus, residential receptors would experience peak noise levels for less than the two week threshold.

Source Water Pipeline, Pipeline to the CSIP Pond, and Brine Discharge Pipeline

The residences on Neponset Road are the closest sensitive receptors to the Source Water Pipeline, Pipeline to the CSIP Pond, and Brine Discharge Pipeline. These receptors are located at a distance of 1,100 feet, 3,600 feet, and 3,600 feet from the proposed pipeline alignments, respectively, and are beyond the 600 foot study area for noise from non-impact construction equipment (see **Section 4.12-2**) because construction-related noise increases at sensitive receptors would not exceed the speech interference threshold of 70 dBA, or exceed the sleep interference threshold of 60 dBA. Therefore, impacts related to nighttime noise level increases from standard installation techniques of these pipelines would be less than significant.

Approximately 500 feet east of Highway 1, the Source Water Pipeline would veer northeast along a dirt path for roughly 1,000 feet to Lapis Road. At this location, a jack and bore method would be applied to install the pipeline under the existing railroad tracks 3,500 feet from the nearest receptors, which is beyond the 1,800 foot study area for noise from impact construction equipment (see **Section 4.12-2**) because construction-related noise increases at sensitive receptors would not exceed the speech interference threshold of 70 dBA, or exceed the sleep interference threshold of 60 dBA noise impacts associated with construction of these pipelines would be less than significant.

TABLE 4.12-7
CONSTRUCTION NOISE LEVELS – PIPELINES NORTH OF RESERVATION ROAD

Pipeline (Construction Method)	Closest Sensitive Receptor(s)	Distance to Receptor (feet)	Existing Ambient Noise Level at Receptor(s) (dBA L_{eq})	Attenuated Construction Equipment Noise Level at Receptor(s) (dBA L_{eq})[a]	Resultant Noise Level at Receptor(s) during Construction (dBA L_{eq})[b]	Exceeds Day/nighttime threshold?
Source Water Pipeline (Open Trench Construction)	Residences on Neponset Road	1,100	N/A – Outside Study Area	N/A	N/A	N/A
Source Water Pipeline – (Trenchless Construction)	Residences on Neponset Road	3,500	N/A – Outside Study Area	N/A	N/A	N/A
New Desalinated Water Pipeline (Open Trench Construction)	Residences on Marina Drive	100	Daytime – 66.4[d] Nighttime – 42.3	74.0	Daytime – 74.7 Nighttime – 74.0	Yes/Yes
New Desalinated Water Pipeline (Trenchless Construction)	Residences on Marina Drive	100	Daytime – 66.4[d]	87.8	Daytime – 87.8	Yes/NA
Pipeline to the CSIP Pond and Brine Discharge Pipeline (Open Trench Construction)	Residences on Neponset Road	3,600	N/A – Outside Study Area	N/A	N/A	N/A
Castroville Pipeline (Open Trench Construction)	Residence on Monte Road	200	Daytime – 75.1[e] Nighttime – 56.8	68.0	Daytime – 75.9 Nighttime – 68.3	Yes/Yes
Castroville Pipeline Optional Alignment 1 (Open Trench Construction)	Residences on Cypress Circle and Merritt Way	30	Daytime – 75.5[f] Nighttime – 62.5	84.5	Daytime – 85.0 Nighttime – 84.5	Yes/Yes
Castroville Pipeline (Trenchless Construction)	Residence on Castroville Road near Salinas River crossing	800	Daytime – 75.5[f]	69.7	Daytime – 76.5	Yes/NA

NOTES:

[a] Attenuated construction equipment noise levels at the nearest sensitive receptors were calculated using FHWA Roadway Construction Noise Model Version 1.1. This value represents hourly average noise levels based on the estimated percentage of time the various pieces of construction equipment would be operating.

[b] Resultant noise level is the result of logarithmic addition of the values in the two previous columns (i.e., the attenuated construction equipment noise in combination with the ambient noise level at the sensitive receptor). This represents the noise level that could be experienced by a human at the sensitive receptor location.

[c] Based on daytime and nighttime ambient noise level at short-term noise monitoring location S1 (see **Figure 4.12-1** and **Table 4.12-1**).

[d] Based on daytime and nighttime ambient noise level at short-term noise monitoring location S2.

[f] Based on peak hour traffic modeling and Caltrans traffic volumes for daytime. Nighttime assumes 5% of peak hour traffic.

New Desalinated Water Pipeline

Residences on Marina Drive are as close as 100 feet from the proposed new Desalinated Water Pipeline alignment. The existing daytime ambient noise level at residences on Cosky Road (noise monitoring location S2) was monitored at 66.4 dBA L_{eq}. Based on proximity and existing land uses of the two receptors, the ambient noise level at the Cosky Road residences is considered to be representative of the ambient noise level at residences at Marina Drive. The resultant noise levels associated with pipeline installation at the Marina Drive residences could be as high as 74.7 dBA L_{eq} (see **Table 4.12-7**). Speech interference becomes pronounced at levels in excess of 70 dBA.

Construction of the new Desalinated Water Pipeline is estimated to progress at a rate of approximately 250 feet per day, so the maximum noise levels at any one location would be limited to a period of 1 to 3 days. Consequently, although construction noise at adjacent residences could exceed the speech interference threshold of 70 dBA, the duration of the impact at any given sensitive noise receptor would be less than two weeks. Therefore, the construction noise impact associated with increases in daytime noise levels would be less than significant.

If nighttime work were to be conducted along the portion of the new Desalinated Water Pipeline in Marina, noise from construction equipment could exceed the sleep interference threshold of 60 dBA, a significant impact. Implementation of **Mitigation Measures 4.12-1a (Neighborhood Notice)**, **4.12-1b (General Noise Controls for Construction Equipment)**, and **4.12-1c (Noise Control Plan for Nighttime Pipeline Construction)** would reduce the severity of this impact below the sleep interference threshold of 60 dBA, L_{eq} (14 dBA of reduction).

Mitigation Measure 4.12-1a (Neighborhood Notice) would require that CalAm provide advanced notice to affected receptors which, although does not reduce noise levels, allows affected receptors to avoid peak noise impact periods if possible. **Mitigation Measure 4.12-1b (General Noise Controls for Construction Equipment)** requires muffled exhaust systems on all combustion engines, external jackets on impact tools, and the use of temporary noise barriers. **Mitigation Measure 4.12-1c (Noise Control Plan for Nighttime Pipeline Construction)** would require the use of noise barriers or other noise-attenuating measures. Moveable sound barrier curtains can provide 15 dBA of sound attenuation (INC, 2014). The duration of this significant nighttime noise impact would be limited to 1 to 3 days at any given sensitive receptor. With implementation of feasible mitigation measures, the nighttime noise impact would be reduced to a less-than-significant level by requiring barriers or other measures that would reduce the resultant noise level below the sleep interference threshold of 60 dBA, L_{eq}.

On some portions of the new Desalinated Water Pipeline where it is not feasible or desirable to perform open-cut trenching, trenchless methods such as jack-and-bore, drill-and-burst, horizontal directional drilling, and/or microtunneling could be employed. Such work typically requires excavation and shoring of the jacking and receiving pits by using impact or vibratory sheet pile drivers that would operate only during daytime hours. Jack-and-bore methods would also be used for pipeline segments that cross beneath Highway 1 or drainages. Should this method be used for the new Desalinated Water Pipeline, localized noise levels would be substantially increased (up to 88 dBA, L_{eq} at 100 feet) during installation of sheet piles. The duration of this potential daytime

noise impact would be limited to 1 to 3 days at any given sensitive receptor and therefore, the impact would be less than significant.

Castroville Pipeline

From the MPWSP Desalination Plant, the Castroville Pipeline would head west along Charles Benson Road to Del Monte Boulevard, at which point the pipeline would head north along Del Monte Boulevard to Lapis Road and along the west side of Lapis Road within the Monterey TAMC right-of-way. The pipeline would cross beneath the Salinas River Bridge to Nashua Road and continue north along the Union Pacific railroad tracks and the agricultural road to Highway 183. From Highway 183 the alignment would continue north, turn west across Del Monte Avenue and connect to CCSD Well #3 at the north corner of Del Monte Avenue and Merritt Street. The Castroville Pipeline alignment is within 20 feet of a single cluster of rural residential residences at the northern end of the Salinas River Bridge.

The existing daytime ambient noise level at the driveway of the rural residences on Monte Road on the northern site of the Salinas River (noise monitoring location S9) was monitored at 75.1 dBA L_{eq}. The resultant noise levels associated with pipeline installation at the Salinas River residences could be as high as 75.9 dBA L_{eq} (see **Table 4.12-7**).

Construction of the Castroville Pipeline is estimated to progress at a rate of approximately 250 feet per day, so the maximum noise levels at any one location would be limited to a period of 1 to 3 days. Consequently, the construction noise impact associated with increases in daytime noise levels would be less than significant.

If nighttime work were required for installation of the Castroville Pipeline, noise from construction equipment could exceed the sleep interference threshold of 60 dBA at the one portion within 200 feet of the Monte Road residence north of the Salinas River, a significant impact. Implementation of **Mitigation Measures 4.12-1a (Neighborhood Notice), 4.12-1b (General Noise Controls for Construction Equipment),** and **4.12-1c (Noise Control Plan for Nighttime Pipeline Construction)** would reduce the severity of this impact below the sleep interference threshold of 60 dBA, L_{eq} (9 dBA of reduction).

The Castroville Pipeline would be installed beneath the Salinas River and Tembladero Slough using trenchless construction methods. Trenchless construction typically requires excavation and shoring of an entry pit and a receiving pit using impact or vibratory sheet pile drivers. Localized noise levels would be substantially increased (up to 88 dBA, L_{eq} at 100 feet) during installation of sheet piles. At the Salinas River crossing, these pits are approximately 800 feet from sensitive receptors on the north side of the Salinas River. At this distance, the noise from sheet pile driving would be 70 dBA, L_{eq} and would be less than significant.

The proposed Tembladero Slough entry and receiving pits are approximately 430 feet from sensitive residential receptors on Castroville Road. At this distance, noise from sheet pile driving during the day (no nighttime sheet pile driving is proposed) would exceed the speech interference threshold of 70 dBA, but would be less than significant because these noise levels would be limited to a period of 1 to 3 days at any one location.

Castroville Pipeline Optional Alignment 1

This alignment is within 30 feet of residential dwellings on Cypress Circle and Merritt Way. Because the existing daytime ambient noise level at these residences is 75.5 dBA L_{eq} the resultant noise levels associated with pipeline installation along Merritt Street could be as high as 85 dBA L_{eq} (see **Table 4.12-7**). However, because the duration of the impact at these sensitive noise receptors would be less than the two week threshold, the noise levels would result in a less than significant impact.

If nighttime work were to be conducted along the portion of the Castroville Pipeline Optional Alignment 1, the resultant noise level could be as high as 84.5 dBA and exceed the sleep interference threshold of 60 dBA for 1 to 3 days at locations within 200 feet of the pipeline such as residences on Cypress Circle and Merritt Way, a significant impact. Implementation of **Mitigation Measures 4.12-1a (Neighborhood Notice)**, **4.12-1b (General Noise Controls for Construction Equipment**), and 4.12-1c (Noise Control Plan for Nighttime Pipeline Construction) would reduce the severity of this impact (16 dBA of reduction), but not to the degree necessary to reduce construction noise below the threshold of 60 dBA, L_{eq} (25 dBA of reduction). Moveable sound barrier curtains can provide 15 dBA of sound attenuation (INC, 2014). Consequently, although the impact at any given receptor would be limited in duration, the impact would remain significant and unavoidable even with implementation of mitigation measures.

New Transmission Main

The new Transmission Main passes within 100 feet of residences located on Marina Drive in the city of Marina. Short-term monitoring at location S2, where the ambient daytime noise level was measured at 66.4 dBA L_{eq} and the ambient nighttime noise level was measured at 42.3 dBA L_{eq}, represents the noise environment at the closest residential receptors to the new Transmission Main (see **Table 4.12-8** and **Figure 4.12-1**). The resultant daytime construction noise level at these receptors could be as high as 74.7 dBA. The impact associated with construction-related increases in daytime noise levels would be less than significant because the impact duration would be less than the two week threshold.

Two options for crossing Highway 1 are considered. Under both the preferred alignment and the new Transmission Main Optional Alignment, the pipeline would be installed beneath Highway 1 using trenchless construction methods. The nearest sensitive receptors are located over 1,300 feet away from the trenchless pit locations. At this distance the resultant noise level would be less than 70 dBA and would be less than significant.

If needed, nighttime construction for the new Transmission Main would be limited to areas outside of the City of Marina (Mitigation Measure 4.12-4 prohibits nighttime construction work within 500 feet of residences in the City of Marina). The closest residential receptors are on 4th Army Street at a distance of 250 feet and the resultant nighttime noise levels at these residences receptors could be as high as 69.5 dBA, L_{eq}, which would exceed the sleep interference threshold of 60 dBA. Implementation of **Mitigation Measures 4.12-1a (Neighborhood Notice)**, **4.12-1b (General Noise Controls for Construction Equipment)**, and **4.12-1c (Noise Control Plan for Nighttime Pipeline Construction)** would reduce the severity of this impact, to below the sleep interference threshold of 60 dBA, L_{eq} (10 dBA of reduction).

TABLE 4.12-8
MAXIMUM CONSTRUCTION NOISE LEVELS – NEW TRANSMISSION MAIN

Pipeline (Construction Method)	Closest Sensitive Receptor(s)	Distance to Receptor (feet)[a]	Existing Ambient Daytime Noise Level at Receptor(s) (dBA L_{eq})	Attenuated Construction Equipment Noise Level at Receptor(s) (dBA L_{eq})[a]	Resultant Noise Level at Receptor(s) during Construction (dBA L_{eq})[b]	Exceeds Day/ nighttime Threshold?
New Transmission Main (Open Trench Construction)	Residences (various)	100	Daytime – 66.4[c] Nighttime – 42.3	74.0	Daytime – 74.7 Nighttime – 74.0	Yes/Yes
		180	Daytime – 50.1[d] Nighttime – 51.4	68.9	Daytime – 69.5 Nighttime –69.5	No/Yes
New Transmission Main (Trenchless Construction)	Residences on Marina Drive	100	Daytime – 66.4[c]	87.8	87.8	Yes/NA

NOTES:

[a] Attenuated construction equipment noise levels at the nearest sensitive receptors were calculated using FHWA Roadway Construction Noise Model Version 1.1. This value represents hourly average noise levels based on the estimated percentage of time the various pieces of construction equipment would be operating.

[b] Resultant noise level is the result of logarithmic addition of the values in the two previous columns (i.e., the attenuated construction equipment noise in combination with the ambient noise level at the sensitive receptor). This represents the noise level that could be experienced by a human at the sensitive receptor location.

[c] Based on daytime and nighttime ambient noise level at short-term noise monitoring location S2 (see **Figure 4.12-1** and **Table 4.12-1**).

[d] Based on daytime ambient noise level at short-term noise monitoring location S10.

ASR-5 and ASR-6 Wells

The proposed ASR injection/extraction wells (ASR-5 and ASR-6 Wells) would be constructed at the intersection of General Jim Moore Boulevard and Ardennes Circle, in the Fitch Park military housing area. The closest residential receptors to the proposed wells are located 50 feet away on Ardennes Circle. Noise monitoring location S4 represents the noise environment at the Fitch Park residential receptors (see **Table 4.12-1** and **Figure 4.12-1**).

Each proposed ASR injection/extraction well would require 24-hour construction activities for up to 4 weeks during well drilling and development, for a total of 8 weeks of 24-hour construction. As discussed in Section 3.3.2.2 in Chapter 3, Description of the Proposed Project, temporary noise attenuators (sound walls) would be installed at each well site to reduce construction noise. Accounting for the attenuation provided by the temporary sound wall, the resultant daytime and nighttime construction noise levels at the Fitch Park residential receptors could be as high as 80.8 dBA L_{eq}. This level exceeds the speech interference and sleep interference thresholds of 70 dBA and 60 dBA, respectively, and would result in a significant impact. While it is possible that implementation of **Mitigation Measures 4.12-1a (Neighborhood Notice)**, **4.12-1b (General Noise Controls for Construction Equipment)**, **4.12-1d (Additional Noise Controls for ASR-5 and ASR-6 Wells)**, and **4.12-1e (Offsite Accommodations for Substantially Affected Receptors)** would reduce the daytime noise impact to a less-than-significant level, this mitigation would not be sufficient to reduce noise to below the more stringent nighttime threshold. The maximum level of attenuation that is reasonably achievable with implementation of the

mitigation measures is 16 to 40 dBA of sound reduction, depending on the frequency of the noise source (ENC, 2014). The nighttime noise impact would remain significant and unavoidable.

Terminal Reservoir

Terminal Reservoir would be constructed during daytime hours approximately 1,600 feet east of residences on Mescal Drive. Monitoring location S5, where the ambient daytime noise level was 59.1 dBA L_{eq}, represents the daytime noise environment at these receptors (see **Table 4.12-1** and **Figure 4.12-1**). During construction, the maximum daytime resultant noise level at these sensitive receptors would be 59.4 dBA L_{eq}, which is below the speech interference threshold of 70 dBA. Consequently, the daytime noise impacts during construction of Terminal Reservoir would be less than significant.

ASR Conveyance Pipeline, ASR Pump-to-Waste Pipeline, and ASR Recirculation Pipeline

The three 0.9-mile-long ASR pipelines would be installed along General Jim Moore Boulevard between the ASR-5 and ASR-6 Wells and Coe Avenue. Nighttime construction work is not proposed for these pipelines; therefore, there would be no impact related to nighttime noise increases.

The pipelines would be installed as close as 300 feet east of Seaside Middle School. The attenuated construction equipment noise level at 300 feet would be 65.2 dBA L_{eq} (see **Table 4.12-9**). However, because the school is situated at a lower elevation than General Jim Moore Boulevard, the effective earthen berm created by the difference in elevation would shield the school and provide an additional 15 to 20 dBA of noise attenuation (Caltrans, 2009). Consequently, the resultant daytime noise level at Seaside Middle School during pipeline installation activities would be 50.2 dBA L_{eq} and would be less than significant.

These pipeline alignments are as close as 100 feet from residential receptors, including residences on Ardennes Circle. The resultant daytime noise level at residential receptors during pipeline construction would be as high as 74.0 dBA L_{eq}. Assuming a pipeline installation rate of 250 feet per day, these residential receptors would be exposed to the 74.0-dBA noise levels for 1 to 3 days. Therefore, the construction noise impact associated with increases in daytime noise levels from pipeline installation would be less than significant.

Carmel Valley Pump Station

Construction activities for the Carmel Valley Pump Station are expected to last for approximately 6 months and would occur during daytime hours only. The closest residence is located approximately 50 feet to the north and east of the pump station site. Noise measurements taken at monitoring location S7 (see **Figure 4.12-1**) represent the noise environment at this sensitive receptor (61.5dBA L_{eq}). As shown in **Table 4.12-6**, during construction, the resultant daytime noise level at this sensitive receptor could be as high as 77.9 dBA, L_{eq}, which is a significant impact. However, this impact would be reduced to a less-than-significant level with implementation of **Mitigation Measures 4.12-1a (Neighborhood Notice)** and **4.12-1b (General Noise Controls for Construction Equipment)**.

TABLE 4.12-9
MAXIMUM CONSTRUCTION NOISE LEVELS – ASR PIPELINES

Project Component	Closest Sensitive Receptor(s)	Distance to Receptor (feet)	Existing Ambient Noise Level at Receptor(s) (dBA L_{eq})	Attenuated Construction Equipment Noise Level at Receptor(s) (dBA L_{eq})[a]	Resultant Noise Level at Receptor(s) during Construction (dBA L_{eq})[b]	Exceeds Daytime Threshold?
ASR Conveyance Pipeline, ASR Pump-to-Waste Pipeline and ASR Recirculation Pipeline (Open Trench Construction)	Residences at Fitch Park military housing area (Ardennes Circle)	100	Daytime – 54.3[c]	74.0	Daytime – 74.0	Yes
ASR Conveyance Pipeline, ASR Pump-to-Waste Pipeline and ASR Recirculation Pipeline (Open Trench Construction)	Seaside Middle School	300	Daytime – 50.7[c]	50.2	Daytime – 53.5	Yes

NOTES:

[a] Attenuated construction equipment noise levels at the nearest sensitive receptors were calculated using FHWA Roadway Construction Noise Model Version 1.1. This value represents hourly average noise levels based on the estimated percentage of time the various pieces of construction equipment would be operating.

[b] Resultant noise level is the result of logarithmic addition of the values in the two previous columns (i.e., the attenuated construction equipment noise in combination with the ambient noise level at the sensitive receptor). This represents the noise level that could be experienced by a human at the sensitive receptor location.

[c] Based on daytime and nighttime ambient noise level at short-term noise monitoring location S4 (see **Figure 4.12-1** and **Table 4.12-1**).

[d] Estimated noise levels during well drilling and development do not reflect the noise attenuation provided by sound walls.

[e] Based on daytime ambient noise level at short-term noise monitoring location S5.

Interconnections with Highway 68 Satellite Water Systems

The proposed project would improve existing interconnections for three satellite water systems in the unincorporated communities of Ryan Ranch, Bishop, and Hidden Hills along the Highway 68 corridor. These improvements would be constructed during daytime hours and would not involve nighttime construction.

Ryan Ranch–Bishop Interconnection Improvements

The Ryan Ranch–Bishop Interconnection Improvements would be located in a business park area (i.e., medical offices and general office space). The closest noise-sensitive land use is the York School located 900 feet to the northeast of the proposed improvements on York Road, which is beyond the 600 foot study area for noise from non-impact construction equipment (see **Section 4.12-2**) because construction-related noise increases at sensitive receptors would not exceed the speech interference threshold of 70 dBA, or exceed the sleep interference threshold of 60 dBA. Therefore, the impact related to temporary increases in daytime noise levels would be less than significant.

Main System–Hidden Hills Interconnection Improvements

The proposed Main System–Hidden Hills Interconnection Improvements involve the installation of a 1,200-foot-long, 6-inch-diameter pipeline along Tierra Grande Drive. This is a rural residential area where daytime noise levels are typically below 50 dBA. The pipeline and valves would be installed over approximately 5 days. Assuming a distance of 50 feet from the nearest residence, the resultant daytime noise levels at the closest residence could be as high as 77.7 dBA L_{eq}, which would exceed the 70-dBA L_{eq} threshold. Although daytime construction noise at adjacent residences could exceed the threshold of 70 dBA L_{eq}, the duration of the impact would be less than two weeks and the impact would be less than significant.

Impact Conclusion

Construction of the subsurface slant wells, MPWSP Desalination Plant, Source Water Pipeline, Pipeline to the CSIP Pond, and Brine Discharge Pipeline would result in less-than-significant daytime and nighttime noise impacts. Construction of Terminal Reservoir, ASR Conveyance Pipeline, ASR Recirculation Pipeline, ASR Pump-to-Waste Pipeline, Main System-Hidden Hills Interconnection Improvements, and Ryan Ranch-Bishop Interconnection Improvements would result in a less-than-significant impact related to temporary increases in daytime noise levels and no impact related to nighttime noise. Significant impacts related to temporary increases in daytime noise levels would result during construction of the ASR-5 and ASR-6 Wells and the Carmel Valley Pump Station, but these impacts would be reduced to less-than-significant levels with implementation of the prescribed mitigation measures. Significant nighttime noise impacts would result during construction of the new Desalinated Water Pipeline, Castroville Pipeline, new Transmission Main, and the ASR-5 and ASR-6 Wells. With the exception of nighttime noise impacts associated with the Castroville Pipeline Optional Alignment 1 and ASR-5 and ASR-6 Wells, implementation of **Mitigation Measures 4.12-1a** through **4.12-1c** would reduce all other construction-related nighttime noise impacts to a less-than-significant level. Nighttime noise impacts during installation of the Castroville Pipeline Optional Alignment 1 and during drilling and development of the ASR-5 and ASR-6 Wells would remain significant and unavoidable, even with implementation of mitigation.

Mitigation Measures

Mitigation Measure 4.12-1a applies to the new Desalinated Water Pipeline, Castroville Pipeline and Optional Alignment, new Transmission Main, ASR-5 and ASR-6 Wells, and Carmel Valley Pump Station.

Mitigation Measure 4.12-1a: Neighborhood Notice and Construction Disturbance Coordinator

The combination of public notice and the establishment of a construction disturbance coordinator can result in a lessening of the adversity of the impact at a given receptor by allowing them to prepare for pending construction activities and providing a contact to report any disturbances or violations to CalAm for appropriate response actions, including additional mitigation. Residents and other sensitive receptors within 300 feet of a daytime construction area and within 900 feet of a nighttime construction area shall be notified of the construction location, nature of activities, and schedule, in writing, at least 14 days prior

to the commencement of construction activities. The notice shall also be posted along the proposed pipeline alignments, near the proposed facility sites, and at nearby recreational facilities. CalAm or the contractor(s) shall designate a construction disturbance coordinator who would be responsible for responding to construction complaints. The coordinator shall determine the cause of the complaint and ensure that reasonable measures are implemented to correct the problem. A contact number for the construction disturbance coordinator shall be conspicuously placed on construction site fences and included in the notice. Prior to distributing the notice to nearby residences, CalAm or the contractor(s) shall first submit the notice to the respective city planning and services manager for review and approval. This measure shall be implemented in conjunction with the noticing provisions in Mitigation Measure 4.9-1 (Traffic Control and Safety Assurance Plan).

Mitigation Measure 4.12-1b applies to the new Desalinated Water Pipeline, Castroville Pipeline Optional Alignment, new Transmission Main, ASR-5 and ASR-6 Wells, and Carmel Valley Pump Station.

Mitigation Measure 4.12-1b: General Noise Controls for Construction Equipment and Activities.

The construction contractor(s) shall assure that construction equipment with internal combustion engines have sound control devices at least as effective as those provided by the original equipment manufacturer. No equipment shall be permitted to have an unmuffled exhaust.

Impact tools (i.e., jack hammers, pavement breakers, and rock drills) used for project construction shall be hydraulically or electrically powered wherever possible to avoid noise associated with compressed air exhaust from pneumatically powered tools. Where use of pneumatic tools is unavoidable, an exhaust muffler shall be placed on the compressed air exhaust to lower noise levels by up to approximately 10 dBA. External jackets shall be used on impact tools, where feasible, in order to achieve a further reduction of 5 dBA. Quieter procedures shall be used, such as drills rather than impact equipment, whenever feasible.

The construction contractor(s) shall locate staging areas and stationary noise sources as far from nearby receptors as possible, and shall muffle and enclose them in temporary sheds, incorporate noise barriers, or implement other noise control measures to the extent feasible. The noise controls shall be sufficient to reduce noise levels during drilling and development of ASR-5 and ASR-6 Wells, and pump station construction activities below the threshold of 70 dBA L_{eq}.

Mitigation Measure 4.12-1c applies to the new Desalinated Water Pipeline, Castroville Pipeline and Optional Alignment, and new Transmission Main.

Mitigation Measure 4.12-1c: Noise Control Plan for Nighttime Pipeline Construction.

CalAm or a representative of CalAm shall submit a Noise Control Plan for all nighttime pipeline work to the California Public Utilities Commission for review and approval prior to the commencement of project construction activities. The Noise Control Plan shall identify all feasible noise control procedures to be implemented during nighttime pipeline installation in order to reduce noise levels to the extent practicable at the nearest residential or noise sensitive receptor. At a minimum, the Noise Control Plan shall require use of

moveable noise screens, noise blankets, or other suitable sound attenuation devices be used to reduce noise levels during nighttime pipeline installation activities below 60 dBA L_{eq}.

Mitigation Measure 4.12-1d applies only to the ASR-5 and ASR-6 Wells.

Mitigation Measure 4.12-1d: Additional Noise Controls for ASR-5 and ASR-6 Wells.

In addition to the general noise controls that will be implemented as part of Mitigation Measure 4.12-1b (General Noise Controls for Construction Equipment), CalAm or its construction contractor(s) for the ASR-5 and ASR-6 Wells shall identify feasible noise controls for implementation during well drilling development activities at the Fitch Park military housing community. The construction contractor(s) shall locate all stationary noise-generating equipment as far as possible from nearby noise-sensitive receptors. Drill rigs within 500 feet of noise-sensitive receptors shall be equipped with noise-reducing engine housings or other noise-reducing technology. Additionally, acoustic barriers and/or enclosures shall be used with a goal of reducing noise from well drilling activities to 60 dBA, L_{eq} or less at a distance of 50 feet from the construction work area. Barrier blankets are available with a sound transmission class rating of 32, providing 16 to 40 dBA of sound transmission loss, depending on the frequency of the noise source (ENC, 2014).

Mitigation Measure 4.12-1e applies only to the ASR-5 and ASR-6 Wells.

Mitigation Measure 4.12-1e: Offsite Accommodations for Substantially Affected Nighttime Receptors.

CalAm shall provide temporary hotel accommodations for all residences and any other nighttime sensitive receptors located within 100 feet of a designated construction work area that would:

1. Be exposed to 24-hour construction activities and
2. Where nighttime construction noise would exceed 60 dBA even with implementation of acoustic barriers and/or shielding measures.

The accommodations shall be provided for the duration of 24-hour construction activities.

Impact 4.12-2: Expose people to or generate noise levels in excess of standards established in the local general plan, noise ordinance, or applicable standards of other agencies during construction. (*Less than Significant with Mitigation*)

Subsurface Slant Wells

Section 15.04.055 of the Marina Municipal Code limits outside construction, repair work, or related activities that produce noise adjacent to residential uses and restricts construction noise to 60 dBA for 25 percent of an hour at the property line of sensitive receptors. As shown in **Table 4.12-3**, nighttime construction of the subsurface slant wells and the Source Water Pipeline would not occur adjacent to a residential use. Consequently, construction of the proposed slant wells would have a less than significant impact with regard to generation of noise levels in excess of standards.

MPWSP Desalination Plant

The residences on Neponset Road are located in unincorporated Monterey County and subject to the *Monterey County General Plan*. As indicated in Table 4.12-3, the only policy or ordinance for which the proposed MPWSP Desalination Plant would be potentially inconsistent is Policy S-7.10 of the Monterey County General Plan. Policy S-7.10 applies the following standard noise protection measures:

- Construction shall occur only during times allowed by ordinance/code unless such limits are waived for public convenience;
- All equipment shall have properly operating mufflers; and
- Laydown yards and semi-stationary equipment such as pumps or generators shall be located as far from noise-sensitive land uses as practical

Construction of the MPWSP Desalination Plant facilities would operate equipment and require staging areas. However, implementation of **Mitigation Measure 4.12-1b (General Noise Controls for Construction Equipment and Activities)** addresses these policy-driven mitigation measures by prohibiting equipment with unmuffled exhaust and requiring that staging areas and stationary noise sources be located as far from nearby receptors as possible.

Therefore, the impact of construction noise from the MPWSP Desalination Plant related to generation of noise in excess of regulatory noise standards would be less than significant.

Pipelines North of Reservation Road

Source Water Pipeline, Pipeline to the CSIP Pond, and Brine Discharge Pipeline

The closest sensitive receptors to the Source Water Pipeline, Pipeline to the CSIP Pond, and Brine Discharge Pipeline are residences on Neponset Road in unincorporated Monterey County. These pipelines could require nighttime construction. Construction of these pipelines would be subject to the *Monterey County General Plan*. Monterey County General Plan Policy S-7.9 restricts evening construction activities within 500 feet of a sensitive land use. As discussed above under Impact 4.12-1, the residences on Neponset Road are the closest sensitive receptors to the Source Water Pipeline, Pipeline to the CSIP Pond, and Brine Discharge Pipeline, at 1,100 feet, 3,600 feet, and 3,600 feet, respectively, which are all greater than 500 feet away from proposed pipeline construction areas. Therefore, such construction activities would be consistent with Policy S-7.9.

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. The equipment used to install the Source Water Pipeline, Pipeline to the CSIP Pond, and Brine Discharge Pipeline (see **Table 4.12-6**) would not exceed these levels.

Portions of the Source Water Pipeline would be within the jurisdiction of the City of Marina. The City of Marina Municipal Code restricts construction noise to 60 dBA for 25 percent of an hour at any receiving property line. There are no residences or other sensitive receptors located within the

study area for the Source Water Pipeline (see **Table 4.12-7**). This would be a less than significant impact with regard to the generation of noise in excess of regulatory noise standards in the city of Marina.

Consequently, construction activities associated with the installation of the Source Water Pipeline, Pipeline to the CSIP Pond, and Brine Discharge Pipeline would be consistent with standards established in the applicable general plans and noise ordinances. Therefore, construction noise from installation of these pipelines related to generation of noise in excess of regulatory noise standards would be less than significant.

New Desalinated Water Pipeline

Construction of this pipeline would be subject to the *Monterey County General Plan*. Monterey County General Plan Policy S-7.9 restricts construction activities within 500 feet of a sensitive land use during evening hours. There are no residences within unincorporated Monterey County that are within 500 feet of the new Desalinated Water Pipeline and construction activities would be consistent with Policy S-7.9.

As indicated in Table 4.12-3, all project elements in Monterey County would be consistent with Monterey County Code Section 10.60.030 which limits the operation of machinery or equipment that produces a noise level exceeding 85 dBA at 50 feet from the source.

The Noise Element of the *City of Marina General Plan* does not address construction noise. The Municipal Code restricts construction noise to 60 dBA for 25 percent of an hour at any receiving property line. The daytime and nighttime resultant noise levels associated with pipeline installation at the Marina Drive residences could be as high as 74.7 and 74.0 dBA L_{eq}, respectively (see **Table 4.12-7**). This would be a significant impact with regard to generation of noise in excess of regulatory noise standards. However, with implementation of **Mitigation Measures 4.12-1b (General Noise Controls for Construction Equipment)** and **4.12-1c (Noise Control Plan for Nighttime Pipeline Construction)**, which would require that construction contractor's implement noise control measures, including temporary sound enclosures, if necessary, would reduce the resultant daytime and nighttime noise levels below 60 dBA. Moveable sound barrier curtains can provide 15 dBA of sound attenuation (INC, 2014) reducing resultant noise levels to 59.7 dBA which is below the nighttime sleep interference threshold. These mitigation measures would reduce the impact to a less-than-significant level. Additionally, Mitigation Measure 4.12-4 prohibits nighttime construction work within 500 feet of residences in the City of Marina, further reducing the potential nighttime construction noise impact.

Trenchless construction methods would be required to install the new Desalinated Water Pipeline beneath railroad tracks. The resultant noise levels would be up to 96 dBA, L_{eq} at a distance of 50 feet during installation of sheet piles. 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. If sheet piles were required the equipment used to install them would exceed these levels. However, implementation of **Mitigation Measure 4.12-1b (General Noise Controls for Construction Equipment)** would provide 15 dBA of sound attenuation (INC,

2014), which would be sufficient to reduce the impact of sheet pile driving to less than the 85 dBA threshold of the Monterey County Code.

The City of Marina Municipal Code restricts construction noise to 60 dBA for 25 percent of an hour at any receiving property line. The Roadway Construction Noise Model identifies pile driving as having a usage percentage of 20 percent of an hour. Consequently, pile driving noise would be exempt from the restrictions of the City's municipal Code.

Castroville Pipeline

The Castroville Pipeline would be installed along rural roadways in unincorporated Monterey County. Construction of this pipeline would be subject to the *Monterey County General Plan*. Monterey County General Plan Policy S-7.9 restricts construction activities within 500 feet of a sensitive land use during evening hours. There is a cluster of residences within unincorporated Monterey County that are within 500 feet of the Castroville Pipeline on the north side of the Salinas River as well as one at Nashua Road. 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. Therefore nighttime construction work of the Castroville Pipeline would be a significant impact with regard to generation of noise in excess of regulatory noise standards. However, implementation of **Mitigation Measures 4.12-1c (Noise Control Plan for Nighttime Pipeline Construction)** would ensure that construction activities would be consistent with Policy S-7.9 and a less-than-significant impact with respect to consistency with local plans.

The Castroville Pipeline Optional Alignment 1 would be installed within 500 feet of two residences on Nashua Road as well as dozens of residences along either side Merritt Street (On Merritt Way and Cypress Circle) within the unincorporated town of Castroville. Similarly, implementation of **Mitigation Measures 4.12-1c (Noise Control Plan for Nighttime Pipeline Construction)** would ensure that construction activities would be consistent with Policy S-7.9 and a less-than-significant impact with respect to consistency with local plans.

As indicated in Table 4.12-3, all project elements in Monterey County would be consistent with Monterey County Code Section 10.60.030 which limits the operation of machinery or equipment that produces a noise level exceeding 85 dBA at 50 feet from the source. Consequently, construction activities associated with the installation of the Castroville Pipeline would be consistent with standards established in the applicable general plan and noise ordinance and construction noise from installation of these pipelines related to generation of noise in excess of regulatory noise standards would be less than significant.

Pipelines South of Reservation Road

New Transmission Main

The northernmost 0.7 mile of the new Transmission Main alignment is within the city of Marina where the noise ordinance restricts construction noise to 60 dBA for 25 percent of an hour at the property line of sensitive receptors. Without mitigation, installation of the new Transmission

Main would have the same significant impact with regard to generation of noise in excess of regulatory noise standards as the new Desalinated Water Pipeline (i.e., noise levels associated with pipeline installation at nearby residences could be as high as 74.7 and 74.0 dBA L_{eq} for daytime and nighttime construction activities, respectively). Consequently daytime and nighttime construction activities associated with the northernmost 0.7 miles of the new Transmission Main within the jurisdiction of the city of Marina would be significant. However, implementation of **Mitigation Measures 4.12-1c (Noise Control Plan for Nighttime Pipeline Construction)** would reduce the daytime and nighttime construction noise impact to a less-than-significant level. Additionally, Mitigation Measure 4.12-4 prohibits nighttime construction work within 500 feet of residences in the City of Marina, further reducing the potential nighttime construction noise impact.

At the junction of Highway 1/Lightfighter Drive, the new Transmission Main would be installed beneath Highway 1 via trenchless construction methods. The resultant noise level at 50 feet would be 96 dBA L_{eq} during installation of sheet piles. The City of Marina Municipal Code restricts construction noise to 60 dBA for 25 percent of an hour at any receiving property line. The Roadway Construction Noise Model identifies pile driving as having a usage percentage of 20 percent. Consequently, pile driving noise, while elevated, would be exempt from this restriction of the City's Municipal Code and therefore consistent with its requirements.

The portion of the new Transmission Main on the west side of Highway 1 is within the jurisdiction of the Fort Ord Reuse Plan as well as the Fort Ord Dunes State Park General Plan. Noise Policy B-9 of the Reuse Plan that requires construction contractors to employ noise-reducing construction practices. Consequently, **Mitigation Measure 4.12-1b (General Noise Controls for Construction Equipment)** is identified to reduce construction noise levels and avoid a significant impact with regard to Noise Policy B-9 of the Reuse Plan.

Policy NOI-3 of the Fort Ord Dunes State Park General Plan requires area-specific projects to develop noise abatement measures to minimize disturbance to park visitors, neighbors, and sensitive wildlife identified as occurring in the area during construction and requires consideration of the following measures:

- Restrict construction activities to daytime hours, where feasible;
- Use best available noise control techniques wherever feasible, including those for vehicles and construction equipment;
- Use hydraulically or electrically powered impact tools when feasible;
- Locate stationary noise sources as far from sensitive receptors as feasible; and
- To the extent feasible, avoid construction during the nesting/breeding seasons of sensitive wildlife known to occur in the project vicinity.

Implementation of **Mitigation Measures 4.12-1a (Neighborhood Notice), 4.12-1b (General Noise Controls for Construction Equipment),** and **4.12-1c (Noise Control Plan for Nighttime Pipeline Construction)** would ensure that the construction noise abatement measures are in place during construction of the new Transmission Main. With implementation of these mitigation

measures, pipeline installation activities would be consistent with Policy NOI-3 of the Fort Ord Dunes State Park General Plan.

The southern portion of the new Transmission Main is in the city of Seaside. Implementation Plan N-1.3 of the *City of Seaside General Plan* requires all construction activity to comply with the limits established in the City's noise regulations. While the City of Seaside does not have established noise level limits for construction activities, the Implementation Plan does specify Title 24 of the California Code of Regulations. The sleep interference threshold applied in Impact 4.12-1 with respect to nighttime noise (60 dBA) is predicated on a 25-dBA reduction for standard construction with the windows closed, to maintain an acceptable interior noise environment of 35 dBA at night which would achieve a 45 dBA DNL noise standard for residential dwellings established in Title 24. Impact 4.12-1 identified a potential significant impact with regard to nighttime noise exceeding the sleep interference threshold during construction of the new Transmission Main and identified mitigation to reduce this impact to a less-than-significant level. Therefore, consistency with Implementation Plan N-1.3 (compliance with Title 24 of the CCR) is addressed in Impact 4.12-1 (daytime speech interference and nighttime sleep interference) and mitigation measures are identified to reduce this potential impact to less than significant.

As indicated in Table 4.12-3, all project elements in Seaside would be consistent with Policy C-1.7 of the Seaside General Plan which directs the City to reduce impacts on residential neighborhoods from truck traffic and related noise. Therefore, no impact is expected to result with respect to the generation of noise in excess of regulatory noise standards established by the City of Seaside.

ASR-5 and ASR-6 Wells

The ASR-5 and ASR-6 Wells would be constructed on federal land and would not be subject to the regulatory noise standards of local jurisdictions. As discussed in Section 4.12.3.1, federal regulations establish noise limits for motor vehicles through regulatory controls on truck manufacturers, sets standard for highway and aircraft noise but does not promulgate noise standards for stationary or construction-related sources. Therefore, no impact related to generation of noise in excess of regulatory noise standards would result from installation of the ASR-5 and ASR-6 Wells.

Terminal Reservoir, ASR Conveyance Pipeline, ASR Recirculation Pipeline, and ASR Pump-to-Waste Pipeline

The proposed Terminal Reservoir, ASR Conveyance Pipeline, ASR Recirculation Pipeline and ASR Pump-to-Waste Pipeline would be constructed within the jurisdictions of the city of Seaside and Fort Ord Reuse Plan. The City of Seaside General Plan requires all construction activities to comply with the limits established in the City's noise regulations. While the City of Seaside does not have established noise level limits for construction activities, the Implementation Plan does specify Title 24 of the California Code of Regulations. The sleep interference threshold that is applied in Impact 4.12-1 with respect to nighttime noise (60 dBA) is predicated on a 25-dBA reduction for standard construction with the windows closed, to maintain an acceptable interior noise environment of 35 dBA at night which would achieve a 45 dBA DNL noise standard for

residential dwellings established in Title 24. Therefore consistency with Implementation Plan N-1.3 is addressed in Impact 4.12-1 and mitigation measures are identified to reduce this potential impact to less than significant.

As indicated in Table 4.12-3, all project elements in Seaside would be consistent with Policy C-1.7 of the Seaside General Plan which directs the City to reduce impacts on residential neighborhoods from truck traffic and related noise. Therefore, no impact related to the generation of noise in excess of City of Seaside's regulatory noise standards would result from construction of the proposed Terminal Reservoir, ASR Conveyance Pipeline, ASR Recirculation Pipeline, and ASR Pump-to-Waste Pipeline.

With respect to consistency with established construction noise level limits of the Fort Ord Reuse Plan, Noise Policy B-9 of the Reuse Plan requires construction contractors to employ noise-reducing construction practices. Specific information regarding noise-reduction measures that would be implemented during project construction is not available. Although CalAm's construction contractors would likely implement Best Management Practices with regard to minimizing construction-related noise, this analysis conservatively assumes no noise-reduction measures would be implemented. As a result, the impact is considered significant. However, implementation of **Mitigation Measure 4.12-1b (General Noise Controls for Construction Equipment)** would ensure that construction contractors to employ noise-reducing construction practices. With implementation of this mitigation, the project would be consistent with the intent of Noise Policy B-9 of the Fort Ord Reuse Plan, and the impact would be reduced to a less-than-significant level.

Carmel Valley Pump Station

For County-permitted projects, Policy S-7.9 of the Monterey County General Plan requires that the project sponsor 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 construction of the Carmel Valley Pump Station would not occur during evening hours, construction activities would not conflict with Policy S-7.9.

As indicated in Table 4.12-3, all project elements in Monterey County would be consistent with Monterey County Code Section 10.60.030 which limits the operation of machinery or equipment that produces a noise level exceeding 85 dBA at 50 feet from the source. Therefore, the impact of construction noise from the Carmel Valley Pump Station related to generation of noise in excess of regulatory noise standards would be less than significant.

Interconnections with Highway 68 Satellite Systems

The Main System–Hidden Hills Interconnection Improvements are within 50 feet of a sensitive land use. For County-permitted projects, Policy S-7.9 of the Monterey County General Plan 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 Main System–Hidden Hills Interconnection Improvements would not be constructed during evening hours, they would not conflict with Policy S-7.9.

As indicated in Table 4.12-3, all project elements in Monterey County would be consistent with Monterey County Code Section 10.60.030 which limits the operation of machinery or equipment that produces a noise level exceeding 85 dBA at 50 feet from the source. Therefore, the impact of construction noise from the Interconnections with Highway 68 Satellite Systems related to generation of noise in excess of regulatory noise standards would be less than significant.

Land Use Plans & Policies Consistency

The above impact analysis, in conjunction with **Table 4.12-3** addresses consistency of proposed construction activities with Land Use Plans and Policies as they relate to generation of noise.

Impact Conclusion

There are no established construction noise level standards that would apply to the ASR-5 and ASR-6 Wells. Construction of the subsurface slant wells, Source Water Pipeline, Brine Discharge Pipeline, Pipeline to the CSIP Pond, Ryan Ranch-Bishop Interconnection Improvements, Main System-Hidden Hills Interconnection Improvements, Carmel Valley Pump Station, and MPWSP Desalination Plant would result in less-than-significant impacts with regard to the generation of construction noise levels in excess of local noise level standards.

Construction of the remaining project components (new Desalinated Water Pipeline, Castroville Pipeline, new Transmission Main, Terminal Reservoir, ASR Conveyance Pipeline, ASR Recirculation Pipeline, and ASR Pump-to-Waste Pipeline) would generate noise levels in excess of local noise level standards. The new Desalinated Water Pipeline and new Transmission Main would exceed the City of Marina's 60-dBA noise level standard for construction noise, a significant impact. In the absence of project-specific information regarding noise-reduction measures that would be implemented during project construction, it is conservatively assumed that noise resulting from construction of Terminal Reservoir, ASR Conveyance Pipeline, ASR Recirculation Pipeline, and ASR Pump-to-Waste Pipeline would violate Noise Policy B-9 of the Fort Ord Reuse Plan, a significant impact. Implementation of **Mitigation Measures 4.12-1b** and **4.12-1c** would reduce these impacts to a less-than-significant level.

Mitigation Measures

Mitigation Measure 4.12-1b applies to the new Desalinated Water Pipeline, Castroville Pipeline, new Transmission Main, Terminal Reservoir, ASR Conveyance Pipelines, and ASR Pump-to-Waste Pipeline.

> **Mitigation Measure 4.12-1b: General Noise Controls for Construction Equipment.**
>
> (See Impact 4.12-1, above, for description.)

Mitigation Measure 4.12-1c applies only to the new Desalinated Water Pipeline, Castroville Pipeline, and the northern portion of the new Transmission Main.

> **Mitigation Measure 4.12-1c: Noise Control Plan for Nighttime Pipeline Construction.**
>
> (See Impact 4.12-1, above, for description.)

Impact 4.12-3: Expose people to or generate excessive groundborne vibration during construction. (*Less than Significant with Mitigation*)

Construction activities, such as pile driving, that involve impact tools can produce significant groundborne vibration. The substantive sources of vibration during project construction would be: (1) the drill rigs used for drilling and development of the subsurface slant wells in the CEMEX active mining area; (2) the drill rigs used for drilling and development of the ASR-5 and ASR-6 Wells at the Fitch Park military housing area; (3) bulldozers for construction of the MPWSP Desalination Plant; (4) jackhammers used to break up concrete during open-trench construction of pipelines; (5) Pile drivers to install sheet piles for entry and receiving pits where trenchless construction methods of pipeline installation are required; and (6) vibratory rollers, which would be used for construction of many of the project components.

As described above in Sections 4.12.1.2 and 4.12.4.2, substantial groundborne vibration can damage nearby structures or buildings. **Table 4.12-10** presents a summary of and the vibration levels that would result at the nearest structure and sensitive receptor from construction equipment operated for each of the project elements.

Subsurface Slant Wells

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 proposed slant well area is the CEMEX building, a historic structure located approximately 1,000 feet east of the subsurface slant well drilling area. As can be seen from Table 4.12-10, vibration levels from slant well drilling and development activities would be attenuated to below the threshold for fragile historic buildings of 0.12 in/sec PPV, resulting in a less-than-significant impact related to damage to this building.

Human Annoyance. As can be seen from Table 4.12-10, 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 no impact related to human annoyance.

MPWSP Desalination Plant

Structural Damage. The nearest structure to the proposed MPWSP Desalination Plant is the Last Chance Mercantile building located approximately 300 feet to the east, which is not considered a historic structure. As can be seen from Table 4.12-10, vibration levels from slant well drilling and development activities would be attenuated to below the threshold of 0.3 in/sec PPV, resulting in a less-than-significant impact related to damage to this building.

Human Annoyance. The nearest sensitive land use to the proposed MPWSP Desalination Plant is a rural residence on Neponset Road that is located 2,200 feet to the west. Vibration levels from rollers at this distance would be attenuated to background levels, resulting in no impact related to human annoyance.

TABLE 4.12-10
SUMMARY OF VIBRATION LEVELS AT SENSITIVE RECEPTORS DURING CONSTRUCTION

Project Facility	Vibration-Inducing Construction Equipment	Equipment Vibration Level at 25 feet (PPV in/sec)[a]	Distance from Nearest Structure (feet)	Attenuated Construction Equipment Vibration Level at Nearest Structure (PPV in/sec)[b]	Exceeds Building Damage Thresholds?	Distance from Nearest Sensitive Receptor (feet)	Attenuated Construction Equipment Vibration Level at Nearest Sensitive Receptor (PPV in/sec)[b]	Exceeds Annoyance Thresholds?
Subsurface Slant Wells	Bore/Drill Rigs	0.089	1,100	0.0003	No	4,000	<0.0001	No
MPWSP Desalination Plant	Dozer	0.089	300	0.002	No	2,200	0.0001	No
Pipeline Installation (Open Trench Construction)	Compactor	0.21	25[c]	0.21	Yes	25[c]	0.21	Yes
Pipeline Installation (Trenchless Construction)	Pile Driver	0.644	40	.318	Yes	40	Yes	Yes
Terminal Reservoir	Compactor	0.21	1,600	0.0004	No	1,600	0.0004	No
ASR-5 and ASR-6 Wells	Bore/Drill Rigs	0.089	50	0.031	No	50	0.031	No
Main System-Hidden Hills Interconnection Improvements	0.21	Compactor	80	0.037	No	80	0.037	No
Ryan Ranch-Bishop Interconnection Improvements	0.21	Compactor	80	0.037	No	900	0.0009	No
Carmel Valley Pump Station	0.21	Compactor	50	0.074	No	50	0.074	No

NOTES:

[a] Reference vibration levels for construction equipment are derived from FTA, 2006.
[b] Attenuated construction equipment noise levels at the nearest sensitive receptors were calculated using FTA methodology for construction equipment in its 2006 document *Transit Noise and Vibration Impact Assessment*.
[c] Distance between the proposed pipeline alignments and the nearest sensitive receptors varies by pipeline.

Source Water Pipeline (Open Trench Construction)

Structural Damage. The Source Water Pipeline would be constructed as close as 65 feet away from historic features of the Lapis Sand Mining Plant Historic District (see Section 4.15, Cultural and Paleontological Resources, for additional information on the Lapis Siding). Thus, the use of vibratory rollers during construction of the Source Water Pipeline could cause cosmetic or structural damage to historic resources. The estimated vibration level that would be generated by a vibratory roller (expected construction equipment with the greatest PPV) is 0.12 in/sec PPV at a distance of 45 feet. Because the construction would occur farther than 65 feet away from the historic structures, damage to historic resources is not anticipated to result in a substantial adverse change in the significance of historical resources, and the impact would be less than significant.

Human Annoyance. The nearest sensitive receptors to the proposed Source Water Pipeline are residences on Neponset Road located approximately 1,100 feet away. At this distance vibration levels from rollers would be attenuated to background levels, resulting in no impact related to human annoyance.

Source Water Pipeline (Trenchless Construction)

Structural Damage. Approximately 500 feet east of Highway 1 and roughly 1,000 feet northeast of Del Monte Boulevard and Charles Benson Road, at Lapis Road, the Source Water Pipeline would be installed beneath railroad tracks using trenchless construction methods. This location is over 2,000 feet from historic features of the Lapis Sand Mining Plant Historic District or any other structure. Construction equipment for sheet pile installation would generate vibration levels above the 0.12 in/sec PPV vibration threshold for damage to historic buildings if it were to occur within 77 feet of such a structure. Because the construction would be over 2,000 feet from the historic district, there would be no impact with regard to structural damage from jack and bore construction activities.

Human Annoyance. The proposed jack-and-bore location for the Source Water Pipeline is over 3,500 feet from residential or other sensitive land uses. At this distance vibration levels would be attenuated to background levels, resulting in no impact related to human annoyance.

New Desalinated Water Pipeline and New Transmission Main (Open Trench Construction)

Structural Damage. The nearest structure to the new Desalinated Water Pipeline and new Transmission Main would be located approximately 100 feet away but none of these structures are historic. Vibration levels from vibratory rollers would reach 0.21 in/sec PPV at a distance of 25 feet. At 100 feet, vibration levels from roller operations would be attenuated to less than 0.03 in/sec PPV, which is below the threshold for non-fragile buildings of 0.3 in/sec PPV, resulting in a less-than-significant impact.

Human Annoyance. The nearest sensitive land use to the new Desalinated Water Pipeline and new Transmission Main would be located approximately 100 feet away. Vibration levels from

rollers at this distance would be attenuated to less than 0.03 in/sec PPV, resulting in a less-than-significant impact related to human annoyance.

New Desalinated Water Pipeline and New Transmission Main (Trenchless Construction)

Structural Damage. Construction equipment for sheet pile installation 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. Such a condition would only potentially occur at location (F) in **Figure 4.12-1**, the southern terminus of Marina Drive in the City of Marina where the entry pit would be approximately 45 feet from an existing residential structure resulting in a vibration level would be 0.27 in/sec PPV. Implementation of **Mitigation Measure 4.12-3 (Vibration Reduction Measures)**, which would require vibration monitoring and restrict location of sheet piles, if necessary, would reduce this impact to a less-than-significant level.

Human Annoyance. Sheet pile driving could occur within 45 feet from residential and other sensitive land uses along the Desalinated Water Pipeline and new Transmission Main where the vibration level is predicted to be 0.27 in/sec PPV. Vibration levels from pile drivers would meet the "strongly perceptible" threshold of 0.1 in/sec PPV, at a distance of 85 feet from sensitive land uses, resulting in a significant impact related to human annoyance, particularly if these operations were to occur during nighttime hours. Implementation of **Mitigation Measure 4.12-3 (Vibration Reduction Measures)**, which would restrict pile driving to daytime hours, require vibration monitoring and restrict locations of access pits where piles would be inserted, if necessary, would reduce this impact to a less-than-significant level.

Castroville Pipeline (Open Trench Construction)

Structural Damage. The nearest structure to the proposed Castroville Pipeline would be located are rural residential structures at the north bank of the Salinas River, approximately 200 feet away which is not a historic structure. Vibration levels from vibratory rollers for construction of these pipelines would reach 0.21 in/sec PPV at a distance of 25 feet, which is below the threshold of 0.03 in/sec PPV. At 200 feet, vibration levels from roller operations would be attenuated to less than 0.009 in/sec PPV, which is also below the threshold for non-fragile buildings of 0.3 in/sec PPV, resulting in a less-than-significant impact related to damage to buildings.

Human Annoyance. The nearest sensitive land use to the Castroville Pipeline would be located approximately 200 feet away. Vibration levels from rollers at this distance would be attenuated to than 0.009 in/sec PPV. This level would not exceed the "strongly perceptible" threshold of 0.1 in/sec PPV, resulting in a less than significant impact related to human annoyance.

Castroville Pipeline and Castroville Pipeline Optional Alignment 1 (Trenchless Construction)

Structural Damage. The nearest structures to the entry and receiving pits for the Castroville Pipeline at the Salinas River and Tembladero Slough crossings, and for the Castroville Pipeline Optional Alignment 1 at the Tembladero Slough crossing, would be 420 feet. At this distance, the

vibration impact would be attenuated to background levels, resulting in no impact related to damage to buildings.

Human Annoyance. Vibration levels from pile driving would be below the "strongly perceptible" threshold of 0.1 in/sec PPV beyond 85 feet. The nearest sensitive receptor to either of the two jack and bore pits for the Castroville Pipeline (and its Optional alignment) would be 420 feet, resulting in no impact related to human annoyance.

Brine Discharge Pipeline and Pipeline to the CSIP Pond (Open Trench Construction)

The nearest structures to the Pipeline to the CSIP Pond and the Brine Discharge Pipeline are located approximately 3,600 feet away from the pipeline alignments and are not historic structures. Vibration levels from vibratory rollers for construction of the pipelines would be attenuated to background levels, resulting in no impact related to damage to buildings or human annoyance.

ASR-5 and ASR-6 Wells

Structural Damage. There are no fragile buildings located within 25 feet of the proposed ASR injection/extraction wells. The nearest structure to the proposed ASR injection/extraction well sites is a residence located approximately 50 feet away that is not considered a historic structure. At this distance, vibration levels from well drilling would be 0.03 in/sec. This level is below the 0.3 in/sec PPV threshold, resulting in a less-than-significant vibration impact related to damage to this building.

Human Annoyance. The nearest sensitive land use to the proposed ASR injection/extraction well sites is a residence located approximately 50 feet away. At this distance, drilling vibration would be attenuated to 0.03 in/sec. This level is below the "strongly perceptible" threshold of 0.1 in/sec PPV, resulting in a less-than-significant impact related to human annoyance.

ASR Conveyance Pipeline, ASR Recirculation Pipeline, and ASR Pump-to-Waste Pipeline (Open Trench Construction)

Structural Damage. The nearest structures to the three ASR pipelines would be located approximately 100 feet away and are not historic structures. Vibration levels from vibratory rollers for construction of these pipelines would reach 0.21 in/sec PPV at a distance of 25 feet. At 100 feet, vibration levels from roller operations would be attenuated to less than 0.03 in/sec PPV, which is below the threshold for non-fragile buildings of 0.3 in/sec PPV, resulting in a less-than-significant impact related to damage to buildings.

Human Annoyance. The nearest sensitive land use to the three proposed ASR pipelines would be located approximately 100 feet away. Vibration levels from rollers at this distance would be attenuated to less than 0.03 in/sec PPV, which is below the "strongly perceptible" threshold of 0.1 in/sec PPV, resulting in a less-than-significant impact related to human annoyance.

Terminal Reservoir

The Terminal Reservoir site is located 1,600 feet east of residences on Mescal Drive. Vibration levels from vibratory rollers for construction of the reservoir would be attenuated to background levels, resulting in no impact related to damage to buildings or related to human annoyance.

Highway 68 Interconnection Improvements and Carmel Valley Pump Station

Structural Damage. The nearest structures to the proposed Highway 68 Interconnection Improvements would be approximately 80 feet away and are not historic structures. The nearest structures to the proposed Carmel Valley Pump Station would be approximately 50 feet away and are not historic structures. Vibration levels from vibratory rollers for construction of these facilities would reach 0.21 in/sec PPV at a distance of 25 feet. At 80 feet, vibration levels from roller operations would be attenuated to 0.037 in/sec PPV, which is below the threshold for non-fragile buildings of 0.3 in/sec PPV, resulting in a less-than-significant impact related to damage to buildings near the proposed Highway 68 Interconnection Improvements. At 50 feet, vibration levels from roller operations would be attenuated to 0.07 in/sec PPV, which is below the threshold, resulting in a less-than-significant impact.

Human Annoyance. The nearest sensitive land uses to the proposed Highway 68 Interconnection Improvements would be approximately 80 feet away. Vibration levels from rollers at this distance would be attenuated to than 0.037 in/sec PPV. This level is below the “strongly perceptible” threshold of 0.1 in/sec PPV, resulting in a less-than-significant impact related to human annoyance.

The nearest sensitive land uses to the proposed Carmel Valley Pump Station would be approximately 50 feet away. Vibration levels from rollers at this distance would be attenuated to than 0.07 in/sec PPV. This level is below the “strongly perceptible” threshold of 0.1 in/sec PPV, resulting in a less-than-significant impact related to human annoyance.

All Other Proposed Facilities

No impact would result from the Pipeline to the CSIP Pond, Brine Discharge Pipeline, Terminal Reservoir, ASR Conveyance Pipeline, ASR Recirculation Pipeline, or ASR Pump-to-Waste Pipeline because equipment used for common construction techniques for these facilities would not involve vibration inducing equipment or activities such as drill rigs, bulldozers for construction of the MPWSP Desalination Plant, or pile drivers to install sheet piles.

Land Use Plans & Policies Consistency

In addition to the physical impacts described above, as noted in **Table 4.12-3**, MPWSP construction could conflict with applicable land use plans, policies, or ordinances related to vibration. Specifically, Monterey County General Plan Policy S-7.8 requires a pre-construction vibration study for all discretionary projects that propose to use heavy construction equipment with the potential to create vibrations that could cause structural damage to adjacent structures within 100 feet. Pile driving or blasting are identified as illustrative of the type of equipment that could be subject to this policy. The proposed Source Water Pipeline, MPWSP Desalination Plant, Desalinated Water Pipeline, Brine Discharge Pipeline, Pipeline to the CSIP Pond, Castroville

Pipeline, Carmel Valley Pump Station, Main System-Hidden Hills Interconnection Improvements, and Ryan Ranch-Bishop Interconnection Improvements are located in unincorporated Monterey County. Of these project components, none would involve blasting and only the Desalinated Water Pipeline and the Source Water Pipeline would involve (sheet) pile driving. However, there are no structures within unincorporated Monterey County that are within 100 feet of the Desalinated Water Pipeline or the Source Water Pipeline. Therefore, these construction activities would be consistent with Policy S-7.8.

Impact Conclusion

Construction of the subsurface slant wells, MPWSP Desalination Plant, Pipeline to the CSIP Pond, Brine Discharge Pipeline ASR-5 and ASR-6 Wells, Terminal Reservoir, ASR Conveyance Pipeline, ASR Recirculation Pipeline, ASR Pump-to-Waste Pipeline, Ryan Ranch-Bishop Interconnection Improvements, Carmel Valley Pump Station, and Main System-Hidden Hills Interconnection Improvements would result in less-than-significant vibration impacts with regard to both structural damage and human annoyance. There could be significant vibration impacts related to structural damage and human annoyance from construction of the Castroville Pipeline and Source Water Pipeline, as well as the new Desalinated Water Pipeline and new Transmission Main where trenchless construction methods are required for these pipelines. However, with implementation of the mitigation measures identified above, all significant construction vibration impacts would be reduced to a less-than-significant level.

Mitigation Measures

Mitigation Measure 4.15-1a applies only to the segment of the Source Water Pipeline located within the CEMEX sand mining facility.

> **Mitigation Measure 4.15-1a: Avoidance and Vibration Monitoring for Pipeline Installation in the Lapis Sand Mining Plant Historic District.**
>
> (See Impact 4.15-1 in Section 4.15, Cultural and Paleontological Resources, for description.)

Mitigation Measure 4.12-3 applies to the Desalinated Water Pipeline and Transmission Main if trenchless construction is required. It also applies to the Castroville Pipeline (and its optional alignment) for open trench construction activities within 50 feet of residences.

> **Mitigation Measure 4.12-3: Vibration Reduction Measures.**
>
> Construction practices shall be utilized that do not generate vibration levels at the closest sensitive land uses above 0.1 in/sec PPV. The following measures, at a minimum, shall be employed to ensure this threshold is met:
>
> a. Vibration monitoring shall be conducted for the first 500 feet of pipeline construction for each segment to confirm vibration levels do not exceed the above vibration threshold. If vibration levels exceed the limits of this mitigation measure, construction practices shall be modified to use smaller types of construction equipment, operate the equipment in a manner to reduce vibration, or use alternate construction methods, and monitoring shall continue for an additional 200 feet or until construction practices meet the required vibration levels. The monitoring in this mitigation measure shall be repeated if the construction methods change in a manner that would increase vibration

levels, or when structures are closer to the limits of construction than previous vibration monitoring have confirmed is below the vibration thresholds.

b. Smaller vibratory rollers shall be used to minimize vibration levels during repaving activities where needed to meet vibration limits.

c. Sheet pile driving for trenchless pipeline installation shall be conducted during daytime hours and access pits shall be located greater than 45 feet from standard structures and 80 feet from historic resources.

Impact 4.12-4: Consistency with the construction time limits established by the local jurisdictions. (*Less than Significant with Mitigation*)

State, regional, and local plans, policies, and ordinances related to noise and vibration are presented in **Table 4.12-3**. The table presents the analysis of project consistency with each of these plans, policies, and ordinances. Consistency of all project components with respect to generation of noise levels in excess of quantitative noise standards of General Plans or noise ordinances are addressed in Impact 4.12-2, above, and 4.12-6, below. This impact addresses project consistency with construction time limits.

The following local noise ordinances establish specific construction time limits:

- Seaside Municipal Code Section 9.12.030 (D) sets time limits for construction activities, including demolition, excavation, erection, alteration, or repair. These activities may not occur before 7:00 a.m. or after 7:00 p.m. (except on Saturday, Sunday, and holidays, when the allowable construction hours are 9:00 a.m. to 7:00 p.m.) unless authorized in writing by a building official (City of Seaside, 2008).
- The Marina Municipal Code, Chapter 15.04, Section 15.04.055, Construction Hours and Noise applies to any construction activities that require a building, grading, demolition, use, or other city permit. This section limits outdoor construction, repair work, or related activities that produce noise adjacent to residential uses, including transient lodging, to the hours of 7:00 a.m. to 7:00 p.m. (standard time) Monday through Saturday, and 10:00 a.m. to 7:00 p.m. (standard time) on Sundays and holidays. During daylight savings time, construction hours may be extended to 8:00 p.m.
- The City of Monterey Municipal Code, Section 38-112.2, places the following time restrictions on construction activities: Monday through Friday, 7:00 a.m. to 7:00 p.m.; Saturday, 8:00 a.m. to 6:00 p.m.; and Sunday, 10:00 a.m. to 5:00 p.m. However, the City will authorize construction outside of these time limits under certain circumstances.

Project components within these communities include:

- subsurface slant wells in the city of Marina
- portions of the Source Water Pipeline in the city of Marina
- portions of the new Desalinated Water Pipeline in the city of Marina
- portions of the new Transmission Main in the city of Marina
- portions of the new Transmission Main in the city of Seaside

In addition to those project components listed above, there are other project components (i.e. MPWSP Desalination Plant, Castroville Pipeline) that would require nighttime construction but that are not located within a jurisdiction with established construction time limits. For this reason, these other components would not conflict with construction time limits and are not discussed further.

Subsurface Slant Wells and Source Water Pipeline

Due to the substantial distance from sensitive receptors (4,000 feet and 1,100 feet), installation of the subsurface slant wells and Source Water Pipeline, respectively, would not be subject to the city of Marina's construction time limits, which only apply to outdoor construction activities adjacent to residential land uses. No inconsistency with the City's Noise Ordinance time restriction would result.

New Desalinated Water Pipeline and New Transmission Main

A majority of the pipeline installation of the new Desalinated Water Pipeline would occur within the City of Marina and as close as 100 feet from residential uses. The City of Marina's noise ordinance time limits prohibits nighttime construction work if it would be "adjacent to residential uses". The ordinance does not specify a distance that defines the term adjacent. As a conservative estimate for application of the noise ordinance relative to open trench pipeline construction, the baseline noise level of 80.4 dBA, L_{eq} at 50 feet for open trench construction from Table 4.12-6 was attenuated to the 60 dBA, L_{eq} sleep interference threshold which would occur at a distance of 500 feet. Therefore open trench pipeline construction work that would occur within 500 feet of a residence or lodging facility would exceed 60 dBA and result in a significant impact and is considered to be inconsistent with the noise ordinance. Mitigation Measure 4.12-4 (Nighttime Construction Restrictions in Marina) is identified to ensure that open trench pipeline construction is conducted in accordance with the City of Marina's construction noise ordinance.

New Transmission Main (and Optional Alignments)

Pipeline installation of the northernmost portion of the new Transmission Main would be conducted within the City of Marina and as close as 100 feet from residential uses. Similar to the new Desalinated Water Pipeline, nighttime open trench pipeline construction would be inconsistent with the noise ordinance when within 500 feet of a residence or lodging facility. **Mitigation Measure 4.12-4 (Nighttime Construction Restrictions in Marina)** is identified to ensure that open trench pipeline construction is conducted in accordance with the City of Marina's construction noise ordinance.

The southern portion of the new Transmission Main along Light Fighter Drive and General Jim Moore Boulevard would be constructed within the City of Seaside. This work could occur beyond the time restrictions of the City's Municipal Code and require approval by the City of Seaside. All nighttime construction work would be conducted only with prior approval from the relevant jurisdictions. **Mitigation Measure 4.12-1c (Noise Control Plan for Nighttime Pipeline Construction)** would reduce the nighttime construction noise impact but would not change the inconsistency with the restriction of the noise ordinance. Because the City of Seaside Municipal

Code could allow construction activity outside listed hours under certain circumstances, the construction activities would not violate local regulations and the impact would be less than significant.

All Other Project Facilities

As indicated in Table 4.12-2, no impact associated with conflicts with local construction time limits would occur from implementation of all other project components because these components would not require nighttime construction and/or are not located within a jurisdiction with established construction time limits.

Mitigation Measures

Mitigation Measure 4.12-1c applies only to the ASR-5 and ASR-6 Wells.

> **Mitigation Measure 4.12-1c: Noise Control Plan for Nighttime Pipeline Construction.**
>
> (See Impact 4.12-1, above, for description.)

Mitigation Measure 4.12-4 applies only to the new Desalinated Water Pipeline and the New Transmission Main.

> **Mitigation Measure 4.12-4: Nighttime Construction Restrictions in Marina**
>
> Open trench pipeline construction work within 500 feet to residential uses or transient lodging shall be restricted to the hours of 7:00 a.m. to 7:00 p.m. (standard time) Monday through Saturday, and 10:00 a.m. to 7:00 p.m. (standard time) on Sundays and holidays. During daylight savings time, construction hours may be extended to 8:00 p.m.

4.12.6.2 Operational Impacts and Mitigation Measures

None of the proposed facilities would expose people to, or generate, groundborne vibration during routine maintenance and project operations. Thus, the groundborne vibration is not relevant to project operations and is not discussed in the impact analysis below (see the second evaluation criterion in Section 4.12.4, above).

Impact 4.12-5: Substantial permanent increases in ambient noise levels in the project vicinity above levels existing without the project during operations. (*Less than Significant with Mitigation*)

As described in Section 4.12.5, above, this evaluation uses a 5-dBA increase in noise exposure—which is considered a readily perceptible increase in noise levels (Caltrans, 2009)—to assess the significance of operational noise increases in ambient noise levels in the project vicinity.

Mobile Noise Sources

MPWSP Desalination Plant

For the purposes of this noise analysis, vehicle trips are mobile sources of noise. The MPWSP Desalination Plant would be operated 24 hours per day, 365 days per year. The MPWSP Desalination Plant is estimated to require approximately 25 to 30 full-time workers (facility operators and support personnel) to operate, monitor, and maintain the desalination facilities. Approximately 66 one-way trips (33 round trips) would occur throughout each day (30 commute trips and three deliveries) during long-term operations and maintenance of the MPWSP Desalination Plant. Given the minimal increase in daily vehicle trips associated with worker commutes and deliveries, vehicle trips associated with long-term operations and maintenance of the MPWSP Desalination Plant would not substantially increase noise levels along project area roadways. This impact is less than significant.

All Other Proposed Facilities

Operation of the proposed pipelines would not require routine site visits. All other proposed facilities (i.e., the subsurface slant wells, improvements to the ASR system, Terminal Reservoir, Ryan Ranch-Bishop Interconnection Improvements, Main System-Hidden Hills Interconnection Improvements, and Carmel Valley Pump Station) would be operated remotely using Supervisory Control and Data Acquisition systems, with periodic visits by CalAm personnel for operations review and maintenance. Maintenance activities include such tasks as landscape maintenance, visual inspections of facilities, performance monitoring, servicing of pumps, testing and servicing of valves, backflushing the ASR-5 and ASR-6 Wells, and pipeline repairs. The vehicle trips generated by these routine and periodic site visits would be similar in number to those required for existing CalAm operations in the Monterey District service area system (see Impact 4.9-8 in Section 4.9, Traffic and Transportation) and would not increase noise levels on area roadways. This impact is less than significant.

For all project components, impacts associated with traffic-related noise during project operations would be less than significant.

Stationary Noise Sources

Subsurface Slant Wells

All 10 slant wells would be designed as pumping wells, and a 2,500 gallons per minute (gpm) submersible pump would be lowered into each wellhead. Each wellhead would be enclosed in an aboveground 12-foot-long, 6-foot-wide, and 8-inch-tall precast concrete vault. Up to eight wells would operate at any given time and two wells would be maintained on standby.

Noise from pump operations would be attenuated by both soil and the subsurface concrete casing. A pump motor would typically generate a noise level on the order of 76 dBA, L_{eq} at a distance of 50 feet (FTA, 2006) without an enclosure. However the presence of the concrete enclosure and the subsurface locations would be expected to provide a minimum of 20 dBA attenuation.

Simultaneous operation of 10 well pumps would conservatively generate a noise level of approximately 66 dBA at 50 feet.

The two closest sensitive receptors to the subsurface slant wells are residences at the Marina Dunes RV Park on Dunes Drive in Marina (4,000 feet to the south) and residences on Drew Street in Marina (4,300 feet to the southeast). At these distances, slant well pump noise would be reduced to 21 dBA which is substantially below nighttime ambient levels monitored at these locations (51 dBA, L_{eq}) and would not contribute meaningfully to ambient levels. Therefore, the impact related to increases in ambient noise levels during operation of the subsurface slant wells would be less than significant.

MPWSP Desalination Plant

The RO system at the MPWSP Desalination Plant would include a series of pumps but these would be located inside the treatment building and are not expected to generate substantial noise. The 750-kilowatt (kW) (1,000 hp) emergency diesel-powered generator proposed adjacent to and outside of the administration building at the MPWSP Desalination Plant site would be used for emergency back-up power only but would be operated weekly for 20 to 30 minutes during the daytime to test and maintain the engine. Generators of this size typically generate a noise level of 81 dBA L_{max} at 50 feet (FHWA, 2006). The attenuated generator noise level at the nearest residences on Neponset Road located 2,200 feet away would be approximately 47.8 dBA L_{max}. When the attenuated generator noise level is added to the existing ambient noise level at these same receptors of 61.8 dBA, L_{eq}, the resultant exterior noise level at these receptors would be 62.0 dBA, which would be an increase of 0.2 dBA over ambient noise levels. This would be a less than the 5-dBA threshold. Therefore, the impact would be less than significant.

ASR-5 and ASR-6 Wells

The ASR-5 and ASR-6 Wells would be 50 feet west of residences on Ardennes Circle. Each well would be equipped with a permanent 500-hp multistage vertical turbine pump. Each well pump and electrical control system would be housed in a 900-square-foot concrete pump house.

Well pump motors would generate noise levels of up to 76 dBA L_{max} at 50 feet; however, placing the motors in a standard concrete pump house would attenuate noise levels by at least 20 dBA (to 56 dBA L_{max} at 50 feet), as shown in **Table 4.12-11**.

As shown in **Table 4.12-11**, the increase in ambient noise levels at the residences on Ardennes Circle would be 5.5 dBA L_{eq}, which is above the 5-dBA threshold and thus would be a significant permanent noise increase over existing conditions. However, implementation of **Mitigation Measure 4.12-5 (Stationary Source Noise Controls)** would reduce this impact to less than significant by ensuring that sufficient noise insulation or sound-absorbing material is provided to the pump enclosure to provide additional noise attenuation.

TABLE 4.12-11
MAXIMUM OPERATIONAL NOISE LEVELS – ASR-5 AND ASR-6 WELLS

Stationary Source	Distance to Receptors (feet)	Existing Ambient Noise Level at Receptors (dBA Leq)[a]	Attenuated Operational Noise Level at Receptor (dBA Lmax)	Resultant Noise Level at Receptor (dBA Leq)	Increase over Existing Ambient Noise Level (dBA Leq)	Resultant Noise Level at Receptor (dBA CNEL)[b]
ASR-5 and ASR-6 Wells – Pump Motors	50	52.0 (S4)	56	57.5	5.5	63

NOTES:
[a] Based on daytime ambient noise level at short-term noise monitoring location S4 (see **Figure 4.12-1** and **Table 4.12-1**).
[b] CNEL Values are used in assessment of Impact 4.12-6.

Carmel Valley Pump Station

The Carmel Valley Pump Station would be located approximately 240 feet south of Carmel Valley Road near the intersection of Rancho San Carlos Road. The closest residences are located approximately 50 feet to the north and east of the pump station site. The pump station would be enclosed in a 500-square-foot, single-story building. It was assumed, based on ESA's monitoring of municipal water pumps, that the pump at Carmel Valley Pump Station would generate noise levels of up to 76 dBA L_{max} at 50 feet and that the building enclosure would attenuate noise levels by approximately 20 dBA (to 56 dBA L_{eq} at 50 feet). As shown in **Table 4.12-12**, the increase in ambient noise levels at the closest residences to the Carmel Valley Pump Station would be 1.1 dBA L_{eq}, which is below the 5-dBA threshold and thus, the impact would be less than significant. Additionally, a portable 50 kW (68 hp) diesel powered generator would be stored onsite at the Carmel Valley Pump Station site for use in the event of a power outage. This is a relatively modest sized unit and its occasional operation during daytime hours for testing purposes would generate less noise than that of a diesel automobile and would not be expected to result in substantial increase over daytime noise levels. The impact would be less than significant.

TABLE 4.12-12
MAXIMUM OPERATIONAL NOISE LEVELS –CARMEL VALLEY PUMP STATION

Stationary Source	Distance to Closest Receptor (feet)	Existing Ambient Noise Level at Receptor (dBA Leq)[a]	Attenuated Operational Noise Level at Receptor (dBA Leq)	Resultant Noise Level at Receptor (dBA Leq)	Increase Over Existing Ambient Noise Level (dBA)
Carmel Valley Pump Station Motor	50	61.5 (S7)	56	62.6	1.1

NOTE:
[a] Based on daytime ambient noise level at short-term noise monitoring locationS7 (see **Figure 4.12-1** and **Table 4.12-1**).

Main System-Hidden Hills Interconnection Improvements

The existing interconnection between the main CalAm distribution system and the Hidden Hills satellite water system would be improved by installing approximately 1,200 feet of 6-inch-diameter pipeline along Tierra Grande Drive, with a connection to the existing Upper Tierra Grande Booster Station. The Upper Tierra Grande Booster Station has an existing capacity of 129 gpm. A new 350 gpm pump would be added to the booster station. In addition, the existing pump capacity of the Middle Tierra Grande Booster Station, located on lower Casiano Drive, would be upgraded from 161 gpm to 400 gpm by adding a new 350 gpm pump (CalAm, 2013).

These new pumps would be located in the existing buildings at each booster station. It was assumed, based on ESA's monitoring of municipal water pumps, that the pump at each booster station would generate noise levels of up to 76 dBA L_{max} at 50 feet and that the building enclosure would attenuate noise levels by at least 15 dBA, to 61 dBA L_{max} at 50 feet and 55 dBA, L_{eq} at 100 feet. As shown in **Table 4.12-13**, the increase in ambient noise levels in the project vicinity above existing levels would exceed the 5-dBA threshold and thus represents a significant permanent noise increase over existing conditions. However, implementation of **Mitigation Measure 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.

TABLE 4.12-13
MAXIMUM OPERATIONAL NOISE LEVELS –
BOOSTER STATIONS (MAIN SYSTEM–HIDDEN HILLS INTERCONNECTION IMPROVEMENTS)

Stationary Source	Distance to Closest Receptor (feet)	Existing Ambient Noise Level at Receptor (dBA L_{eq})	Attenuated Operational Noise Level at Receptor (dBA L_{eq})	Resultant Noise Level at Receptor (dBA L_{eq})	Increase Over Existing Ambient Noise Level (dBA)
Pump Motor – Upper Tierra Grande	50	44.7	61	61.1	16.3
Pump Motor – Middle Tierra Grande	100	44.7	55	55.4	10.3

NOTE:
[a] Based on daytime ambient noise level at short-term noise monitoring location S6 (see **Figure 4.12-1** and **Table 4.12-1**).

All Proposed Pipelines and Terminal Reservoir

The proposed pipelines and Terminal Reservoir would not involve the installation of stationary noise sources such as pumps and emergency generators. Therefore, operation of these facilities would result in no impact related to permanent increases in ambient noise levels.

Impact Conclusion

Operation of the subsurface slant wells, MPWSP Desalination Plant, Terminal Reservoir, Ryan Ranch-Bishop Interconnection Improvements, and Carmel Valley Pump Station would result in less-than-significant noise impacts with regard to permanent operational noise increases.

Significant noise impacts would result from operation of the ASR-5 and ASR-6 Wells and the booster stations that would be upgraded by the Main System-Hidden Hills Interconnection Improvements; however, implementation of **Mitigation Measure 4.12-5** would reduce all significant operational noise impacts to a less-than-significant level. No impact would result from operation of the proposed pipelines.

Mitigation Measure

Mitigation Measure 4.12-5 applies to the ASR-5 and ASR-6 Wells and the Main System-Hidden Hills Interconnection Improvements.

> **Mitigation Measure 4.12-5: Stationary-Source Noise Controls.**
>
> CalAm shall retain an acoustical engineer to design stationary-source noise controls and ensure the applicable noise standards are met. At a minimum, all stationary noise sources (e.g., pump station, emergency generators, variable-frequency-drive motors, well heads with motors) shall be located within enclosed structures and with adequate noise screening, as needed, to maintain noise levels to no greater than 5 dBA above the existing monitored ambient values and 60 CNEL, at the property lines of nearby residences and other noise-sensitive receptors. Once the stationary noise sources have been installed, the contractor(s) shall monitor noise levels to ensure compliance with local noise standards.

Impact 4.12-6: Expose people to or generate noise levels in excess of standards established in the local general plan, noise ordinance, or applicable standards of other agencies during operations. (*Less than Significant*)

Subsurface Slant Wells

As described in Impact 4.12-5, noise from slant well pump operations would be attenuated by both soil and the subsurface concrete casing. Simultaneous operation of 10 well pumps would conservatively generate a noise level of approximately 66 dBA at 50 feet.

Table 4.12-3 shows that slant well pump noise would be reduced to 21 dBA at the closest sensitive receptor (Marina Dunes RV Park on Dunes Drive in Marina, 4,000 feet to the south) which is below the *City of Marina General Plan* establishes a daytime noise level of 50 dBA L_{eq} and a nighttime noise level of 45 dBA, L_{eq} as the maximum allowable noise at the property line of the nearest receptor. Therefore, operational noise from the subsurface slant well pumps would have a less than significant impact with regard to generation of noise levels in excess of standards established in the local plan or noise ordinance.

MPWSP Desalination Plant

CalAm would install a 750-kW (1,000 hp) emergency diesel-powered generator adjacent to the administration building at the MPWSP Desalination Plant site. As discussed in Impact 4.21-5, the generator would be operated weekly for 20 to 30 minutes during the daytime to test and maintain the engine which would result in a predicted noise level from generator operation of approximately

47.8 dBA L_{max} at the nearest residences (2,200 feet away). The RO system would also require a series of specialty pumps but these would be located within the treatment building and are not expected to generate substantial noise.

Policy S-7.6 of the County Plan Noise Element requires an acoustical analysis for proposed noise generators are likely to produce noise levels exceeding the levels shown in the adopted Community Noise Ordinance when received at existing or planned noise-sensitive receptors. The Monterey County Code, Chapter 10.60, Noise Control, Section 10.60.030 limits the operation of any machine, mechanism, device, or contrivance that produces a noise level exceeding 85 dBA at 50 feet from the source. The proposed generator would be in compliance with the restriction of the County noise ordinance. Therefore, operational noise the MPWSP Desalination Plant would have a less than significant impact with regard to generation of noise levels in excess of standards established in the local plan or noise ordinance.

ASR-5 and ASR-6 Wells

The ASR injection/extraction wells (ASR-5 and ASR-6 Wells) are proposed on federal land and would not be subject to the noise standards of local jurisdictions. As discussed in Section 4.12.3.1, federal regulations establish noise limits for motor vehicles through regulatory controls on truck manufacturers, sets standard for highway and aircraft noise but does not promulgate noise standards for stationary or construction-related sources. Therefore, no impact related to generation of noise in excess of local regulatory noise standards would result from operation of the new ASR injection/extraction wells.

Carmel Valley Pump Station

The closest residences are located approximately 50 feet to the north and east of the Carmel Valley pump station site.

Policy S-7.4 of the Monterey County General Plan Noise Element requires an acoustical analysis for proposed noise generators that are likely to produce noise levels exceeding the levels shown in the adopted Community Noise Ordinance when received at existing or planned noise-sensitive receptors. The Monterey County Code, Chapter 10.60, Noise Control, Section 10.60.030 limits the operation of any machine, mechanism, device, or contrivance that produces a noise level exceeding 85 dBA at 50 feet from the source.

As discussed in Impact 4.12-5, the proposed building enclosure would attenuate noise levels from pump operations to 56 dBA L_{eq} at 50 feet. The proposed pumps would be in compliance with the County noise ordinance.

Additionally, a portable 50 kW (68 hp) diesel powered generator would be stored onsite at the Carmel Valley Pump Station site for use in the event of a power outage. Available data indicate that generators of this size operate at 83 dBA at a distance of 7 meters under full load (Cummins, 2008) which equates to 76 dBA at 50 feet. The proposed pump station and generator would be in compliance with the County noise ordinance and operational noise associated with the Carmel

Valley Pump Station would have a less than significant impact with regard to generation of noise levels in excess of standards established in the local plan or noise ordinance.

Main System-Hidden Hills Interconnection Improvements

The existing interconnection between the main CalAm distribution system and the Hidden Hills system would be improved by installing a new 350 gpm pump to the Upper Tierra Grande booster station. In addition, the existing pump capacity of the Middle Tierra Grande Booster Station, located on lower Casiano Drive, would be upgraded by adding a new 350 gpm pump (CalAm, 2013).

As discussed in Impact 4.12-5, that the pump at each booster station would generate noise levels of up to 76 dBA L_{max} at 50 feet and that the building enclosure would attenuate noise levels by at least 15 dBA, to 61 dBA L_{max} at 50 feet and 55 dBA, L_{eq} at 100 feet.

Policy S-7.6 of the Monterey County General Plan Noise Element requires an acoustical analysis for proposed noise generators that are likely to produce noise levels exceeding the levels shown in the adopted Community Noise Ordinance when received at existing or planned noise-sensitive receptors. The Monterey County Code, Chapter 10.60, Noise Control, Section 10.60.030 (Monterey County, 2008) limits the operation of any machine, mechanism, device, or contrivance that produces a noise level exceeding 85 dBA at 50 feet from the source. The proposed pumps that would be installed at the Upper Tierra Grande Booster Station and Middle Tierra Grande Booster Station as part of the Main System-Hidden Hills Interconnection Improvements would be in compliance with the restriction of the County noise ordinance and operational noise the improvements to the Hidden Hills Booster Stations would have a less than significant impact with regard to generation of noise levels in excess of standards established in the local plan or noise ordinance.

All Other Proposed Facilities

Stationary noise sources such as pumps and emergency generators are not proposed at any other of the proposed facilities such as the pipelines and Terminal Reservoir. Therefore, there would be no increases in ambient noise levels from stationary noise sources at all other facilities and the impact is less than significant.

Impact Conclusion

Operation of the Subsurface Slant Wells, MPWSP Desalination Plant, Source Water Pipeline, Pipeline to the CSIP Pond, Brine Discharge Pipeline, Desalinated Water Pipeline, Transmission Main, Terminal Reservoir, Ryan Ranch-Bishop Interconnection Improvements, Carmel Valley Pump Station, the booster stations that would be upgraded by the Main System-Hidden Hills Interconnection Improvements would result in less than significant noise impacts with regard to generation of noise levels in excess of local noise level standards. No impact would result from operation of the ASR-5 and ASR-6 Wells with regard to generation of noise in excess of local noise level standards because none would apply to these sources on federal lands. No impact would result from operation of the proposed pipelines because the pipelines would not involve the installation of stationary noise sources.

Mitigation Measure

None proposed.

4.12.7 Cumulative Effects of the Proposed Project

As described in Section 4.12.4, the project would have no impact with respect to exposing people to excessive noise levels in proximity to an airport or private airstrip. Furthermore, none of the MPWSP components would generate operational vibration. Therefore, the MPWSP could not contribute to cumulative impacts related to these topics.

Impact 4.12-C: Cumulative impacts related to noise and vibration. (*Significant and Unavoidable*)

Construction Noise Impacts

The geographic scope of analysis for cumulative noise impacts is defined by the presence of sensitive receptors within 500 feet of those MPWSP components whose daytime construction noise could exceed speech interference thresholds or whose nighttime construction noise could exceed sleep interference thresholds. Such MPWSP components include the proposed subsurface slant wells, the proposed pipelines, ASR-5 and ASR-6 Wells, pump station, and other project facilities. Beyond 500 feet, the MPWSP's contributions to cumulative noise impacts would be greatly attenuated and not be expected to combine with that of other cumulative projects to result in a significant cumulative effect.

This screening threshold distance was developed based on stationary source noise attenuation equations (Caltrans, 2013). **Table 4.12-14** presents the combined noise level generated by typical construction phases for a given project (assuming multiple pieces of equipment) at a distance of 50 feet. Using the attenuation equations, the maximum noise level of 89 A-weighted decibels (dBA) for both excavation and finishing phases (as shown in **Table 4.12-14**) would diminish to 69 dBA at 500 feet. A receptor experiencing noise levels of 89 dBA from two adjacent construction sites would experience a cumulative noise level of 91 dBA (the acoustical sum of 89 dBA plus 89 dBA. A receptor experiencing noise levels of 89 dBA from one adjacent construction site and another at a distance of 500 feet would experience a cumulative noise level of 89.04 dBA (the acoustical sum of 89 dBA plus 69 dBA), which would not represent a statistically significant increase and, hence, is the derivation of the 500 foot distance used as the geographic scope. A receptor at the mid-point of this distance (250 feet) would experience the equivalent of 75 dBA from each construction site with a resultant 3 dBA increase in noise which is characterized as a barely perceptible noise increase. Intervening structures would further lessen the realized contribution of another construction site at a given receptor.

Noise impacts associated with MPWSP would result from construction-related equipment and hauling activities. The timeframe during which the MPWSP could contribute to cumulative noise and vibration effects includes the 24-month construction phase.

TABLE 4.12-14
TYPICAL CONSTRUCTION NOISE LEVELS

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

NOTES:

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

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

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

Table 4.1-2 includes 18 projects that would potentially occur within the geographic scope of analysis for cumulative noise and vibration impacts (i.e., 500 feet from a MPWSP project component). Eight of these cumulative projects (Nos. 3, 7, 10, 12, 18, 31, 35, and 38) would have a construction schedule that could overlap with that of the MPWSP, meaning that equipment required for cumulative project construction within 500 feet of the MPWSP could be in operation at the same time as that required for MPWSP construction. Sensitive receptors within 500 feet of active cumulative project and MPWSP construction sites could experience a cumulative impact related to construction noise and so are analyzed further to determine whether a significant cumulative impact would occur.

For these eight projects that could contribute to cumulative construction noise impacts based on the screening distance threshold or timing, the potential for cumulative construction noise impacts is assessed based on the same project-level thresholds used in Section 4.12.5, Approach to Analysis. However, this analysis considers the incremental contribution of MPWSP construction noise as well as that of the cumulative project(s). For daytime construction activities, a significant noise impact would occur if noise levels at sensitive noise receptors remained above the 70 dBA speech interference threshold for longer than 2 consecutive weeks. For nighttime construction activities, a significant noise impact would occur if noise levels at sensitive noise receptors exceeded the sleep interference threshold of 60 dBA during nighttime hours (10 p.m. to 7:00 a.m.).

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

MPWSP components that could generate construction noise in excess of the nighttime standard include the Desalinated Water Pipeline, Castroville Pipeline, the new Transmission main, and the

ASR Wells. Nighttime noise impacts from the Desalinated Water Pipeline and the new Transmission Main would be reduced to a less-than-significant level through implementation of **Mitigation Measures 4.12-1a (Neighborhood Notice)**, **4.12-1b (General Noise Controls for Construction Equipment)**, and **4.12-1c (Noise Control Plan for Nighttime Pipeline Construction).** The Castroville Pipeline and ASR wells would have a residual significant and unavoidable impact, even with implementation of **Mitigation Measures 4.12-1a (Neighborhood Notice)**, **4.12-1b (General Noise Controls for Construction Equipment)**, and **4.12-1c (Noise Control Plan for Nighttime Pipeline Construction)** and the addition of **Mitigation Measures 4.12-1d (Additional Noise Controls for ASR-5 and ASR-6 Wells)** and **4.12-1e (Offsite Accommodations for Substantially Affected Receptors)**.

Construction-related noise from the eight above-referenced cumulative projects could combine with that of the MPWSP pipeline construction to cause a cumulative impact. MPWSP pipeline construction would progress at a rate of approximately 150 to 250 feet per day, thereby limiting the potential for a noticeable concurrent construction noise impact at any given receptor to less than a week. Given this limited duration of potential concurrent activity, and associated combined noise effects, the MPWSP would not contribute considerably to a significant cumulative daytime noise impact (*less than significan*t).

Of the eight cumulative projects identified above, five are private development projects or specific plans (Nos. 3, 7, 10, 12, and 18) whose construction would not typically require nighttime construction work. The remaining three cumulative projects (Nos. 31, 35, and 38) are water- and transit-related infrastructure projects that could conceivably involve nighttime work to avoid daytime traffic impacts on major arterial roadways. None of these cumulative projects would be within 500 feet of the ASR wells but would be within this distance of MPWSP pipelines.

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

Construction Vibration Impacts

The geographic scope of analysis for cumulative vibration impacts is defined by the presence of sensitive structures within 120 feet of MPWSP components whose construction-related vibration could cause damage to these structures. Such components include the proposed subsurface slant wells, the proposed pipelines, the MPWSP Desalination Plant, ASR-5 and ASR-6 Wells, pump station, and other project facilities. Beyond 120 feet, the MPWSP's contributions to cumulative

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

This vibration screening threshold distance was developed based on the vibration levels of a vibratory compactor, a type of construction equipment used for compacting fill over pipeline trenches, and which would generate the highest vibration of any non-impact construction equipment that would be used for MPWSP construction. At a distance of 60 feet, vibration from a vibratory roller/compactor would be 0.056 inches/second Peak Particle Velocity (PPV). Assuming operation of a compactor at the MPWSP component site and one at a cumulative project site at a distance of 120 feet, the resultant vibration level would be 0.11 inches/second PPV which could be experienced by a mid-point receptor within the 120-foot screening distance. This vibration level would be below the 0.12 inches/second PPV threshold applied in Section 4.12.5, and hence is used to justify the use of a 120-foot geographic scope, beyond which no cumulative vibration effect would result.

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

Nine of the cumulative projects (Nos. 3, 7, 10, 12, 18, 31, 35, 38, and 55) would potentially occur within the 120-foot geographic scope of cumulative impacts analysis. Three of these cumulative projects (Nos. 31, 35, and 55) would not be located within 120 feet of any sensitive receptors or structures and, therefore, would not contribute to cumulative impacts. Without knowledge of the type of construction equipment or exact construction phase timing for the remaining six cumulative projects, a quantitative assessment of vibration impact cannot be reliably estimated. However, the project-specific vibratory impact monitoring proposed under **Mitigation Measure 4.12-3** would also capture vibration contributed by the other six cumulative projects, should the timing and location of construction overlap, and allow the MPWSP construction to respond accordingly (i.e., use smaller equipment, adjust equipment operations, and/or alternate construction methods) to avoid significant vibratory effects. Consequently, no significant cumulative construction-related vibration impact would result (*less than significant with mitigation*).

Operational Noise Impacts

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

As discussed in Impact 4.12-5, the MPWSP's project-specific operational noise impacts would be less than significant for the MPWSP Desalination Plant and the Carmel Valley Pump Station. Impacts of the ASR well facilities and the Main System-Hidden Hills Interconnection Improvements would be less than significant with mitigation. There are no cumulative projects within 500 feet of the MPWSP Desalination Plant, the ASR well facilities, Main System-Hidden Hills Interconnection Improvements, or the Carmel Valley Pump Station. Therefore, no other projects could combine with the operational noise effects of the proposed project to result in a significant cumulative impact (*less than significant*).

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4.13 Public Services and Utilities

Sections	Tables
4.13.1 Setting / Affected Environment	4.13-1 Local Utility and Public Service Providers, by Jurisdiction
4.13.2 Regulatory Framework	4.13-2 Applicable Regional and Local Plans and Policies Relevant to Public Services and Utilities
4.13.3 Evaluation Criteria	4.13-3 Summary of Impacts – Public Services and Utilities
4.13.4 Approach to Analysis	4.13-4 Brine Stream and Treated Wastewater Effluent Flows through the MRWPCA Outfall and Diffuser
4.13.5 Direct and Indirect Effects of the Proposed Project	
4.13.6 Cumulative Effects of the Proposed Project	

This section evaluates the potential impacts on public services and utilities resulting from implementation of the Monterey Peninsula Water Supply Project (MPWSP or proposed project). Public services in the project area include fire and police protection, emergency medical services, hospitals, and schools. Public utilities in the project area provide solid waste disposal, water, wastewater, stormwater drainage, electricity, natural gas, and telecommunications services. This section also presents mitigation measures to reduce or eliminate potential impacts, as appropriate.

Comments received on the 2015 Draft EIR requested that a copy of the 2015 E2 Consulting Engineers Technical Memorandum: Groundwater Replenishment Project Evaluation of Existing Outfall be made available for review (and direct the public to its location), and that additional information about the pipeline be included in the Draft EIR/EIS; the comment is addressed in Impact 4.13-5. In addition, comments requested that ***Mitigation Measure 4.13-1e*** *be modified to require coordination with local fire departments when work is proposed near a gas utility line; the comment has been addressed in* ***Mitigation Measure 4.13-1e****. Comments also requested that* ***Mitigation Measures 4.13-5a*** *and* ***5b*** *address the potential need for lining the MRWPCA outfall and include a discussion of potential secondary impacts related to lining activities and outfall maintenance; the comment has been addressed in Impact 4.13-5, Section 4.13.5.3, Secondary Impacts of Mitigation Measure 4.13-5a, and Section 4.13.5.4 Secondary Impacts of Mitigation Measure 4.13-5b.*

4.13.1 Setting / Affected Environment

The study area for evaluation of impacts on public services and utilities includes the service areas for the public services and utilities that serve the project area. Information on public services and utilities in the project area was derived from available planning documents, public utility websites, and consultation with local agency personnel. **Table 4.13-1** shows the jurisdictions within which the project components would be located and summarizes utility and public service providers in the project area.

TABLE 4.13-1
LOCAL UTILITY AND PUBLIC SERVICE PROVIDERS, BY JURISDICTION

Jurisdiction/ Project Component	Monterey County Regional Fire District	Monterey County Sheriff's Office	North County Fire Protection District	Monterey Regional Waste Management District	Monterey Regional Water Pollution Control Agency	Monterey County Water Resources Agency	Monterey Peninsula Water Management District	Monterey Peninsula Unified School District	Pacific Gas and Electric Company	California American Water Company	Marina Fire Department	Marina Police Department	Marina Coast Water District	Seaside Fire Department	Seaside Police Department	Seaside County Sanitation District	City of Monterey Fire Department	City of Monterey Police Department	North Monterey County Unified School District	Carmel Unified School District
Unincorporated Monterey County																				
Source Water Pipeline																				
MPWSP Desalination Plant																				
New Desalinated Water Pipeline																				
Brine Discharge Pipeline	✓	✓	✓	✓	✓	✓	✓		✓	✓									✓	✓
Pipeline to CSIP Pond																				
Castroville Pipeline																				
Carmel Valley Pump Station																				
Main System–Hidden Hills Interconnection Improvements																				
Ryan Ranch–Bishop Interconnection Improvements																				
City of Marina																				
Subsurface Slant Wells																				
Source Water Pipeline				✓	✓	✓	✓	✓	✓		✓	✓	✓							
New Desalinated Water Pipeline																				
New Transmission Main																				
City of Seaside																				
New Transmission Main				✓	✓	✓	✓	✓	✓	✓				✓	✓	✓				
ASR Pipelines																				
Terminal Reservoir																				
Federal Lands[a]					✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓				
ASR-5 and ASR-6 Wells																				
City of Monterey				✓	✓	✓	✓	✓	✓	✓						✓	✓	✓		
Ryan Ranch–Bishop Interconnection Improvements																				
Castroville CSD		✓	✓	✓	✓	✓			✓										✓	
Castroville Pipeline																				

NOTE:
[a] *Federal Lands* refers to lands owned by the U.S. Army that are located within the cities of Monterey and Seaside. These lands include the Presidio of Monterey and the portions of the former Fort Ord military base that are zoned and designated for Military land uses, such as the Fitch Park military housing area.

4.13.1.1 Fire Protection, Law Enforcement, and Emergency Services

Fire Protection

Several local agencies provide fire protection service in the project area. Most of these agencies serve more than one jurisdiction or area.

Unincorporated Monterey County

Two agencies provide fire protection service to the unincorporated area. The North County Fire Protection District serves the unincorporated area north of the city of Marina, which includes the area where the Castroville Pipeline would be installed (NCFPD, 2013). The Monterey County Regional Fire District (MCRFD) serves approximately 350 square miles east of the City of Marina, including the former Fort Ord military base and areas southeast of the City of Monterey. The MCRFD provides emergency medical and fire protection services (MCRFD, 2016)

City of Marina

The Marina Fire Department serves the city of Marina as well as the parts of the former Fort Ord military base that were deeded to Marina (City of Marina, 2016).

Cities of Seaside and Del Rey Oaks

The Seaside Fire Department provides both emergency response and fire prevention services to the City of Seaside; the Department also provides these services on a contractual basis to the city of Del Rey Oaks and parts of the former Fort Ord military base that were deeded to Seaside (Seaside Fire Department, 2014).

City of Monterey

The City of Monterey Fire Department provides fire protection to the city of Monterey and all areas within its jurisdictional boundaries, including the Army Defense Language Institute and Foreign Language Center, the Presidio of Monterey, and the Naval Postgraduate School and its housing at La Mesa Village (City of Monterey, 2016).

Police

The Monterey County Sheriff's Office operates the county jail facilities and provides police services to nearly the entire unincorporated county area (Monterey Sheriff, 2016). The cities of Marina, Monterey, Pacific Grove, and Seaside each have an independent police force that serves the areas within their city limits. The Seaside and Marina Police Departments also serve the annexed portions of the former Ford Ord military base.

Emergency Medical Services

The Monterey County Emergency Medical Services Agency is a Monterey County Health Department agency that incorporates over 100 participating entities under one jurisdictional authority, including fire departments, ambulance companies, hospitals, and police departments

(MCEMSA, 2014). Monterey County has four major hospitals: Community Hospital of the Monterey Peninsula in Monterey, Natividad Medical Center in Salinas, Salinas Valley Memorial Hospital in Salinas, and George L. Mee Memorial Hospital in King City (Monterey County, 2016).

4.13.1.2 Schools and Libraries

Schools

Three school districts -- the Monterey Peninsula Unified School District, the North Monterey County Unified School District, and the Carmel Unified School District-- serve the project area. The Monterey Peninsula Unified School District serves the cities of Marina, Seaside, Sand City, Del Rey Oaks, and Monterey, as well as the former Fort Ord military base (MPUSD, 2016). The North Monterey County Unified School District serves northern communities in unincorporated Monterey County, including Castroville and Prunedale (NMCUSD, 2016).

Libraries

The project area is served by two library systems: Monterey County Free Libraries and City of Monterey Public Library. The Monterey County Free Libraries serve all of Monterey County and have branches in the cities of Marina, Seaside, and Castroville (MCFL, 2016).

4.13.1.3 Solid Waste Services

The Monterey Regional Waste Management District manages the Monterey Peninsula's solid waste collection, disposal and recycling system. It also receives and processes most of Monterey County's sewage sludge from the adjacent MRWPCA Regional Wastewater Treatment Plant. The Waste Management District serves an 853-square-mile area and a population of approximately 170,000 people. The service area encompasses the cities of Marina, Seaside, Del Rey Oaks, Monterey, Carmel-by-the-Sea, and Pacific Grove and the unincorporated areas of Big Sur, Carmel Highlands, Carmel Valley, Castroville, Corral De Tierra, Laguna Seca, Moss Landing, Pebble Beach, San Benancio, Sand City, and Toro Park (MRWMD, 2015).

The Waste Management District operates the Monterey Peninsula Landfill, a materials recovery facility, and a transfer station at a 475-acre site north of the city of Marina. All solid waste generated by project construction or operation would be disposed of at the landfill or diverted for recycling or reuse at the materials recovery facility. The landfill operates 6 days per week and is permitted to receive 3,500 tons of waste per day; it has a remaining capacity of approximately 48.5 million cubic yards and is expected to reach its permitted capacity in 2107 (CalRecycle, 2016). The landfill receives approximately 300,000 tons of waste per year, which averages to less than 1,000 tons of waste per day (MRWMD, 2016). In addition to the more commonly recycled and reused materials (such as paper, cardboard, bottles, and cans), materials targeted by operators at the materials recovery facility include commercial waste, wood waste, and yard waste, construction and demolition debris, and materials in self-haul loads (MRWMD, 2015).

4.13.1.4 Water

The water districts and facilities that provide drinking water to residents and businesses in the project area are described below. Some of these districts also provide sewer services and infrastructure (see Section 4.13.1.5).

Marina Coast Water District

The Marina Coast Water District (MCWD) provides water for residents in the city of Marina and to areas within the former Fort Ord military base. The MCWD's water supply comes from three groundwater wells located in the 900-foot-deep aquifer of the Salinas Valley Groundwater Basin (MCWD, 2016a).The MCWD also has a desalination plant with a capacity of 300 acre-feet per year (afy); the plant is capable of providing up to 13 percent of the annual water demand, but has not operated in recent years (MCWD, 2016b).

California American Water Company

As described in Chapter 3, Description of the Proposed Project, California American Water Company (CalAm) supplies water to most of the jurisdictions in the project area (see **Figure 3-1**). CalAm's existing water supply sources for the Monterey District service area are discussed in Chapter 2, Water Demand, Supplies, and Water Rights.

Seaside Municipal Water System

The Seaside Municipal Water System, which is operated and maintained by the City of Seaside, provides water service to a limited number of residents along General Jim Moore Boulevard on the east side of the city. The system includes one groundwater production well and two 500,000-gallon water tanks (City of Seaside, 2016).

Castroville Community Services District

The Castroville Community Services District provides water to more than 7,250 customers via three domestic water production wells with an estimated capacity of over 4.4 mgd. The water system includes two water storage tanks with a capacity of 1.1 million gallons (Castroville CSD, 2016a).

4.13.1.5 Wastewater Treatment

Two wastewater treatment providers serve the project area: the Monterey Regional Water Pollution Control Agency (MRWPCA) and the Carmel Area Wastewater District.

Monterey Regional Water Pollution Control Agency

The MRWPCA operates the Regional Wastewater Treatment Plant, which is north of the city of Marina and east of the proposed MPWSP Desalination Plant site on Charles Benson Road. The MRWPCA is Monterey County's primary provider of wastewater treatment. The MRWPCA serves the communities of Pacific Grove, Monterey, Del Rey Oaks, Seaside, Sand City, Marina,

Castroville, Moss Landing, Boronda, Salinas, and Fort Ord and some unincorporated areas in northern Monterey County (MRWPCA, 2016a); sewer infrastructure is maintained and managed by the Marina Coast Water District, the City of Monterey, the Seaside County Sanitation District, the Castroville Sanitary District, and the MRWPCA. The MRWPCA maintains 25 pump stations and approximately 30 miles of pipeline (MRWPCA, 2016b). The MRWPCA also operates a water recycling facility at the treatment plant and along with the Monterey County Water Resources Agency, manages the recycled water distribution system including the Salinas Valley Reclamation Project and the Castroville Seawater Intrusion Project (CSIP). The recycled water is then distributed to Salinas Valley agricultural growers for irrigation use. Excess wastewater receives secondary treatment before being discharged to Monterey Bay via the existing MRWPCA ocean outfall and diffuser (MRWPCA, 2016c), which would also be used for the proposed project brine discharge.

Carmel Area Wastewater District

The Carmel Area Wastewater District provides wastewater collection, treatment, and disposal for a 5.5-mile service area that encompasses Carmel-by-the-Sea and outlying county areas from Carmel Bay to the west, Carmel Highlands to the south, and Del Monte Forest to the north. The district serves a population of approximately 11,000 people. The district's treatment plant, located on the south bank of the Carmel River west of Highway 1, includes a facility that recycles water for irrigation use at several golf courses, including Pebble Beach, Poppy Hills, and Spanish Bay (Carmel Area Wastewater District, 2016).

4.13.1.6 Stormwater Drainage

Monterey County

Monterey County Water Resources Agency operates and maintains drainage facilities in 14 drainage maintenance zones and districts throughout Monterey County. The stormwater drainage system is composed of approximately 57 miles of drainage ways (e.g., streams, drainage ditches, and drainage channels); eight pump stations; nine miles of river levees; two large earthen dams; and numerous culverts, tide gates, and concrete structures (MCWRA, 2016).

Cities of Monterey and Seaside

The City of Monterey and the City of Seaside maintain stormwater conveyance infrastructure and natural drainage courses for their respective jurisdictions.

Castroville Community Services District

The Castroville Community Services District maintains 16 miles of storm drain main lines, four stormwater treatment units (for removing trash, debris and hydrocarbons), and 178 catch basins within its storm drain system (Castroville CSD, 2016b).

4.13.1.7 Electricity, Natural Gas, and Telecommunications

Pacific Gas and Electric Company (PG&E) provides electricity and natural gas to all of Monterey County, and Pacific Bell provides telephone service. Section 4.18, Energy Conservation, presents more information on PG&E service in the project area.

4.13.2 Regulatory Framework

This section provides an overview of notable federal, state, and local environmental laws, policies, plans, regulations, and/or guidelines (hereafter referred to generally as "regulatory requirements") relevant to public services and utilities. A brief summary of each is provided, along with a finding regarding the project's conformity with those regulatory requirements. The conformity findings concern the project as proposed, without mitigation. Where the project, as proposed, would be consistent with an applicable regulatory requirement, no further discussion of project consistency with that regulatory requirement is provided. Where the project, as proposed, would be potentially inconsistent with an applicable regulatory requirement, the reader is referred to a specific impact topic within Section 4.13.5, Direct and Indirect Effects of the Proposed Project. In that subsection, the significance of the potential conflict is evaluated. Where the effect of the potential conflict would be significant, feasible mitigation is identified to resolve or minimize that conflict.

4.13.2.1 Federal Regulations

There are no federal regulations that pertain to Public Services and Utilities that are applicable to the proposed project.

4.13.2.2 State Regulations

California Coastal Act

The California Coastal Act (Public Resources Code Section 30000 et seq.) was enacted by the State Legislature in 1976 to provide for the long-term management of lands within California's coastal zone boundary. The Coastal Act includes specific policies for management of natural resources and public access within the coastal zone. Of primary relevance to public services and utilities is a Coastal Act policy concerning designing and limiting new or expanded public works facilities such that they (and the needs/growth they accommodate) are protective of coastal resources. A preliminary assessment of MPWSP consistency with these priorities is provided here. Final determinations regarding project consistency are reserved for the Coastal Commission. The MPWSP has been designed to accommodate existing and projected future demand consistent with the General Plans (and Local Coastal Programs) of the jurisdictions in CalAm's service area. As future development in the service area would need to be consistent with General Plan and Local Coastal Program requirements, the project would not conflict with Coastal Act policies related to public works facilities.

The California Coastal Act contains numerous enforceable policies that are directed at protecting and, where feasible, restoring coastal water quality. The California Coastal Commission applies

the Coastal Act's water quality policies when reviewing applications for coastal development permits in California state waters. The Coastal Commission also applies the water quality policies when reviewing federally licensed and permitted activities to ensure they are consistent with the State's coastal management program in accordance with the Coastal Zone Management Act federal consistency provision.

The Coastal Commission considers an application for a coastal development permit to cover the requirement for an applicant submitting a consistency certification to the Coastal Commission if the activity is located in state waters. Typically, the Coastal Commission will provide its response (concurrence, conditional concurrence, or objection) in its staff report for the coastal development permit.

California Public Utilities Commission

The California Public Utilities Commission (CPUC)—the CEQA lead agency for this project—is responsible for ensuring that investor-owned (private) water, energy, and telecommunications utilities deliver safe, clean, and/or reliable services to customers at reasonable rates. The CPUC does not regulate publicly-owned utilities. The CPUC regulates CalAm, the project applicant.

California Integrated Waste Management Act of 1989 and Assembly Bill 341

The California Integrated Waste Management Board (CIWMB) oversees, manages, and tracks waste generated in California. The authority and responsibilities of the CIWMB were promulgated in Assembly Bill 939 and Senate Bill 1322, which were signed into law as the California Integrated Waste Management Act of 1989 (Public Resources Code [PRC], Division 30). The California Integrated Waste Management Act, as modified by subsequent legislation, mandated all California cities and counties to implement programs to reduce, recycle, and compost at least 50 percent of wastes by 2000 (PRC Section 41780). In January 2010, the CIWMB changed its name to the Department of Resources, Recycling, and Recovery (CalRecycle).

Assembly Bill 341, which amends the Integrated Waste Management Act of 1989 and was adopted by the California legislature in October 2011, directs CalRecycle to adopt a state policy that actively seeks to achieve a goal of diverting 75 percent of solid waste from landfills by 2020. The new legislation focuses largely on commercial waste generators, as this sector was identified as the most in need of improved waste management. Assembly Bill 341 does not alter the 50 percent diversion mandate; rather, it is a "legislative declaration of policy" to guide CalRecycle's administration of the California Integrated Waste Management Act (Theroux, 2012).

A jurisdiction's diversion rate is the percentage of total generated waste it diverts from disposal through source reduction, reuse, and recycling programs. The state determines compliance with the 50 percent diversion mandate through a complex formula. Use of the formula requires cities and counties to conduct empirical studies to establish a base-year waste generation rate against which future diversion is measured. The diversion rate in subsequent years is determined through deduction instead of direct measurement. Rather than counting the amount of material recycled and composted, the city or county tracks the amount of material disposed of at landfills and then

subtracts that amount from the base-year amount; the difference is assumed to be diverted (PRC Section 41780.2).

Construction of the MPWSP project components would potentially be inconsistent with the California Integrated Waste Management Act of 1989 and Assembly Bill 341 because the total volume of construction wastes and excess spoils could be landfilled if not recycled properly. This issue is discussed in Impact 4.13-2 below.

Utility Notification Requirements

California law (Government Code Section 4216 et seq.) requires owners and operators of underground utilities to become members of, participate in, and share the costs of a regional notification center. Government Code Section 4216 requires that persons planning to conduct any excavation contact the regional notification center. Section 4216 includes several related requirements, including requirements for excavations near "high priority subsurface installation", or high risk facilities, which include high-pressure natural gas pipelines and other pipelines that are potentially hazardous to workers or the public if damaged or ruptured. Underground Service Alert North (USA North) is the notification center for the project area. USA North receives planned excavation reports and transmits the information to all participating members that may have underground facilities at the location of excavation. The USA North members will then mark or stake their facility, provide information about the location, or advise the excavator of clearance (USA North, 2016).

Construction of the MPWSP would be potentially inconsistent with California's Utility Notification Requirements (Government Code Section 4216 et seq.) because CalAm's construction contractors could conduct excavations without sufficient notification to owners and operators of utilities or proper planning when in the vicinity of high priority subsurface installations. This issue is discussed in Impact 4.13-1.

NPDES Waste Discharge Program

The National Pollution Discharge Elimination System (NPDES) waste discharge requirements and the NPDES Permit for MRWPCA Regional Wastewater Treatment Plant are discussed in Section 4.3.2.2, State Regulations.

4.13.2.3 Local Regulations

Table 4.13-2 describes the state, regional, and local land use plans, policies, and regulations pertaining to public services and utilities that are relevant to the proposed MPWSP and that were adopted for the purpose of avoiding or mitigating an environmental effect. Also included in **Table 4.13-2** is an analysis of project consistency with such plans, policies, and regulations. Where the analysis concludes the proposed project would not conflict with the applicable plan, policy, or regulation, the finding is noted and no further discussion is provided. Where the analysis concludes the proposed project may conflict with the applicable plan, policy, or regulation, the reader is referred to Section 4.13.5, Direct and Indirect Effects of the Proposed

Project. In that subsection, the significance of the potential conflict is evaluated. Where the effect of the potential conflict would be significant, feasible mitigation is identified to resolve or minimize that conflict.

Monterey County Integrated Waste Management Plan

The Monterey County Integrated Waste Management Plan incorporates relevant provisions of the California Green Building Standards Code, which Monterey County has adopted. Diversion rates related to construction are from the California Green Building Standards Code. Section 5.408.1 of the code requires non-residential projects to recycle and/or salvage for reuse a minimum of 50 percent of nonhazardous construction and demolition waste. Further, Section 5.408.3 requires that 100 percent of trees, stumps, rocks, and associated vegetation and soils resulting primarily from land clearing be reused or recycled (unless the vegetation or soil is contaminated with disease or pest infestation.) CalRecycle reviews the Monterey County Integrated Waste Management Plan every 5 years, most recently in December 2012. The latest update to the Integrated Waste Management Plan ensures compliance with all current regulatory and reporting requirements (MCHD, 2012).

Construction of all MPWSP project components would potentially be inconsistent with the Monterey County Integrated Waste Management Plan because the total volume of construction wastes and excess spoils could be landfilled if not recycled properly. This issue is discussed in Impact 4.13-2 below.

TABLE 4.13-2
APPLICABLE REGIONAL AND LOCAL PLANS AND POLICIES RELEVANT TO PUBLIC SERVICES AND UTILITIES

Project Planning Region	Applicable Plan	Plan Element/ Section	Project Component(s)	Specific Plan, Policy, or Ordinance	Relationship to Avoiding or Mitigating a Significant Environmental Impact	Project Consistency with Plan, Policy, or Ordinance
City of Marina (coastal zone and inland areas)	City of Marina General Plan	Community Infrastructure	Subsurface Slant Wells, Source Water Pipeline, new Desalinated Water Pipeline, and new Transmission Main	***Policy 3.3:*** The intent of the General Plan Transportation and Infrastructure Element is to ensure that the requirements for transportation, water supply, wastewater collection and treatment, storm water drainage, and solid-waste disposal generated by existing and future development are adequately provided for. It is also the intent of this section to ensure, to the maximum extent possible, that the provision of such services does not have a deleterious effect on either natural resources or the quality of life of residents of Marina or other potentially affected areas. The major concerns of this section are outlined below: 11. Minimize the consumption of water for urban purposes and make maximum possible use of recycled water. 12. Design stormwater runoff facilities so as to the recharge ground water aquifers while protecting the water quality of these aquifers. 13. Ensure long-term availability of required facilities and services prior to approval of new construction. 14. Support water resource programs, including desalinization and reclamation efforts, to provide an adequate water supply to accommodate General Plan permitted growth. 15. Promote reductions in the generation of non-recyclable solid waste.	The intent of this policy is to ensure sufficient and environmentally responsible provision of public utilities for existing and future development.	Consistent: The purpose of the MPWSP is to replace those portions of CalAm's existing supplies that have been constrained by legal decisions regarding diversions from the Carmel River and pumping from the Seaside Groundwater Basin. The proposed project would provide a reliable water supply to meet existing demands and would accommodate the demands of some new development. The pipelines are sized to accommodate growth, with new pumping. The proposed project would be required to comply with State and local regulations regarding stormwater management, waste diversion, and recycling.
City of Marina (coastal zone and inland areas)	City of Marina General Plan	Community Land Use	Subsurface Slant Wells, Source Water Pipeline, new Desalinated Water Pipeline, and new Transmission Main	***Policy 2.4***: The intent of the community land use element is to help achieve the overall General Plan goals of providing a satisfying, safe and healthful living and working environment and promoting the economic well-being of city residents and businesses. To accomplish these ends, City planning, regulatory and development decisions shall be governed by the following policies which adhere to the goals in the "Introduction" (Chapter 1). 13. The City will provide adequate urban services, including water, only to areas within its designated Urban Growth Boundary. The costs of providing the public facilities and services needed for new development shall be borne by new development unless the City chooses to help assume such costs in order to obtain identified community-wide benefits.	The intent of this policy is to encourage growth in urban areas and minimize impacts of development in areas outside the urban growth boundary.	Consistent: The subsurface slant wells, Source Water Pipeline, new Desalinated Water Pipeline, and new Transmission Main are within the Marina Urban Growth Boundary and would not require the need for urban services expansion.
City of Seaside (coastal zone and inland areas)	Seaside General Plan	Water Supply, Treatment, and Distribution	New Transmission Main; ASR Conveyance Pipeline; ASR Pump-to-Waste Pipeline; ASR Recirculation Pipeline; Terminal Reservoir	***Policy LU-5.2:*** Work cooperatively with local and regional water suppliers to ensure adequate water reserves.	The intent of this policy is to ensure adequate local and regional water supplies.	Consistent: The purpose of the MPWSP is to provide water supplies for those portions of CalAm's existing supplies that have been constrained by legal decisions regarding CalAm's diversions from the Carmel River and pumping from the Seaside Groundwater Basin. Therefore this project would ensure an adequate local and regional water supply.
City of Seaside (coastal zone and inland areas)	Seaside General Plan	Water Supply, Treatment, and Distribution	New Transmission Main; ASR Conveyance Pipeline; ASR Pump-to-Waste Pipeline; ASR Recirculation Pipeline; Terminal Reservoir	***Policy LU-5.3:*** Actively promote water conservation by City residents and businesses	This policy is intended to promote water conservation	Consistent: The purpose of the MPWSP is to provide water supplies for those portions of CalAm's existing supplies that have been constrained by legal decisions regarding CalAm's diversions from the Carmel River and pumping from the Seaside Groundwater Basin. The results of ongoing conservation efforts are considered in the sizing of the proposed project and nothing about the MPWSP would decrease those efforts to conserve water.
City of Seaside (coastal zone and inland areas)	Seaside General Plan	Sewer Collection and Treatment	New Transmission Main; ASR Conveyance Pipeline; ASR Pump-to-Waste Pipeline; ASR Recirculation Pipeline; Terminal Reservoir	***Policy LU-6.1:*** Maintain the existing sewer system to provide a high level of service to community neighborhoods.	This policy is intended to maintain a high level of service for the sewer system.	Potentially inconsistent: Pipeline installation could temporarily impact sewer service. This issue is addressed in Impact 4.13-1 below.

TABLE 4.13-2 (Continued)
APPLICABLE REGIONAL AND LOCAL PLANS AND POLICIES RELEVANT TO PUBLIC SERVICES AND UTILITIES

Project Planning Region	Applicable Plan	Plan Element/ Section	Project Component(s)	Specific Plan, Policy, or Ordinance	Relationship to Avoiding or Mitigating a Significant Environmental Impact	Project Consistency with Plan, Policy, or Ordinance
County of Monterey (coastal zone and inland areas)	Monterey County General Plan	Public Services	Source Water Pipeline, MPWSP Desalination Plant, new Desalinated Water Pipeline, Brine Discharge Pipeline, Pipeline to CSIP Pond, Castroville Pipelines, Carmel Valley Pump Station, and Main System-Hidden Hills and Ryan Ranch–Bishop Interconnection Improvements	***Policy PS-2.1*:** Coordination among, and consolidation with, those public water service providers drawing from a common water table to prevent overdrawing the water table is encouraged.	This policy is intended to prevent overdrawing of the aquifers.	Consistent: The proposed project is being planned in coordination with public water service providers in the region and includes measures to prevent overdrawing the water table.
County of Monterey (coastal zone and inland areas)	Monterey County General Plan	Public Services	Source Water Pipeline, MPWSP Desalination Plant, new Desalinated Water Pipeline, Brine Discharge Pipeline, Pipeline to CSIP Pond, Castroville Pipeline, Carmel Valley Pump Station, and Main System-Hidden Hills and Ryan Ranch–Bishop Interconnection Improvements	***Policy PS-5.5*:** The County shall promote waste diversion and recycling and waste energy recovery.	This policy is intended to reduce waste.	Consistent: The proposed project would be required to comply with State and local regulations that require waste diversion and recycling.
County of Monterey (coastal zone and inland areas)	Monterey County General Plan	Public Services	Source Water Pipeline, MPWSP Desalination Plant, new Desalinated Water Pipeline, Brine Discharge Pipeline, Pipeline to CSIP Pond, Castroville Pipeline, Carmel Valley Pump Station, and Main System-Hidden Hills and Ryan Ranch–Bishop Interconnection Improvements	***Policy PS-13.2*:** All new utility lines shall be placed underground, unless determined not to be feasible by the Director of the Resource Management Agency.	This policy is intended to minimize visual and other adverse effects of above-ground utility lines.	Consistent: The proposed project includes underground water conveyance pipelines. New underground and aboveground powerlines would be constructed between existing powerlines in the area and the proposed project facilities. It is anticipated that most, if not all, of the new powerlines would be constructed underground.
County of Monterey (inland areas)	North County Area Plan	Public Services	Castroville Pipeline	**NC-5.2:** Water development projects that can offer a viable water supply to water-deficient areas in North County shall be a high priority.	This policy is intended to provide a viable water supply to water deficient parts of North County	Consistent: The proposed project contributes water supplies to the Castroville Seawater Intrusion Project, therefore, it would provide a viable water supply to water deficient parts of North County.

SOURCES: City of Marina, 2006; City of Seaside, 2004; Monterey County, 1985, 2010.

4.13.3 Evaluation Criteria

Implementation of the proposed project would have a significant impact related to public services and utilities if it would:

- Disrupt operations or require relocation of regional or local utilities;
- Result in the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any public services such as fire and police protection, schools, parks, or other public facilities;
- Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board;
- Require or result in the construction of new water or wastewater treatment facilities or the expansion of existing facilities, the construction of which could cause significant environmental effects;
- 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;
- Have insufficient water supply available to serve the project from existing entitlements and resources or require new or expanded water supply resources or entitlements;
- Result in a determination by the wastewater treatment provider that it has inadequate capacity, including treatment and/or outfall capacity, to accommodate the project's projected demand;
- Be served by a landfill with insufficient permitted capacity to accommodate the project's solid waste disposal needs; or
- Be out of compliance with federal, state, and local statutes and regulations related to solid waste; or
- Generate wastewater flows that would increase the corrosion of the existing MRWPCA outfall and diffuser.

4.13.4 Approach to Analysis

Streets and trails through the project area function as underground utility corridors. Several impacts of the MPWSP related to public services and utilities stem from the potential for project construction to directly impact utilities and utility services. Therefore, the analysis of project impacts in Sections 4.13.5.1 and 4.13.5.2, below, focus on impacts on utilities, although potential impacts related to public services are also addressed.

This analysis uses the California Department of Transportation (Caltrans) policy in the Caltrans Project Development Procedures Manual (Caltrans, 1999) to identify "high risk" utilities that would pose a greater risk to workers and the public should an accident occur during construction, and which therefore warrant special consideration. Pursuant to the policy, high risk utilities include pipelines carrying petroleum products, oxygen, chlorine, toxic or flammable gases;

natural gas in pipelines greater than 6 inches nominal pipe diameter or with normal operating pressures greater than 60 pounds per square inch gauge; and underground electric supply lines, conductors, or cables that have a potential to ground more than 300 volts, either directly buried or in duct or conduit, and which do not have effectively grounded metal shields or sheaths (Caltrans, 1999).

4.13.5 Direct and Indirect Effects of the Proposed Project

Due to the nature of the proposed project, the following criteria are not addressed in the impact analysis sections for the reasons described below:

Result in the need for new or physically altered governmental facilities. During the 30 month construction period, up to 380 construction workers would be employed at the various construction sites, depending on the phase of construction and the construction activities taking place. It is expected that construction workers could come from any part of the region. While it is possible that some workers might temporarily relocate from other areas, the proposed project would not substantially increase the local population. During project 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 and/or regional service providers to a degree that requires new or expanded facilities. Any temporary increase in the local population during project construction would be negligible and could be accommodated by existing service providers. Therefore, construction of the proposed project 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 on public services would occur.

The proposed project would not permanently increase the local population. Operation and maintenance activities would require approximately 25 to 30 permanent employees 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 project operations. Because there would be no construction or operational impacts, the criterion related to the need for new or modified governmental facilities is not applicable to the project and is not discussed further. The issues of population and housing are discussed in Section 4.19 Population and Housing. The potential impact related to impaired emergency access during construction is addressed under Impact 4.9-4 in Section 4.9, Traffic and Transportation.

Require or result in the construction of new water or wastewater treatment facilities or the expansion of existing facilities, the construction of which could cause significant environmental effects. As described in Chapter 3, Description of the Proposed Project, the MPWSP would develop a new water supply to replace current supplies that are legally constrained. It would not increase volumes of wastewater requiring treatment, and no new or expanded wastewater treatment facilities would result. The construction of water-related facilities, including the MPWSP Desalination Plant, is the subject of this EIR/EIS. Other sections in this Chapter 4, Environmental Setting (Affected Environment), Impacts, and Mitigation Measures discuss the potential impacts and identify mitigation measures associated with these proposed 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 proposed project to change drainage patterns and increase stormwater runoff is addressed in Section 4.3, Surface Water Hydrology and Water Quality (see Impacts 4.3-7 and 4.3-8). That analysis indicates that, due to the negligible increase in impervious surfaces associated with the proposed aboveground facilities, the proposed project would have a less than significant impact associated with potential changes in drainage patterns and the rate and amount of surface runoff. As a result, the proposed project would not require or result in the need for new or expanded stormwater drainage facilities. No impact would result and this impact is not discussed further.

Have insufficient water supply available to serve the project or require new or expanded water supply resources or entitlements. Project implementation would generate approximately 25 to 30 permanent jobs in the Monterey District service area. The proposed project 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. Further, the purpose of the MPWSP is to provide a new potable water supply source to serve the CalAm Monterey District service area and the implementation of this new water supply is the subject of this EIR/EIS. Therefore, this criterion is not applicable to the project and is not discussed further in this section. Refer to Chapter 2, Water Demand, Supplies, and Water Rights for a discussion of water rights and Section 4.4, Groundwater Resources, for an analysis of the proposed project's effects on existing groundwater users in the Seaside Groundwater Basin and the Salinas Valley Groundwater Basin.

Table 4.13-3 summarizes the MPWSP's impacts and significance determinations related to public services and utilities.

TABLE 4.13-3
SUMMARY OF IMPACTS – PUBLIC SERVICES AND UTILITIES

Impacts	Significance Determinations
Impact 4.13-1: Disrupt or relocate regional or local utilities during construction.	LSM
Impact 4.13-2: Exceed landfill capacity or be out of compliance with federal, state, and local statutes and regulations related to solid waste during construction.	LSM
Impact 4.13-3: Exceed landfill capacity or be out of compliance with federal, state, and local statutes and regulations related to solid waste during operations.	LS
Impact 4.13-4: Exceed wastewater treatment requirements of the Central Coast RWQCB, or result in a determination by the wastewater treatment provider that it has inadequate treatment or outfall capacity to serve the project.	LSM
Impact 4.13-5: Increased corrosion of the MRWPCA outfall and diffuser as a result of brine discharges associated with project operations.	LSM
Impact 4.13-C: Cumulative impacts related to public services and utilities.	LSM

NOTES:
LS = Less than Significant impact, no mitigation proposed
LSM = Less than Significant impact with Mitigation

4.13.5.1 Construction Impacts

Impact 4.13-1: Disrupt or relocate regional or local utilities during construction. (*Less than Significant with Mitigation*)

All Project Facilities

Construction of the MPWSP could damage or interfere with existing water, sewer, stormwater drainage, natural gas, electric, or communication utility service lines. Construction could require the permanent relocation of these utility lines, potentially interrupting service if the relocation could not be avoided. Numerous public utilities of varying sizes are present in the project area.

Streets and roads typically serve as utility corridors, increasing the potential for project pipelines to interfere with existing utilities. As such, overhead utility lines of various sizes are likely to be located along or across several project components. Overhead utility poles and lines could be susceptible to accidental damage from the movement of large construction equipment and vehicles throughout the project area. Trenching, excavation, and pipeline installation are the activities most likely to result in planned or accidental service disruptions, as the proposed pipeline alignments would probably cross multiple underground utilities. In most cases, service disruptions would be temporary and typically would not exceed 1 day. The proposed pipeline alignments could cross stormwater pipes, culverts, natural gas lines, sewer lines, and water pipelines.

Accidental rupture of or damage to utility lines during project construction could temporarily disrupt utility services and, in the case of high-risk utilities (also referred to as high priority subsurface installations), 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 project 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.

Consistency with Regulatory Requirements

In addition to the physical impacts described above, as noted in Section 4.13.2, Regulatory Framework, construction of certain components of the MPWSP could conflict with applicable regulatory requirements related to public services and utilities. As noted in **Table 4.13-2**, the new

Transmission Main, ASR Conveyance Pipeline, ASR Pump-to-Waste Pipeline, ASR Recirculation Pipeline, and Terminal Reservoir would potentially conflict with the Seaside General Plan Policy L-U6.1 which intends to maintain a high level of sewer system service to its community. CalAm and its construction contractors shall implement **Mitigation Measures 4.13-1a** (**Locate and Confirm Utility Lines), 4.13-1b (Coordinate Final Construction Plans with Affected Utilities),** and **4.13-1f (Ensure Prompt Reconnection of Utilities)** which would resolve any potential conflicts with the aforementioned regulatory requirement.

In addition, construction of the MPWSP would potentially conflict with California's Utility Notification Requirements (Government Code Section 4216 et seq.) which intends to prevent excavations from damaging or rupturing underground utilities, including high priority subsurface installations. CalAm and its construction contractors shall implement **Mitigation Measures 4.13-1a (Locate and Confirm Utility Lines), 4.13-1b (Coordinate Final Construction Plans with Affected Utilities), 4.13-1c (Safeguard Employees from Potential Accidents Related to Underground Utilities),** and **4.13-1d (Emergency Response Plan)** which would resolve any potential conflicts with the aforementioned regulatory requirements.

Impact Conclusion

This impact would be significant for all project components but would be reduced to a less-than-significant level with implementation of **Mitigation Measures 4.13-1a** through **4.13-1f**.

Mitigation Measures

Mitigation Measure 4.13-1a applies to all project components.

> **Mitigation Measure 4.13-1a: Locate and Confirm Utility Lines.**
>
> Before excavation begins, CalAm or its contractor(s) shall locate all overhead and underground utility lines (such as natural gas, electricity, sewage, telephone, fuel, and water lines) that are reasonably expected to be encountered during excavation. When a project excavation is within the approximate location of a subsurface utility, CalAm or its contractor shall determine the exact location of the underground utility by safe and acceptable means, including the use of hand tools and modern techniques. Information regarding the size, color, and location of existing utilities shall be confirmed before construction activities begin. These utilities shall be highlighted on all construction drawings.

Mitigation Measure 4.13-1b applies to all project components.

> **Mitigation Measure 4.13-1b: Coordinate Final Construction Plans with Affected Utilities.**
>
> CalAm or its contractor(s) shall coordinate final construction plans, schedule, and specifications with affected utilities. Arrangements shall be made with these entities regarding the appropriate protection, relocation, or temporary disconnection of services. If any interruption of service is required, CalAm or its contractor(s) shall notify residents and businesses in the project corridor of any planned utility service disruption at least 2 working days and up to 14 calendar days in advance, in conformance with county and state standards.

Mitigation Measure 4.13-1c applies to all project components.

Mitigation Measure 4.13-1c: Safeguard Employees from Potential Accidents Related to Underground Utilities.

When any excavation is open, the construction contractor(s) shall protect, support, or remove underground utilities as necessary to safeguard employees.

The contractor(s) shall be required to provide weekly updates to CalAm and construction workers regarding the planned excavations for the upcoming week, and to specify when construction will occur near a high-priority utility (i.e., pipelines carrying petroleum products, oxygen, chlorine, or toxic or flammable gases; natural gas pipelines greater than 6 inches in diameter or with normal operating pressures greater than 60 pounds per square inch gauge; and underground electric supply lines, conductors, or cables that have a potential to ground more than 300 volts that do not have effectively grounded sheaths). Construction managers shall hold regular tailgate meetings with construction staff on days when work near high-priority utilities will occur to review all safety measures regarding such excavations, including measures identified in the Mitigation Monitoring and Reporting Program and in construction specifications—. The contractor shall designate a qualified Health and Safety Officer who shall specify a safe distance to work near high-priority utilities. Excavation near such utility lines shall not be authorized until the designated Health and Safety Officer confirms and documents in the construction records that: (1) the line was appropriately located in the field by the utility owner using as-built drawings and a pipeline-locating device; and (2) the location was verified by hand by the construction contractor.

Mitigation Measure 4.13-1d applies to all project components.

Mitigation Measure 4.13-1d: Emergency Response Plan.

Before commencement of construction, CalAm or its contractor(s) shall develop an emergency response plan that outlines procedures to follow in the event of a leak or explosion and submit a copy to the CPUC and MBNMS. The emergency response plan shall identify the names and phone numbers of staff at the potentially affected utilities that would be available 24 hours per day in the event that construction activities cause damage to or rupture of a high-risk utility. The plan shall also detail emergency response protocols, including notification, inspection, and evacuation procedures; any equipment and vendors necessary to respond to an emergency (such as an alarm system); and routine inspection guidelines.

Mitigation Measure 4.13-1e applies to all project components.

Mitigation Measure 4.13-1e: Notify Local Fire Departments.

CalAm or its contractor(s) shall notify local fire departments in advance of any time work that is to be performed in close proximity to a gas utility line, or any time damage to a gas utility line results in a leak or suspected leak, or whenever damage to any utility results in a threat to public safety.

Mitigation Measure 4.13-1f applies to all project components.

Mitigation Measure 4.13-1f: Ensure Prompt Reconnection of Utilities.

CalAm or its contractor(s) shall promptly contact utility providers to reconnect any disconnected utility lines as soon as it is safe to do so.

Impact 4.13-2: Exceed landfill capacity or be out of compliance with federal, state, and local statutes and regulations related to solid waste during construction. (*Less than Significant with Mitigation*)

All Project Facilities

Construction of the proposed project would generate approximately 25,110 cubic yards (37,665 tons) of excess spoils and construction materials that would require transport out of the project area, such as sand, soil, and asphalt. Due to the economic value of clean excavated soil and the cost of landfill disposal, it is expected that much of the excavated materials would be diverted for reuse. Nevertheless, this analysis conservatively assumes that all excess spoils and construction debris would be disposed of at the Monterey Peninsula Landfill.

The Monterey Peninsula Landfill is permitted to receive 3,500 tons of waste per day. The landfill has an estimated remaining capacity of 48,560,000 cubic yards and an expected site life of approximately 100 years (CalRecycle, 2016). According to the Monterey Regional Waste Management District, the landfill receives an average of approximately 300,000 tons per year, or less than 1,000 tons per day (MRWMD, 2016).

Based on the assumption that excess spoils and construction debris would be hauled to the landfill Monday through Friday over the 30-month construction duration, project construction could generate up to 59 tons per day of materials requiring disposal. Even under this worst-case scenario, the waste generated by project construction, in combination with the landfill's average acceptance rate of less than 1,000 tons per day, would be well below the landfill's permitted daily acceptance rate of 3,500 tons. The total amount of excess spoils and construction debris generated by the project represents approximately 0.05 percent of the landfill's remaining capacity. Therefore, even under the worst-case scenario that assumes all of the proposed project's excess spoils and construction debris would be disposed of at the Monterey Peninsula Landfill, 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.

As discussed in Section 4.13.2, Regulatory Framework, the California Integrated Waste Management Act of 1989 requires all California cities and counties to implement programs to reduce, recycle, and compost at least 50 percent of waste and the Monterey County Integrated Waste Management Plan has incorporated provisions of the California Green Building Standards Code, calling for non-residential projects to recycle and/or salvage for reuse of at least 50 percent of

nonhazardous construction and demolition waste and that 100 percent of trees, stumps, rocks, and associated vegetation and soil from land clearing be reused or recycled (unless contaminated with disease or pest infestation).

Failure of CalAm's construction contractor(s) to reuse or recycle excavation materials and other construction waste generated during MPWSP construction would thus conflict with the County's Integrated Waste Management Plan policies, and could also adversely affect the state-mandated diversion rates of the jurisdictions in which construction activities would be located; 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 and implement a plan to divert recoverable materials from landfills.

Impact Conclusion

Even under the worst case scenario that assumes all of the proposed project's excess spoils and construction debris would be disposed of at the Monterey Peninsula Landfill, the amount of construction waste would not exceed or substantially deplete the landfill capacity. However, disposal and management of wastes generated during project construction could be out of compliance with state and local regulations and policies calling for the diversion of construction waste from landfill disposal, a significant impact. The impact would be mitigated to a less-than-significant level for all project facilities with implementation of **Mitigation Measure 4.13-2 (Construction Waste Reduction and Recycling Plan)**.

Mitigation Measure

Mitigation Measure 4.13-2 applies to all project components.

> **Mitigation Measure 4.13-2: Construction Waste Reduction and Recycling Plan.**
>
> The construction contractor(s) shall prepare and implement a construction waste reduction and recycling plan identifying the types of debris the project will generate and the manner in which those waste streams will be handled. In accordance with the California Integrated Waste Management Act of 1989, the plan shall emphasize source reduction measures, followed by recycling and composting methods, to ensure that construction and demolition waste generated by the project is managed consistent with applicable statutes and regulations. In accordance with the California Green Building Standards Code and local regulations, the plan shall specify that all trees, stumps, rocks, and associated vegetation and soils, and 50 percent of all other nonhazardous construction and demolition waste, be diverted from landfill disposal. The plan shall be prepared in coordination with the Monterey Regional Waste Management District and be consistent with Monterey County's Integrated Waste Management Plan. Upon project completion, CalAm shall collect the receipts from the contractor(s) and submit them to the CPUC as documentation that the waste reduction, recycling, and diversion goals have been met.

4.13.5.2 Operational and Facility Siting Impacts

Impact 4.13-3: Exceed landfill capacity or be out of compliance with federal, state, and local statutes and regulations related to solid waste during operations. (*Less than Significant*)

MPWSP Desalination Plant

Operation of the MPWSP Desalination Plant would produce approximately 20,000 pounds of residual solid waste per day through the desalination process. This waste would be dewatered onsite, resulting in approximately 5 cubic yards per day (or 7.5 tons) of solids requiring disposal at the Monterey Peninsula Landfill. The solids would contain naturally occurring organic and inorganic matter from the raw seawater, iron precipitated from coagulation during the pretreatment process, and low concentrations of other chemicals used in the treatment process. The solids would be tested prior to landfill disposal to ensure they meet nonhazardous waste disposal criteria. There are no known opportunities for reusing or recycling these solids, so diverting them from landfill disposal is not an option. Because the landfill operates 6 days per week, the 52.5 tons of resulting cake generated per week by the desalination process would result in a daily disposal rate of approximately 8.75 tons (i.e., assuming disposal 6 days per week). The administrative activities at the plant would generate nominal amounts of typical office wastes.

The Monterey Peninsula Landfill is permitted to accept up to 3,500 tons per day but, on average, receives less than 1,000 tons per day (CalRecycle, 2016; MRWMD, 2016); therefore, the landfill could accept the 8.75 tons of waste generated by the MPWSP Desalination Plant without exceeding its permitted daily tonnage or depleting substantial long-term capacity. As a result, operation of the proposed MPWSP Desalination Plant would have a less-than-significant impact related to landfill capacity and solid waste disposal.

ASR Pump-to-Waste System

Maintenance of the ASR Pump-to-Waste System is expected to generate approximately 240 pounds (less than 1 ton) per year of sediment that enters the wells when the water is injected, or from the surrounding soil. This material would be taken to the Monterey Regional Waste Management District's materials recovery facility for recycling and reuse. Therefore, no impacts related to landfill capacity and solid waste disposal are expected from operation of the proposed ASR Pump-to-Waste System.

All Other Proposed Facilities

All other proposed project components (subsurface slant wells, conveyance pipelines, storage facilities, pump stations, the interconnections with Highway 68 satellite systems and other ASR-related facilities) would have limited potential to generate waste during facility operations and maintenance, and any waste generated at these facilities would be nominal. Impacts associated with disposal of solid waste produced at these facilities would be less than significant.

Impact Conclusion

MPWSP Desalination Plant operations would generate solid waste that would be routinely disposed of at the Monterey Peninsula Landfill. There are no known opportunities for reusing or recycling these solids, but the landfill could accept the waste without exceeding its permitted daily tonnage or substantially depleting long-term capacity. Maintenance of the ASR Pump-to-Waste System would generate sediment materials that would be taken to the Waste Management District's materials recovery facility for reuse or recycling. All other proposed facilities would have a very limited potential to generate waste during operations or maintenance. Impacts related to solid waste disposal and landfill capacity during operations and maintenance would be less than significant.

Mitigation Measures

None proposed.

Impact 4.13-4: Exceed wastewater treatment requirements of the Central Coast RWQCB, or result in a determination by the wastewater treatment provider that it has inadequate treatment or outfall capacity to serve the project. *(Less than Significant with Mitigation)*

Exceed Wastewater Treatment Requirements

As discussed in Chapter 3, Description of the Proposed Project, brine generated during the desalination process at the MPWSP Desalination Plant would be discharged to Monterey Bay through the MRWPCA's existing ocean outfall and diffuser. During certain times of the year, particularly during the non-irrigation (wet) season, the brine stream would be blended with treated wastewater effluent from the MRWPCA Regional Wastewater Treatment Plant prior to discharge. The availability of wastewater effluent for blending with the brine is limited during the dry season (irrigation season) and the brine could be discharged without dilution for extended periods (see **Table 4.13-4**). The *Discharge Requirements for the Monterey Regional Water Pollution Control Agency Treatment Plant* [Order No. R3-2014-0013, NPDES Permit No. CA0048551], which regulate discharges from the outfall, would be amended before the MPWSP Desalination Plant starts operating to incorporate the "brine only" and combined discharges. As described in Impacts 4.3-4 and 4.3-5 in Section 4.3, Surface Water Hydrology and Water Quality, both the "brine only" discharges and the combined discharges would comply with Ocean Plan water quality objectives for all assessed constituents. With implementation of the MPWSP, certain constituent concentrations, as discussed in Section 4.3.5.2 Operational and Facility Siting Impacts and **Appendix D3** (Trussel, 2016), could become elevated under several assessed discharge scenarios to a level that is close to the Ocean Plan standard. Additionally, due to gaps in the available water quality data, a compliance determination could not be made for ten individual constituents and consequently, it must be conservatively assumed that an exceedance of Ocean Plan water quality objectives could occur as a result of operational discharges.

TABLE 4.13-4
BRINE STREAM AND TREATED WASTEWATER EFFLUENT FLOWS THROUGH THE MRWPCA OUTFALL AND DIFFUSER

	Average Monthly Flows (mgd)											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Brine Stream from MPWSP Desalination Plant	13.98	13.98	13.98	13.98	13.98	13.98	13.98	13.98	13.98	13.98	13.98	13.98
Treated Wastewater Effluent from MRWPCA[a]	19.78	18.41	14.68	7.02	2.40	1.89	0.90	1.03	2.79	9.89	17.98	19.27
Combined Discharge	33.76	32.39	28.66	21.00	16.38	15.87	14.88	15.01	16.77	23.87	31.96	33.25

NOTES:
[a] Based on average monthly effluent discharges for the years 1998 through 2012.

SOURCES: RBF Consulting, 2013; MRWPCA, 2013.

Mitigation Measures 4.3-4 (Operational Discharge Monitoring, Analysis, Reporting, and Compliance) and Mitigation Measure 4.3-5 (Implement Protocols to Avoid Exceeding Water Quality Objectives) are prescribed to monitor, report and reduce the water quality impact associated with potential exceedances of the Ocean Plan water quality objective to a less-than-significant level. Mitigation Measure 4.3-4 requires CalAm to implement a comprehensive Monitoring and Mitigation Plan consistent with the requirements of the Ocean Plan (described in detail in Section 4.3.2.2) that would set forth appropriate response thresholds and corrective actions that would be required if the acquired data indicated deleterious effects on receiving water quality or marine biological resources from the proposed MPWSP operational discharges. Mitigation Measure 4.3-5 would require data gathering to determine baseline conditions and compliance with Ocean Plan water quality objectives and would involve employing design features and/or operational measures to achieve the required minimum dilution of the discharge at the edge of the ZID to ensure compliance with Ocean Plan water quality objectives.

Wastewater Treatment Plant and Outfall Capacity

The only wastewater generated during project operations that would require treatment at the MRWPCA Regional Wastewater Treatment Plant is wastewater from bathrooms at the MPWSP Desalination Plant. Given the small number of CalAm employees that would be staffed at the MPWSP Desalination Plant (25 to 30 employees) the volume of wastewater generated at this facility would be approximately 750 gallons per day, which would have a negligible impact on the MRWPCA treatment capacity of 29.6 mgd and discharge capacity of 81.2 mgd. None of the treatment processes at the MPWSP Desalination Plant site and none of the other proposed project facilities located elsewhere would generate wastewater during operations that would require treatment at the MRWPCA Regional Wastewater Treatment Plant. Therefore, project operations would not exceed wastewater treatment capacity.

The existing 2.1-mile-long, 60-inch-diameter MRWPCA outfall pipeline terminates at a 1,100-foot-long diffuser resting above the ocean floor at approximately 90 to 110 feet below sea level. The

diffuser is equipped with 172 ports (129 ports are currently open and 43 are closed), each 2 inches in diameter and spaced 8 feet apart. Depending on the number of closed ports, the outfall and diffuser have a physical discharge capacity of between 66.5 and 94.6 mgd (Trussell Technologies, 2012). The outfall and diffuser are permitted to discharge up to 81.2 mgd in accordance with the *Waste Discharge Requirements for the Monterey Regional Water Pollution Control Agency Treatment Plant* (Order No. R3-2014-0013, NPDES Permit No. CA0048551) (RWQCB, 2014).

MRWPCA currently utilizes the existing ocean outfall and diffuser to discharge secondary treated wastewater effluent from the MRWPCA Regional Wastewater Treatment Plant to Monterey Bay. **Table 4.13-4** shows existing average monthly wastewater flows through the MRWPCA outfall and diffuser based on average monthly effluent discharges for the years 1998 through 2012. As shown, the volume of treated wastewater effluent varies throughout the year, with the highest flows occurring during the non-irrigation season (November through March). The lowest flows occur during the irrigation season (April through October) when a large portion of the secondary wastewater effluent from the MRWPCA Regional Wastewater Treatment Plant is diverted to the Salinas Valley Reclamation Project's tertiary treatment facility for additional advanced treatment and subsequently used for crop irrigation as part of the CSIP.

The MPWSP Desalination Plant would generate approximately 13.98 mgd of brine (including 0.4 mgd of decanted backwash effluent) that would be discharged through the MRWPCA's existing ocean outfall and diffuser. The amount of treated wastewater effluent available for blending with the brine stream would be variable throughout the year, and the brine stream could be discharged with minimal dilution for extended periods. As shown in **Table 4.13-4**, based on average monthly flows, both the "brine only" flows and the combined discharges would remain below the MRWPCA's permitted discharge capacity of 81.2 mgd throughout the year. An outfall capacity evaluation conducted in 2012 (Trussell Technologies, 2012) indicates that even under the worst- case conditions when additional ports are closed and outfall capacity is reduced to 41.1 mgd, the outfall has sufficient capacity to accommodate the additional brine stream.

Maximum instantaneous flows measured in the outfall between 1998 and 2012 (MRWPCA, 2013) ranged from 40.4 mgd to 59.9 mgd. This data indicates that even during peak storm events there would be sufficient capacity in the outfall to accept the brine generated by the MPWSP Desalination Plant year-round, assuming the existing outfall capacity of 81.2 mgd. However, as discussed in Section 3.2.2.5 Brine Storage and Disposal of Chapter 3, Description of Proposed Project, the brine stream, when combined with instantaneous peak flows of wastewater effluent from the MRWPCA Regional Wastewater Treatment Plant, could exceed the capacity of the outfall and diffuser during large storm events. Based on previous studies prepared by Trussell Technologies that assumed up to 23.7 mgd of brine would be discharged through the outfall (compared to approximately 14 mgd under the MPWSP) and outfall capacity is reduced to 41.4 mgd, six hours of storage capacity would provide more than adequate storage during periods of peak effluent flow (Trussell Technologies, 2012). The 3-million-gallon brine storage basin described in Section 3.2.2.5 has sufficient capacity to detain flows from approximately 6 hours of desalination plant operations. Thus, the impact related to outfall capacity would be less than significant.

Impact Conclusion

As described in Impacts 4.3-4 and 4.3-5 in Section 4.3, Surface Water Hydrology and Water Quality, both the "brine only" discharges and the combined discharges would comply with Ocean Plan water quality objectives for all assessed constituents. However, certain constituents would become elevated under several assessed discharge scenarios. **Mitigation Measures 4.3-4** and **4.3-5** would reduce the water quality impact associated with potential exceedances of the Ocean Plan water quality objectives to a less-than-significant level by requiring CalAm to conduct water quality assessments prior to MPWSP operation and to implement a comprehensive Monitoring and Reporting Plan that is consistent with the Ocean Plan requirements.

None of the treatment processes at the MPWSP Desalination Plant site and none of the other proposed project facilities would generate wastewater during operations that would require treatment at the MRWPCA Regional Wastewater Treatment Plant. Even during peak storm events, there would be sufficient capacity in the outfall to accept the brine generated by the MPWSP Desalination Plant year-round. The operations of the proposed project would not result in inadequate capacity at the existing wastewater treatment plant or the existing outfall and the impact would be less than significant.

Mitigation Measures

Mitigation Measures 4.3-4 and 4.3-5 apply to MPWSP Desalination Plant operations.

> **Mitigation Measure 4.3-4: Operational Discharge Monitoring, Analysis, Reporting, and Compliance.**
>
> **Mitigation Measure 4.3-5: Implement Protocols to Avoid Exceeding Water Quality Objectives.**
>
> (See Section 4.3, Surface Water Hydrology and Water Quality, for the description.)

Impact 4.13-5: Increased corrosion of the MRWPCA outfall and diffuser as a result of brine discharge associated with project operations. (*Less than Significant with Mitigation*)

As discussed above under Impact 4.13-4, the MRWPCA utilizes the existing ocean outfall and diffuser to discharge secondary treated wastewater effluent from the MRWPCA Regional Wastewater Treatment Plant into Monterey Bay. The existing 60-inch-diameter MRWPCA outfall pipeline includes a 13,000-foot-long unlined segment on land (starting at the regional wastewater plant at about elevation +100), and a 9,880-foot-long unlined segment offshore. An unlined reinforced concrete junction box connects the land and offshore outfall segments and is marked as Station 0+00 (E2 Consulting Engineering, 2015). With implementation of the MPWSP, the brine produced during the reverse osmosis process at the MPWSP Desalination Plant would be conveyed to a brine mixing facility at the inland end of the land segment of the outfall, which is located at the MRWPCA Regional Wastewater Treatment Plant. The brine would flow through the land segment, junction box, and the offshore segment prior to exiting at

the diffuser. An evaluation of the existing condition of the junction box and offshore segment and the potential for increased corrosion due to the addition of brine discharge was completed by EC Consulting Engineering (2015) and is summarized below.

MRWPCA Ocean Outfall – Offshore Segment

The assessment of the existing condition of the junction box and offshore outfall segment included field exploration, sampling, and laboratory testing of the samples. The laboratory results found the concrete strength to be excellent (over 7,500 pounds per square inch [psi] compared to designed compressive strength of 4,000 psi). The assessment concluded that, although chloride levels in the concrete samples were nine times the threshold for corrosion, the anaerobic environment present in the continuously exposed offshore segment of the outfall is the reason corrosion is not evident (i.e., there is no oxygen available for oxidation) (E2 Consulting Engineering, 2015).

The MPWSP Desalination Plant would generate approximately 14 mgd of brine (including 0.4 mgd of decanted waste effluent) that would be discharged through the MRWPCA's existing ocean outfall and diffuser. The salinity of the brine stream is estimated to range between approximately 57 and 58 parts per thousand (ppt), compared to the salinity of seawater in Monterey Bay, which ranges from 33.1 to 34.2 ppt (see Section 4.3, Surface Water Hydrology and Water Quality, for additional discussion regarding water quality impacts). The "brine only" discharges and combined discharges of brine and wastewater effluent would expose submerged metals and concrete in the outfall and diffuser to high salinity water.

The assessment concluded that the existing outfall pipeline could accept the brine stream from the MPWSP Desalination Plant without serious deterioration and that the reinforcing steel in the pipe would continue to be protected from corrosion by the anaerobic environment of its immersion, which precludes the introduction of oxygen into the steel/concrete interface. Even with the increased chloride concentrations from the brine, the corrosion of the outfall would continue to be controlled by the availability, or lack, of oxygen. The outfall pipe could be expected to live up to its original intended life expectancy provided oxygen is not introduced into the discharges and anaerobic conditions remain.

However, some turbulence might be expected to occur in the existing junction drop structure at the shoreline and approximately the first 100 feet of the offshore pipeline. This turbulence could introduce oxygen into the system and increase the potential for corrosion, which is considered a significant impact. The assessment recommended that the junction box and 100-foot-long segment of pipeline be lined to ensure any oxygen introduced by turbulence does not cause corrosion (E2 Consulting Engineering, 2015). Therefore, with implementation of **Mitigation Measure 4.13-5a (Installation of Protective Lining, Periodic Inspections, and As-Needed Repairs for Offshore Segment of MRWPCA Ocean Outfall)**, which require the application of a protective epoxy coating along the junction box and first 100 feet of the offshore outfall pipeline and periodic inspections of the outfall thereafter, the impact would be reduced to a less-than-significant level.

MRWPCA Ocean Outfall – Land Segment

An evaluation of the 13,000-foot-long land segment similar to the evaluation that was conducted for the offshore segment is planned but has not yet been conducted (E2 Consulting Engineering, 2015). However, due to the aerobic conditions in the land segment, it is anticipated that the proposed discharges of brine from the MPWSP Desalination Plant would accelerate corrosion of the land segment, and this would be considered a significant impact. However, with implementation of **Mitigation Measure 4.13-5b (Assess Land Segment of MRWPCA Ocean Outfall and Install Protective Lining, If Needed)**, which requires assessment of the full length land segment and, if needed, the phased application of a protective epoxy coating along all or part of the 13,000-foot-long land segment, the impact would be reduced to a less-than-significant level. Thereafter, periodic inspections of the land segment would be performed to ensure the continued integrity of the segment.

Mitigation Measures

Mitigation Measure 4.13-5a applies to the MRWPCA outfall.

Mitigation Measure 4.13-5a: Installation of Protective Lining, Periodic Inspections and As-Needed Repairs for Offshore Segment of MRWPCA Ocean Outfall.

To protect the offshore segment of the MRWPCA ocean outfall from corrosion, CalAm shall enter into an agreement with MRWPCA and line the junction box and 100-foot-long segment of outfall pipeline with a marine epoxy coating, Raven 405 or equivalent, sprayed to a minimum thickness of 80 millimeters wet film.

Installation of the lining shall occur during the irrigation season (April through September), when nearly all of the wastewater effluent is diverted to the Salinas Valley Reclamation Plant. As recommended in the assessment of the offshore segment (EC Consulting Engineering, 2015), the junction box and initial portion of the offshore segment shall be temporarily plugged at the landward end using a large football shaped balloon inserted just beyond Land Outfall Station 1+00. The junction box (Station 0+00) and portion of the segment shall then be dewatered by pumping all water out on the landward side of Station 1+100. The dewatered portion of the segment and junction box shall be allowed to dry for 48 hours. The interior of the junction box and offshore segment shall then be sprayed with the epoxy coating. Once the coating is applied, the balloon plug shall be deflated and removed so that the outfall can be brought back into operation.

Installation of the epoxy lining shall take no longer than 7 to 10 days. The minimal amount of MRWPCA effluent that must be diverted while the outfall segment is plugged for epoxy installation shall be collected upstream of the balloon plug via large hose or flexible pipe. This hose or pipe will transfer the effluent up through the junction box and out to an in-place gutter located forward of the junction box and facing the beach. Prior to installation of the lining, CalAm shall obtain approval from the RWQCB for the temporary diversion of the treated effluent to the in-place gutter.

CalAm shall enter into an agreement with MRWPCA and perform periodic inspections of the offshore portion of the MRWPCA outfall and diffuser. Annual inspections shall occur for the first three years after the MPWSP Desalination Plant is brought online. Thereafter, the offshore portion of the outfall shall be inspected every five years.

During each inspection, photo documentation shall be provided for all areas of inspections, regardless of findings, to provide for photographic comparison over time. All inspections shall include documentation of the thickness of scaling, any exposure or corrosion of reinforcing steel, significant cracking or spalling of concrete, and any pitting of metals. Any necessary repairs to the outfall and/or diffuser shall be identified and performed.

Mitigation Measure 4.13-5b applies to the MRWPCA outfall.

Mitigation Measure 4.13-5b: Assess Land Segment of MRWPCA Ocean Outfall and Install Protective Lining, If Needed.

Prior to operation of the MPWSP Desalination Plant, CalAm shall coordinate with MRWPCA to assess the land segment of the ocean outfall. The evaluation shall include field exploration, sampling, and laboratory testing, and shall assess the existing condition of the land segment as well as the potential for brine discharges from the MPWSP Desalination Plant to accelerate corrosion of the land segment. If the existing condition of part or all of the land segment is such that brine discharge would accelerate corrosion and substantially decrease the life expectancy of the outfall due to corrosion of the land segment, CalAm shall enter into an agreement with MRWPCA and line the part or all of the land segment with a protective epoxy coating similar to that prescribed in **Mitigation Measure 4.13-5a (Installation of Protective Lining, Periodic Inspections, and As-Needed Repairs for Offshore Segment of MRWPCA Ocean Outfall)**.

Installation of any needed epoxy lining shall occur during the irrigation season (April through September) when nearly all of the wastewater effluent flows are diverted to the Salinas Valley Reclamation Facility. For purposes of epoxy installation, the interior of the land segment may be accessed at six locations along the segment (three manholes at separate locations within the MRWPCA treatment plant, an air relief in the middle of Armstrong Ranch, an inspection manhole just west of the bike trail west of Del Monte Boulevard and the junction structure near the ocean). To avoid impacts on special status or sensitive species at or between these access locations and in the staging area, site surveys will be completed by qualified biologists to identify any special status or sensitive species. If special status or sensitive species are identified, implementation of the following mitigation measures from Chapter 4.6 Terrestrial Biological Resources would ensure that impacts on special status or sensitive species at the site are reduced to a less-than-significant level: **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), Measure 4.6-1f (Avoidance and Minimization Measures for Smith's Blue Butterfly), Measure 4.6-1g (Avoidance and Minimization Measures for Black Legless Lizard, Silvery Legless Lizard, and Coast Horned Lizard), Measure 4.6-1h (Avoidance and Minimization Measures for Western Burrowing Owl), Mitigation Measure 4.6-1i (Avoidance and Minimization Measures for Nesting Birds), Mitigation Measure 4.6-1j (Avoidance and Minimization Measures for American Badger), Mitigation Measure 4.6-1l (Avoidance and Minimization Measures for Special-status Bats).** Any epoxy needed shall be installed in phases using the nearest interior access point. The small amount of effluent flowing through the portion of the land segment to be epoxied shall be plugged and dewatered as described below. The plugged portion of the segment shall be allowed to dry for 48 hours and then the epoxy lining shall be installed. Installation of epoxy lining in a given portion of the land segment shall not exceed

7 to 10 days, and shall not exceed 4 to 6 months within the entire land segment, if necessary (and thus would be completed within the April through September irrigation season).

When any needed epoxy lining is being installed in a portion of the land segment, the small amount of effluent flowing through the affected portion shall be diverted by inserting a hose or flexible pipe into the interior access point above the affected portion and running that hose or pipe along the surface to discharge into the next downstream access point. The final access point shall be the junction box at the head of the offshore segment of the ocean outfall. The surface hose or pipe will act as a temporary bridge along the land segment carrying effluent from above the plugged portion of the segment where epoxy lining is being installed to the next access point downstream of the work area. However, CalAm shall obtain all necessary RWQCB approvals and permits to temporarily run the hose along the ground surface.

4.13.5.3 Secondary Impacts of Mitigation Measure 4.13-5a

The lining of the outfall junction box and 100-foot-long segment of ocean outfall pipeline with a marine epoxy coating as directed by **Mitigation Measure 4.13-5a (Installation of Protective Lining, Periodic Inspections and As-Needed Repairs for Offshore Segment of MRWPCA Ocean Outfall)** could result in the accidental release of hazardous materials into the marine environment. As discussed in Section 4.3, Surface Water Hydrology and Water Quality, the construction contractor would be required to prepare a Stormwater Pollution Prevention Plan (SWPPP) for construction activities according to the NPDES General Construction Permit requirements. The SWPPP would list the hazardous materials proposed for use during construction and describe spill prevention measures and protocols for responding immediately to spills. As described further in Hazardous and Hazardous Materials Section 4.7.5.1, through compliance with applicable hazardous materials storage, disposal, and permitting regulations, hazardous materials impacts associated with potential releases would be less than significant.

4.13.5.4 Secondary Impacts of Mitigation Measure 4.13-5b

Potential secondary impacts associated with the implementation of **Mitigation Measure 4.13-5b (Assess Land Segment of MRWPCA Ocean Outfall and Install Protective Lining, if Needed)** are discussed below. To dewater and to dry segments of the land outfall for epoxy application, utility crews would access three manholes on MRWPCA property, an air relief access point on Armstrong Ranch, (the land to the west of the MRWPCA property), a manhole just west of the Monterey Peninsula Recreational Trail, and a junction structure near the ocean. Secondary impacts would be associated with possible disturbances to roadway, recreational trail, farmland, ranchland, and terrestrial resources as effluent diversion pipelines are temporarily installed either above ground or trenched.

To spray epoxy on the segments between the MRWPCA property and the junction structure during the different application phases, utility crews would likely impact the following:

- **Roadways:**
  - Utility crews would cut a one- to three-foot-wide trench across the MRWPCA access road to extend the diversion pipe onto Armstrong Ranch/farmland. Traffic flow on this minor two-lane road would be maintained through means of flaggers controlling

alternate one-way traffic flow on the available one-lane width (implemented as part of Mitigation Measure 4.9-1, Traffic Control and Safety Assurance Plan). Two-way traffic flow would be restored after road work is complete through the use of steel traffic plates. Once work that is dependent upon this diversion pipe is complete, the trench would be reopened, with traffic flow again being maintained using the above-described alternate one-way traffic flow system until the trench is filled and repaved. This impact on traffic flow would be reduced to less than significant with Mitigation Measure 4.9-1.

– Utility crews would cut a one- to three-foot-wide trench across Del Monte. On two-lane Del Monte Boulevard, traffic flow would be maintained through means of flaggers controlling alternate one-way traffic flow on the available one-lane width (implemented as part of Mitigation Measure 4.9-1, Traffic Control and Safety Assurance Plan). Two-way traffic flow would be restored after road work is complete through the use of steel traffic plates. Once work that is dependent upon this diversion pipe is complete, the trench would be reopened, with traffic flow again being maintained using the above-described alternate one-way traffic flow system until the trench is filled and repaved. This impact on traffic flow would be reduced to less than significant with Mitigation Measure 4.9-1.

– Utility crews would cut a one- to three-foot-wide trench across Lapis Road. Lapis Road would be temporarily closed just north of the CEMEX access road, and traffic would be detoured to Del Monte Boulevard via the southern intersection of Lapis Road / Del Monte Boulevard (implemented as part of Mitigation Measure 4.9-1, Traffic Control and Safety Assurance Plan) while crews cut a trench, install the pipe, and cover with steel plates. When work dependent upon the diversion pipe is complete, Lapis Road would again be temporarily closed and detoured in the same fashion above while the trench is reopened and filled and repaved. This impact on traffic flow would be reduced to less than significant with Mitigation Measure 4.9-1.

- **Recreational trail:**
  - Utility crews would cut a one- to three-foot-wide trench across the Monterey Peninsula Recreational Trail and backfill once the pipe has been installed. Once utility work is complete, the trench would be reopened, the pipe would be removed, and the surface would be returned to original condition. Construction would be of short duration and temporary, access will be provided around the work area and the impact would be less than significant.

- **Farmland:**
  - Utility crews would run a temporary diversion pipe above ground along a 0.25 mile stretch of the eastern portion of Armstrong Ranch that is currently cultivated in strawberries. The pipe would avoid existing row crops and work would be coordinated with agricultural operations. Any impacts would be temporary and less than significant.

- **Armstrong Ranch:**
  - Utility crews would run temporary diversion pipe across Armstrong Ranch and create a work staging area for underground crews at the air relief access point. Utility trucks would access Armstrong Ranch via unpaved roads that traverse the property. To access the air relief point from the nearest unpaved road, utility trucks would need to drive off-road approximately 450 feet along the scarred surface above the buried outfall in order to set the staging area for underground crews. To install the diversion

pipe for the different phases, utility trucks would drive off-road along the scarred surface on Armstrong Ranch from the farmland pipeline connection to the point nearest the manhole west of the bike trail. Impacts on special status or sensitive species would be reduced to less than significant with Mitigation Measure 4.13-5b.

4.13.6 Cumulative Effects of the Proposed Project

The cumulative scenario and cumulative impacts methodology are described in Section 4.1.7. Table 4.1-2 lists potential cumulative projects.

Impact 4.13-C: Cumulative impacts related to public services and utilities (*Less than Significant with Mitigation*)

As discussed in Section 4.13.5, the MPWSP would have no impact on public services. Accordingly, the MPWSP would not cause or contribute to cumulative impacts related to public services.

The geographic scope for cumulative utilities systems impacts consists of the service areas of utility providers for wastewater treatment, water treatment, stormwater drainage, water supply, and solid waste landfill needs, as defined in Section 4.13.1. For example, the geographic scope for landfill capacity and compliance with solid waste statutes and regulations considerations encompasses Monterey County. Cumulatively significant impacts on utility systems could result if the incremental effects of the MPWSP during the construction and/or operations phases combined with effects from one or more of the cumulative projects listed in **Table 4.1-2** that would result in a cumulatively considerable impact.

4.13.6.1 Cumulative Construction Impacts

Damage to or Disruption of Existing Utilities and Relocation of Utilities

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

As discussed in Impact 4.13-1, the MPWSP's potential utility impacts would be reduced to a less-than-significant level with implementation of **Mitigation Measures 4.13-1a (Confirm Utility Line Information)**, **4.13-1b (Coordinate Final Construction Plans with Affected Utilities)**, **4.13-1c (Safeguard Employees from Potential Accidents Related to Underground Utilities)**, **4.13-1d (Emergency Response Plan)**, **4.13-1e (Notify Local Fire Departments)**, and **4.13-1f (Ensure Prompt Reconnection of Utilities)**.

Cumulative projects that could cause utility impacts similar to those described for the MPWSP include those identified in **Table 4.1-2** involving future construction. Due to the localized nature of utilities, most potential impacts would likely be limited to construction areas or utility distribution subareas, rather than affecting the entire project area or utility service area. The incremental contribution of the residual (post-mitigation) effects of the MPWSP to a cumulative impact would not be substantial because most potential effects would be related to pipeline construction. Given the rate of pipeline installation (150 to 250 feet per day), MPWSP construction activities that have the potential to disrupt utility service would not occur in the vicinity of other cumulative projects for extended periods of time such that prolonged or frequent disruption of service would occur in the vicinity (or utility service subarea) of cumulative projects with potential to cause similar effects. Therefore, after implementation of mitigation measures described above, the MPWSP's residual effects would be minimal and would not have a cumulatively considerable contribution to significant cumulative utility service impacts (*less than significant with mitigation).*

Landfill Capacity and Compliance with Solid Waste Statutes

A significant cumulative impact would occur if the incremental impacts of the MPWSP combined with those of one or more of the cumulative projects would generate waste volumes that exceed available landfill capacity, or if the handling of those materials would violate applicable solid waste statutes. As discussed in Impact 4.13-2, construction of the MPWSP would generate an estimated 25,110 cubic yards (or 37,665 tons) of excess spoils and construction debris. Conservatively assuming all MPWSP construction waste would be disposed at the Monterey Peninsula Landfill, the MPWSP would represent approximately 0.05 percent of the landfill's remaining capacity. Construction could be inconsistent with the Monterey County Integrated Waste Management Plan because the total volume of construction wastes and excess spoils could be landfilled if not recycled properly. Because the Integrated Waste Management Plan is intended to address countywide diversion goals, being inconsistent with this plan could result in a cumulatively considerable contribution to a potentially significant cumulative impact. Most of the cumulative projects listed in **Table 4.1-2** would also generate construction-related waste. Given the landfill's finite capacity and the potential for waste diversion, and conservatively assuming all cumulative projects would dispose of solid waste at the Monterey Peninsula Landfill, a cumulatively significant effect could occur if cumulative projects generating solid waste did not adhere to State requirements for diversion of solid waste from landfills (see Section 4.13.2, Regulatory Framework, for additional details). However, such policies were put in place to address cumulative impacts; therefore it is unlikely that the projects in **Table 4.1-2** would result in significant adverse cumulative impacts on landfill capacity during construction. As described above, the proposed project would be required to implement **Mitigation Measure 4.13-2 (Construction Waste Reduction and Recycling Plan)**. Implementation of this measure would ensure consistency with the plan, and the residual impact therefore would not be cumulatively considerable (*less than significant with mitigation).*

4.13.6.2 Cumulative Impacts during Project Operations

Landfill Capacity and Compliance with Solid Waste Statutes

As discussed in Impact 4.13-3, operation of the MPWSP Desalination Plant would generate approximately 5 cubic yards (or 7.5 tons) of sludge or "cake" per day that would be disposed of at the Monterey Peninsula Landfill. As described in Section 4.13, this would result in an average daily disposal of 8.75 tons over the six days per week the landfill operates. This volume would represent approximately 0.35 percent of the facility's available daily receiving capacity of 2,500 tons (the difference between permitted capacity and current actual daily intake) and would continue throughout the project's lifetime. Over the assumed 40-year operating lifetime of the MPWSP, disposal of cake would represent 0.02 percent of the landfill's current remaining lifetime capacity. There are no known opportunities for reusing or recycling these solids, so diverting them from landfill disposal is not an option. As discussed previously, many of the cumulative projects identified in **Table 4.1-2** would also generate wastes. Given the relatively small effect of the MPWSP waste disposal on daily and absolute landfill receiving capacity, and the comparatively large contribution anticipated by cumulative projects, the MPWSP would not contribute considerably to a cumulatively significant landfill capacity impact (*less than significant).*

Generate Wastewater Flows that would Exceed Wastewater Treatment Requirements or the Capacity of the Existing Ocean Outfall

A significant cumulative impact would occur if the effects of the MPWSP combined with those of the cumulative projects would cause effluent flows to exceed the MRWPCA outfall's capacity or exceed wastewater treatment requirements. One of the projects in **Table 4.1-2** that would have the potential to contribute to cumulative wastewater flows is the Regional Urban Water Augmentation Project (RUWAP) Desalination Element. The effects of the MPWSP brine stream combined with the RUWAP Desalination Element brine stream were considered in the evaluation of the proposed project since the RUWAP flows would be included in the range of flows from the MRWPCA. Implementation of **Mitigation Measures 4.3-4** and **4.3-5** would manage the water quality impact associated with potential exceedances of the Ocean Plan water quality objectives by requiring CalAm to conduct water quality assessments prior to MPWSP implementation and to implement a comprehensive Monitoring and Reporting Plan that is consistent with the Ocean Plan requirements, to ensure this cumulative impact would be less than significant, and the project's contribution is not cumulatively considerable *(less than significant with mitigation).*

The MPWSP's brine stream would add approximately 14 mgd to the MRWPCA outfall's discharge. Projects identified in **Table 4.1-2** that would increase residential, commercial, office, or institutional development would generate new wastewater streams, many of which would be routed to the MRWPCA's Regional Wastewater Treatment Plant. Much of these flows would be recycled for irrigation purposes during the dry season, but could become part of the wastewater stream during the wet season. In addition, the RUWAP Desalination Element, if it was implemented, would increase brine flows through the MRWPCA outfall and diffuser. Under normal operating conditions, additional cumulative project wastewater effluent from the MRWPCA Regional Wastewater Treatment Plant, when combined with that of the MPWSP and

RUWAP brine streams, would not cause discharges to exceed the capacity of the existing ocean outfall except under extreme wet weather conditions (Trussell Technologies, 2012). The implementation of the RUWAP Recycled Water Element would deliver up to 1,400 afy of recycled water, and therefore, would reduce the volume of effluent that is discharged through the outfall and diffuser.

In addition, as discussed in Section 3.2.2.5, Brine Storage and Disposal of Chapter 3, Description of the Proposed Project, in the event that the brine stream combined with instantaneous peak flows of wastewater effluent from the MRWPCA Regional Wastewater Treatment Plant were to exceed the capacity of the outfall and diffuser during large storm events, CalAm would detain the MPWSP brine stream at the proposed brine storage basin until sufficient capacity is available in the outfall for discharge. The proposed 3-million-gallon brine storage basin has sufficient capacity to detain flows from approximately 6 hours of desalination plant operations, which represents the holding time necessary to avoid an exceedance during a worst-case scenario in which outfall capacity is reduced to approximately 41 mgd during instantaneous peak flows (Trussel Technologies, 2012). With detention, the MPWSP effluent would not substantially contribute to outfall capacity constraints. The effect of the MPWSP effluent on ocean outfall capacity impacts would not be cumulatively considerable (*less than significant*).

Increased Corrosion of the MRWPCA Outfall

A cumulatively significant impact would occur if the effects of the MPWSP combined with those of the cumulative projects would cause a substantial increase in corrosion of the MRWPCA outfall. As discussed in Impact 4.13-5, lack of oxygen at the offshore segment of the outfall would protect the outfall from increased corrosion and scaling due to anaerobic conditions. However, the land segment of the outfall, the existing junction box at the shoreline, and the first 100 feet of the offshore pipeline could experience aerobic conditions which would increase the potential for corrosion of these facilities, resulting in a significant impact. As discussed in Impact 4.13-5, it is assumed that the amount of treated wastewater effluent available for blending with (i.e., diluting) the brine stream would be highly variable throughout the year, and the brine stream could be discharged with little or no dilution for extended periods. **Mitigation Measure 4.13-5a (Installation of Protective Lining, Periodic Inspections, and As-Needed Repairs for Offshore Segment of MRWPCA Ocean Outfall)** requires a baseline inspection of the outfall and diffuser prior to MPWSP Desalination Plant operation, the application of a protective epoxy coating along the junction box and first 100 feet of the offshore outfall pipeline, annual inspections of the outfall and diffuser, and performance of any necessary corrosion-related repairs. Additionally, **Mitigation Measure 4.13-5b (Assess Land Segment of MRWPCA Ocean Outfall and Install Protective Lining, If Needed)** requires a detailed evaluation of the 13,000-foot-long land segment of the ocean outfall and, if needed, the application of a protective epoxy coating along the land segment.

Only two of the projects in **Table 4.1-2**, the RUWAP Recycled Water Element and the RUWAP Desalination Element, could potentially affect flows that utilize the outfall pipeline or diffuser. The RUWAP Recycled Water Element could reduce the volume of wastewater discharged through the outfall and diffuser during the summer months, while the RUWAP Desalination

Element could increase the volume of brine effluent discharged through the outfall and diffuser. Implementation of either project would result in an increase in the proportion of effluent that is composed of brine.

As noted previously, the analysis in Impact 4.13-5 assumes that the MPWSP brine stream could be discharged without dilution for extended periods since MRWPCA wastewater flows presently vary substantially across seasons. Therefore, MRWPCA wastewater flow reductions resulting from the RUWAP Recycled Water Element would not be expected to affect brine effluent-related corrosion or scaling of the MRWPCA outfall or diffuser beyond that described for the MPWSP. The brine concentration in the RUWAP Desalination Element's effluent would be similar to that of the MPWSP. Although the total volume of brine would increase with the MPWSP and RUWAP Desalination Element, the salinity would not be expected to change substantially. Therefore, the salinity would be close to that described for the proposed project, and may still result in a significant cumulative impact. Implementation of **Mitigation Measures 4.13-5a** and **4.13-5b** would substantially reduce the potential for MPWSP-related corrosion and scaling effects on the outfall and diffuser. The residual potential for MPWSP operations to contribute to cumulative impacts on the MRWPCA outfall or diffuser corrosion would be substantially reduced. Given that cumulative brine concentrations would not be substantially different from that of MPWSP operations alone, the proposed project would not contribute considerably to a cumulative impact involving corrosion of the MRWPCA outfall (*less than significant with mitigation).*

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4.14 Aesthetic Resources

Sections	Figures	Tables
4.14.1 Introduction, Key Concepts, and Terminology	4.14-1 Landscape Units and Scenic Roadways	4.14-1 Matrix for Ranking Aesthetic Resource Value
4.14.2 Setting / Affected Environment	4.14-2 Landscape Units of Northern Monterey Coastal Area	4.14-2 Applicable Regional and Local Plans and Policies Relevant to Aesthetic Resources
4.14.3 Regulatory Framework	4.14-3a Existing Setting	4.14-3 Summary of Impacts – Aesthetic Resources
4.14.4 Evaluation Criteria	4.14-3b Existing Setting	
4.14.5 Approach to Analysis	4.14-4 Existing Views of MPWSP Desalination Plant Site from Highway 1	
4.14.6 Direct and Indirect Effects of the Proposed Project	4.14-5 Visual Simulation of Terminal Reservoir from General Jim Moore Boulevard	
4.14.7 Cumulative Effects of the Proposed Project		

This section addresses the potential aesthetic and visual quality impacts associated with implementation of the Monterey Peninsula Water Supply Project (MPWSP or proposed project). Aesthetic resources, also referred to as visual resources, are comprised of the visible natural and built landscape features that exist in the project vicinity. The study area for aesthetic resources includes designated scenic roadways, scenic vistas, and other scenic resources, as well as the daytime and nighttime lighting environment in the project area.

Comments received on the April 2015 Draft EIR related to aesthetic resources concern the proposed project's compatibility with Fort Ord Dunes State Park, physical descriptions of the subsurface slant wells and MPWSP Desalination Plant, and recommendations for improvement measures related to facility design, screening, and nighttime lighting where not otherwise required to address a significant impact. This section has been modified to address these comments. Specifically, MPWSP's relationship to Fort Ord Dunes State Park is addressed in Section 4.14.6.1. Physical descriptions of the subsurface slant wells and MPWSP Desalination Plant are addressed in Section 4.14.6.2, Operational and Facility Siting Impacts. Recommended mitigation measures for facility design, screening, and nighttime lighting are addressed in Sections 4.14.6.1 and 4.14.6.2.

4.14.1 Introduction, Key Concepts, and Terminology

This assessment of the proposed project's impacts on aesthetic resources describes environmental baseline conditions in terms of visual character, visual quality, visual sensitivity, and landscape exposure; presents an evaluation of the potentially affected aesthetic resources as viewed from various points throughout the project area; and determines whether construction and/or operation of the proposed project components could adversely affect the identified aesthetic resources. The subsections that follow describe key terms and concepts used throughout this section.

4.14.1.1 Visual Character

Visual character is the unique set of landscape features that combines to make a view. These features include native landforms, water, and vegetation patterns as well as built features such as buildings roads, and other structures.

4.14.1.2 Aesthetic Resource Value

A site's overall aesthetic resource value is determined by considering three factors: visual quality, visual sensitivity, and landscape exposure. These three factors are described below.

Visual Quality

The intrinsic aesthetic appeal, or visual quality, of a landscape or scene is a function of both its natural elements and anthropogenic (human-induced) modifications. Landscapes composed of elements with compatible lines, shapes, forms, colors, and contrasts tend to be of high visual quality. Landscapes with high levels of disturbance that promote disharmony, reduce variety, or introduce chaotic assemblages of shapes and forms into a landscape (visual clutter) are generally considered to be of low visual quality. Occasionally, anthropogenic modifications may add to the aesthetic appeal of a landscape. For example, vineyards often add pleasing patterns and colors to a landscape. The visual quality of a particular setting is typically rated as low, moderate, or high depending on the relationships of the above-described landscape elements.

Visual Sensitivity

Visual sensitivity refers to the level of interest or concern the public has for a particular visible landscape. Areas that attract people because of their aesthetic appeal (e.g., parks, trails, and scenic highways, where expectations for aesthetically pleasing views are high) have high visual sensitivity. In contrast, developed urban areas, industrial parks, and other areas with highly modified landforms are typically considered to be of low visual sensitivity. This evaluation rates visual sensitivity as low, moderate, or high.

Landscape Exposure

Landscape exposure is a measure of the length of time (duration) and the frequency with which a particular landscape is generally observed. A rural landscape may be seen frequently and/or for long durations, but only by a few local residents, whereas an uninhabited landscape crossed by a highway may be seen by numerous travelers, but only for brief periods. In both cases, the landscape would be considered to have a high degree of exposure. The number of viewers and the duration of view are equally important in determining landscape exposure.

Consideration of the factors described above—visual quality, visual sensitivity, and landscape exposure—yields a qualitative measure of the overall aesthetic resource value of a given area. **Table 4.14-1** provides a matrix for assigning the aesthetic resource value of a site by ranking these factors as low, moderate, or high. Each factor contributes equally in determining the overall aesthetic resource value of a given landscape. The aesthetic resource value is determined by cross-referencing the visual quality ranking (column headings on top of horizontal axis), the landscape exposure (column headings on bottom of horizontal axis), and the visual sensitivity (row headings on vertical axis). For example, a site with a visual quality rating of moderate (center three columns), landscape exposure of high (center right column), and visual sensitivity of high (bottom row) would have an aesthetic resource value of high.

TABLE 4.14-1
MATRIX FOR RANKING AESTHETIC RESOURCE VALUE

		Visual Quality								
		Low			***Moderate***			***High***		
Visual Sensitivity	***Low***	L	L	M	L	M	M	M	M	M
	Moderate	L	M	M	M	M	M	M	M	H
	High	M	M	M	M	M	H	M	H	H
		Low	***Moderate***	***High***	***Low***	***Moderate***	***High***	***Low***	***Moderate***	***High***
		Landscape Exposure								

NOTES:
L = Low M = Moderate H = High

4.14.1.3 Visual Impact Severity

Visual impact severity is a measure of how profoundly the existing visual setting would be disturbed by implementation of the proposed project. The level of impact is typically evaluated from a public vantage point and takes into consideration the proposed structures, architectural details, and landscaping. Visual impact severity is given a low, moderate, or high rating depending on an evaluation of the following three factors: visual contrast with the surrounding setting; the dominance of the proposed project relative to the surrounding features; and the potential for the proposed project to impair public views of valued aesthetic features such as trees, ridgelines, water, sky, or other distinctive landforms.

4.14.2 Setting/Affected Environment

4.14.2.1 Scenic Routes

Several roads in the Monterey region have been designated as scenic roadways by the California Department of Transportation (Caltrans) and/or the local jurisdictions, or are deemed eligible for such designation. Designated scenic roadways and eligible scenic roadways in the project area include Highway 1, Highway 68, Reservation Road, and Carmel Valley Road. In addition, the Monterey Peninsula Recreational Trail is considered to be an important scenic route due to its sweeping coastal views.

Highway 1. Highway 1 is an important regional travel corridor within the project area. This highway varies from a two-lane surface state highway (with at-grade intersections) to a multi-lane freeway. Between the Santa Cruz County line and Highway 68, Highway 1 is eligible for designation as a scenic highway; the portion of Highway 1 between Highway 68 and the San Luis Obispo County line is a designated scenic highway; between the Salinas River and Highway 68, Highway 1 is eligible for designation as a scenic highway. Traffic volumes along Highway 1 are generally high, with average daily traffic ranging from 42,000 to 47,000 vehicles between Highway 156 and the city of Marina; and from 50,000 to 83,000 vehicles between Marina and the city of Monterey's southern boundary (Caltrans, 2015).

Highway 68. Highway 68, also known as the Monterey-Salinas Highway, is a state highway connecting Monterey with Salinas. The segment of Highway 68 extending from Highway 1 in the city of Monterey to the Salinas River is a state-designated scenic highway; the segment of Highway 68 extending from the Salinas River to the city of Salinas is eligible for designation as a scenic highway. Between the Highway 1 interchange in Monterey and the Reservation Road interchange in Spreckles, average daily traffic volumes on Highway 68 range from 21,800 to 29,000 vehicles (Caltrans, 2015).

Highway 156. Highway 156 is a state highway that serves as an important link between the Monterey Peninsula and destinations in the San Francisco Bay Area and Central Valley. The approximately 4-mile segment extending from Highway 1 to Highway 101 is a state-designated scenic highway. In addition, the approximately 1.5-mile segment of Highway 156 extending north from its junction with Highway 1 (north of Molera Road) through Castroville to the TAMC railroad overcrossing (west of Castroville Boulevard) is a Monterey County-designated scenic highway. Between Highway 1 and Highway 101, average daily traffic volumes on Highway 156 range from 29,000 to 31,000 vehicles (Caltrans, 2015).

Reservation Road. Reservation Road traverses the project area through both Marina and Monterey County, providing two travel lanes in each direction. The segment of Reservation Road that passes through unincorporated Monterey County is a County-proposed scenic corridor. The *City of Marina General Plan* indicates that Reservation Road provides scenic views of the inland hills in Marina (City of Marina, 2000).

Carmel Valley Road. Carmel Valley Road is a county-proposed scenic route from Highway 1 to Arroyo Seco Road. The *Monterey County General Plan* identifies the Carmel Valley as a prominent feature along this route. In the vicinity of the proposed Carmel Valley Pump Station site, Carmel Valley Road is both a four- and two-lane road. The segment between Highway 1 and Del Mesa Drive includes travel lanes in each direction. East of Del Mesa Drive, Carmel Valley Road provides one travel lane in each direction (Monterey County, 2010a).

Monterey Peninsula Recreational Trail. The Monterey Peninsula Recreational Trail is an 18-mile paved scenic path that extends from Castroville to Pacific Grove. Views from the trail include agricultural fields, open space and park lands, and the sandy beaches and dunes along the Monterey Bay coast.

4.14.2.2 Landscape Units

The coastal landscape of northern Monterey County is agriculturally rich, visually diverse, and recognized for its aesthetic character. This evaluation characterizes the visual setting in Monterey County and provides a framework for evaluating the visual effects of the proposed project by describing the region in terms of “landscape units” based on the Federal Highway Administration’s Method of Visual Resource Analysis (FHWA, 1987). The landscape units represent combinations of physical and cultural features that contribute to varying degrees of visual quality. For this analysis, landscape units are strictly aesthetic delineations based on factors such as land use, location, degree of urbanization, and boundaries of vegetation communities. The landscape units used in this evaluation to describe the regional landscape are: Urban and Built-up; Hillside

Residential; Agricultural; Beaches and Coastal Dunes; Grass and Rangeland; Riparian; Coastal Shrub; Oak Woodland; and Forested Hills. The distribution of the various landscape units in the project area and vicinity is shown in **Figure 4.14-1**; representative photographs of these landscape units are provided in **Figure 4.14-2**.

Urban and Built-up Landscape Unit

This landscape unit includes the cities of Monterey, Marina, Seaside, and Carmel Valley, as well as the surrounding unincorporated areas that are considerably built-up. This landscape unit is characterized by the predominance of anthropogenic features (i.e., urban development). Due to the high level of anthropogenic modifications, this landscape unit is generally considered to be of low visual quality. The proposed Brine Discharge Pipeline, the Pipeline to CSIP Pond, and the MPWSP Desalination Plant, as well as portions of the proposed Source Water Pipeline, the new Desalinated Water Pipeline, and the Castroville Pipeline would be constructed within or adjacent to the Urban and Built-up landscape unit north of Reservation Road. A portion of the Ryan Ranch–Bishop Interconnection Improvements, portions of the proposed new Transmission Main, ASR pipelines (ASR Conveyance Pipeline, ASR Pump-to-Waste Pipeline, and ASR Recirculation Pipeline), ASR-5 Well and ASR-6 Well, and Carmel Valley Pump Station, would be constructed within or adjacent to the Urban and Built-up landscape unit south of Reservation Road. The Urban and Built-up areas in which the proposed facilities would be constructed range in visual quality from low (e.g., highly developed commercial/industrial corridors) to moderate (e.g., tree-lined neighborhood streets).

Hillside Residential Landscape Unit

This landscape unit consists of single-family residential housing on large lots in and around hillside areas. It is distinguished from the Urban and Built-up landscape unit by the substantially greater distance between dwellings. The hillsides are both wooded and open and often offer expansive views. The visual quality of this landscape unit is moderate to high because of its distinctive relief, semi-natural state, and open views of land, sky, and ocean. No project components would be constructed within the Hillside Residential landscape unit north of Reservation Road. A portion of the proposed Ryan Ranch–Bishop Interconnection Improvements as well as the Main System–Hidden Hills Interconnection Improvements would be located within or adjacent to the Hillside Residential landscape unit south of Reservation Road.

Agricultural Landscape Unit

North of Reservation Road, an Agricultural landscape unit extending along the Salinas River and north to the Salinas Valley is known for its rural and agricultural aesthetic. The quintessential rural landscape brings to mind vast agricultural fields, farmhouses, water towers, and small dusty towns. The visual quality of this landscape unit varies from moderate to high, depending on the degree to which cultural features (crops, utilities, industry, highways, etc.) either contribute to or detract from its original feel. Portions of the proposed Castroville Pipeline, Source Water Pipeline, new Desalinated Water Pipeline, Brine Discharge Pipeline, and Pipeline to CSIP Pond would be constructed adjacent to the Agricultural landscape unit north of Reservation Road. There is no Agricultural landscape unit in the vicinity of the MPWSP facilities located south of Reservation Road.

Beaches and Coastal Dunes Landscape Unit

The Beaches and Coastal Dunes landscape unit is one of the most distinctive in the project area and tends to attract people because of its aesthetic appeal. The coastal dunes are up to 100 feet tall and have moderate to steep slopes stabilized to varying degrees by scattered patches of dune scrub. The dunes and adjacent Monterey Bay (within MBNMS) display soft forms, curved lines, and distinctive natural color contrasts that are visually appealing. This landscape unit contains gently sloped, broad, white-sand beaches that extend along an increasingly curved arc from Moss Landing to Monterey. The majority of this unit lies west of Highway 1, extends south from the Salinas River to a point near the Monterey/Pacific Grove city limits, and is generally of high visual quality. North of Reservation road, the proposed seawater intake system and a portion of the Source Water Pipeline would be located within the Beaches and Coastal Dunes landscape unit. South of Reservation Road, an approximately 2-mile segment of the new Transmission Main would be sited within the Beaches and Coastal Dunes landscape unit.

Grass and Rangeland Landscape Unit

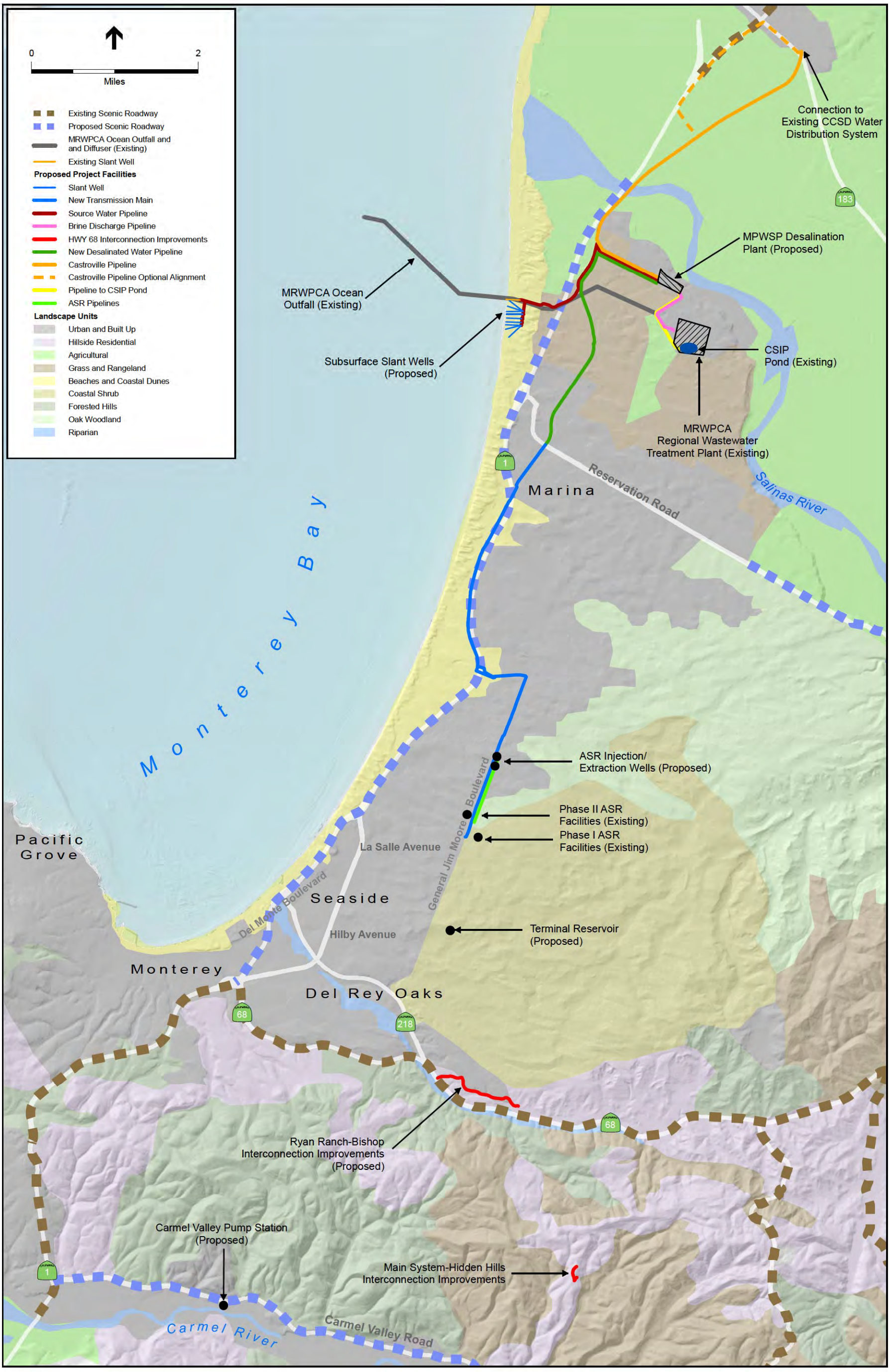
This landscape unit consists of natural grassland habitat or undulating grass-covered hills that have been previously logged or grazed. The visual quality of the Grass and Rangeland landscape unit is moderate to high depending on whether the area has been degraded by human activity. Land uses commonly found in this landscape unit include grazing land, farmland, and utility infrastructure. Portions of the proposed new Desalinated Water Pipeline, Source Water Pipeline, Pipeline to CSIP Pond, and Brine Discharge Pipeline would be constructed within or adjacent to the Grass and Rangeland landscape unit north of Reservation Road. No project components would be located within the Grass and Rangeland landscape unit south of Reservation Road.

Riparian Landscape Unit

This landscape unit consists of wetlands, marshes, sloughs, and stream corridors. These areas are often flat and contain wetland vegetation and riparian trees, including cottonwood, sycamores, and willows. Views of the sky and surroundings in the Riparian landscape unit are limited because of the low elevation. However, the presence of water, pleasing color contrasts, and a variety in vegetation give moderate to high visual quality to this landscape. North of Reservation Road, a segment of the proposed Castroville Pipeline would cross the Riparian Landscape Unit at the Salinas River. There are no proposed MPWSP facilities south of Reservation Road that would occur within the Riparian Landscape Unit.

Coastal Scrub Landscape Unit

The Coastal Scrub landscape unit occupies non-urbanized areas within well-stabilized sand dunes in and around the cities of Marina and Seaside and the former Fort Ord military base. This landscape is mantled with vegetation and characterized by gently rolling hills of up to 400 feet above sea level. The majority of this hilly landscape unit affords open views of adjacent scenery and the sky. The visual quality of this unit is moderate to high depending on whether the area has been negatively influenced by human activity (i.e., adjacent land uses, soil disturbance, power lines, etc.). No project components are proposed within the Coastal Scrub landscape unit north of Reservation Road. South of Reservation Road, the proposed Terminal Reservoir would be constructed within this landscape unit.



SOURCE: ESA, 2016; Monterey County, 2016

205335.01 Monterey Peninsula Water Supply Project

Figure 4.14-1

Landscape Units and Scenic Roadways

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PL Urban Builtup Monterey

Hillside Residential

Agricultural

AG & Coastal Dunes

NM Rangeland

Riparian and Built up

Coastal Scrub

Oak Woodland

TF Forested Hills

SOURCE: ESA

MPWSP 205335.01

Figure 4.14-2

Landscape Units of Northern Monterey Coastal Area

Oak Woodland Landscape Unit

Patches of coast live oak woodland are in areas containing older, more stable and developed soils. The Oak Woodland landscape unit, which is present in and around the former Fort Ord military base, has a dense to moderately open canopy and sparse herbaceous understory. The topography of this landscape unit consists of hills with gentle to moderate slopes. The Oak Woodland unit has a savannah-like to more densely wooded appearance, depending on canopy cover, which ranges from 20 to 60 percent of the ground surface. The visual quality of this landscape is moderate to high because this unit is primarily open space with minimal or no anthropogenic changes. There are no MPWSP facilities proposed for the Oak Woodland landscape unit.

Forested Hills Landscape Unit

This landscape unit primarily occurs in the mountains between the Pacific Ocean and the Carmel Valley, along the Highway 68 corridor, and in the Carmel Valley. The Forested Hills landscape unit consists almost entirely of large evergreen trees on moderate to steep slopes. Roads may crisscross the landscape, but these areas are typically remote and devoid of homes or other structures. The visual quality of this landscape is moderate to high depending on the steepness of topography, availability of views, and the degree of forest cover. There are no project components proposed within or adjacent to this landscape unit.

4.14.2.3 Visual Setting of the Project Area

This subsection describes the existing visual character of the areas in which MPWSP components would be constructed. In addition, photographs taken from representative public vantage points portrays the visual character of these locations. **Figure 4.14-2** presents the general setting photographs, which represent the landscape units depicted in **Figure 4.14-1**. **Figures 4.14-3a** and **4.14-3b** depict specific sites where MPWSP components are proposed.

The visual setting of each proposed facility site is described below in terms of its location within a particular landscape unit and its visual quality, visual sensitivity, and landscape exposure. The assigned rating for aesthetic resource value (low, moderate, or high) is based on a combination of these three factors, as shown in the matrix provided in **Table 4.14-1**. Existing lighting conditions at each site are also described relative to currently visible light sources.

Subsurface Slant Wells

The proposed subsurface slant wells would be located west of Highway 1 in the Beaches and Coastal Dunes landscape unit at the CEMEX sand mining facility (see **Figure 4.14-3a**, Photo 1). The CEMEX site is characterized by highly disturbed, relatively uniform sandy basins that are devoid of vegetation and surrounded by steeply sloping, sparsely vegetated, white-sand dunes. The site contains cleared and bladed roads through the dunes and vegetation; dewatering pits; material stockpiles; a graveled equipment staging area and storage yard; several one-story administrative and warehouse structures; and several pieces of heavy equipment. Views of the area from passing vehicles on Highway 1 are partially screened by the intervening dunes and Monterey cypress trees along the site's eastern (landward) perimeter. Most of the site's facilities and operations are not

Photo 1. East-facing view of the CEMEX sand mining facility from beach access road (ESA, 2013).

Photo 2. Southeast-facing view from site of proposed MPWSP Desalination Plant (right) toward the Monterey Regional Environmental Park (ESA, 2013).

Photo 3. East-facing view from Charles Benson Road entrance to Monterey Regional Water Pollution Control Agency's Wastewater Treatment Plant site (ESA, 2013).

Photo 4. Northeast-facing view along General Jim Moore Boulevard of the proposed ASR injection/extraction wells site (ESA, 2013).

SOURCE: ESA, 2014

205335.01 Monterey Peninsula Water Supply Project

Figure 4.14-3a

Existing Setting

Photo 5. East-facing view of Fremont Street along new Monterey Pipeline alignment (ESA, 2013).

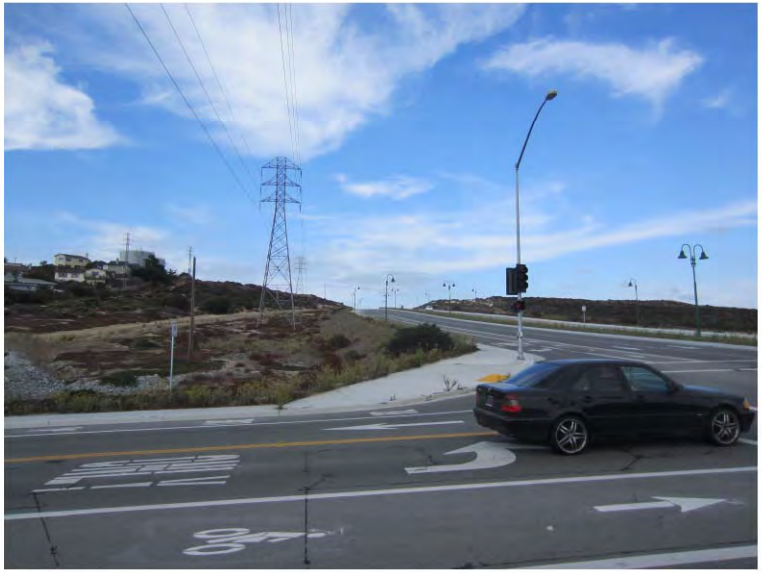

Photo 6. North-facing view from Hilby Avenue towards General Jim Moore Boulevard (ESA, 2013).

Photo 7. South-facing view of Monterey Pump Station site (ESA, 2013).

Photo 8. South-facing view of Carmel Valley Pump Station site (ESA, 2014).

SOURCE: ESA, 2014

205335.01 Monterey Peninsula Water Supply Project

Figure 4.14-3b
Existing Setting

visible from the beach, due to the intervening dune topography. A sand road and several vertical structures are visible from the beach (e.g., processing plant and bollards protecting an existing monitoring well). However, they generally appear distant and subordinate to the existing dune landscape features. Sources of light and glare in the vicinity include nighttime lighting emanating from the CEMEX facility and low-volume automobile headlights from Highway 1. The visual quality of the Beaches and Coastal Dunes landscape unit is generally high. However, due to extensive alterations to the natural features at the CEMEX facility, the visual quality of the site is considered moderate. The site's visual sensitivity is high because of its location along the coast and proximity to Highway 1, which is an eligible state scenic highway. The visual exposure of the site is low, since the site is partially screened by dunes and trees and is mainly visible only from automobiles traveling along Highway 1 at speeds of 60 miles per hour. Based on the above-described factors, the site for the proposed subsurface slant wells has a moderate aesthetic resource value.

MPWSP Desalination Plant

The proposed MPWSP Desalination Plant site lies within the Urban and Built-up landscape unit, adjacent to Charles Benson Road, southeast of the Dole and Budweiser processing facility at the northeast corner of Monte Road and Neponset Road, and northwest of the Monterey Regional Environmental Park, also known as the Monterey County landfill. The site is bordered on the west and north by agricultural lands and the Salinas River, and on the south by Armstrong Ranch. The proposed MPWSP Desalination Plant site was previously used for agricultural production but is currently fallow; as a result, the site is mainly composed of dead, low-lying, ruderal brush. The landscape of the proposed site is highly disturbed, with old crop rows evident in the soil beneath the dead brush (see **Figure 4.14-3a**, Photo 2). To the northwest, the Dole and Budweiser processing facility consists of warehouses and a large asphalt loading, sorting, and truck staging/parking yard with outdoor lighting for nighttime activities. To the southeast, development within the adjacent Monterey Regional Environmental Park consists of office buildings and. Structures on the Monterey Regional Environmental Park site range in size from one- to two-story buildings (up to approximately 30 feet tall), ranging in size from approximately 4,500 square feet to over 100,000 square feet. South of the Monterey Regional Environmental Park lies the several-hundred-acre Monterey Regional Water Pollution Control Agency's (MRWPCA) Regional Wastewater Treatment Plant and drying beds. The treatment plant includes primary clarifiers, trickling filters, and a generation plant, each rising to heights of approximately 35 to 45 feet (see **Figure 4.14-3a**, Photo 3).

Existing sources of light and glare near the MPWSP Desalination Plant site include automobile headlights along Charles Benson Road, nighttime lighting from the Dole and Budweiser processing facility, and nighttime security lighting from adjacent agricultural operations and the Monterey Regional Environmental Park. Overall, given the site's location within the Urban and Built-up landscape unit, and considering the industrial development surrounding the site, the visual quality is considered low. The visual exposure is low because this site is only seen for short durations by travelers along Charles Benson Road and is screened by rows of trees to the south and west. The visual sensitivity of the site is also rated low, as the area is not located within

a vista or view corridor and is not valued for recreational uses. Based on the above-described factors, the aesthetic resource value of the MPWSP Desalination Plant site is low.

Pipelines and Other Conveyance Facilities North of Reservation Road

All pipeline segments, including those proposed for areas north of Reservation Road, would be buried beneath the ground surface.

Source Water Pipeline

The Source Water Pipeline alignment would traverse approximately 2.2 miles of mostly undeveloped terrain in the Beaches and Coastal Dunes, Grass and Rangeland, and Urban and Built-up landscape units, characterized by mostly open and flat terrain consisting of coastal scrub, grassland, and agricultural fields. The proposed alignment would extend east along the CEMEX access road from the proposed subsurface slant wells (described above), past agricultural lands, and beneath Highway 1 to Lapis Road. Along Lapis Road, the Source Water Pipeline would be collocated with the new Desalinated Water Pipeline and extend north within or adjacent to the existing road rights-of-way. The pipeline would continue south along Del Monte Boulevard to Charles Benson Road. The approximately 0.8-mile segment of the proposed Source Water Pipeline between Del Monte Boulevard and the proposed MPWSP Desalination Plant site, and the Source Water Pipeline Optional Alignment, would be constructed along Charles Benson Road. This segment would traverse Urban and Built-up and Grass and Rangeland landscape units, characterized by increasingly intensive land uses and with views more constrained by topography and mature cypress trees along Charles Benson Road.

Sources of light and glare in the surrounding area include nighttime lighting emanating from the CEMEX sand mining facility and the Monterey Regional Environmental Park, and headlights from low-volume automobile traffic along nearby roadways. Overall, given its location along Highway 1 (an eligible state scenic highway) and the Monterey Peninsula Recreational Trail, the visual sensitivity of the proposed Source Water Pipeline alignment is considered high. Because of the alignment’s proximity to the coast and Highway 1 as well as its location within visually appealing topography, there is a high likelihood that the public would notice visual changes along the proposed pipeline alignment. However, because the alignment area is only fleetingly visible, mainly by local and regional motorists traveling along Highway 1 (at speeds of 60 miles per hour) or from Del Monte Boulevard, Lapis Road, and Charles Benson Road, the visual exposure of the alignment would be low. Because the proposed alignment would traverse varied landscapes, it is given a moderate rating for visual quality. Based on the above-described factors, the aesthetic resource value of the proposed alignment for the Source Water Pipeline is moderate.

New Desalinated Water Pipeline

For purposes of the visual setting, the approximately 0.8-mile segment of the proposed new Desalinated Water Pipeline between Del Monte Boulevard and the proposed MPWSP Desalination Plant site, and the new Desalinated Water Pipeline Optional Alignment, would occur within the same setting as described above for the Source Water Pipeline Optional Alignment and corresponding segment of the proposed Source Water Pipeline. The segments of the new

Desalinated Water Pipeline proposed along Lapis Road and Del Monte Boulevard north of Marina Green Drive would occur within the Grass and Rangeland landscape unit (containing mostly undeveloped terrain, low scrub vegetation, and fallow fields). The segment along Del Monte Boulevard south of Marina Green Drive would occur within the Urban and Built-up landscape unit, characterized by light industrial, commercial and residential development, and intermittent open space areas. Sources of light and glare in the surrounding area include nighttime lighting emanating from existing development along Charles Benson Road and within the city of Marina and low-volume automobile headlights along nearby roadways.

Overall, given the new Desalinated Water Pipeline's location along a portion of the Monterey Peninsula Recreational Trail, the visual sensitivity of this alignment is considered moderate. For the same reason, there is a high likelihood that the public would notice visual changes along the pipeline alignment. However, because the alignment area is only fleetingly visible, mainly by local and regional motorists traveling along Highway 1 (at speeds of 60 miles per hour), or people traveling along Del Monte Boulevard, Lapis Road, and Charles Benson Road, the visual exposure of the alignment would be low. Given that the proposed pipeline would pass through both vast open space areas of fairly high visual quality and more densely developed areas of lower visual quality, the alignment is given a moderate rating for visual quality. Based on the above-described factors, the aesthetic resource value of the new Desalinated Water Pipeline route is moderate.

Castroville Pipeline

The approximately 0.8-mile segment of the proposed Castroville Pipeline between proposed MPWSP Desalination Plant site and Del Monte Boulevard, and the Castroville Pipeline Optional Alignment 2, would occur within the same setting as the Source Water Pipeline, Source Water Pipeline Optional Alignment, new Desalinated Water Pipeline, and new Desalinated Water Pipeline Optional Alignment. The segment extending from Del Monte Boulevard to the CCSD Well #3 on Merritt Street would follow the TAMC right-of-way. The proposed route is almost entirely within the Agricultural landscape unit, characterized by predominantly flat agricultural land in row crop production, and with expansive views of exposed earth, silhouettes of far-off hills, and big skies. There are few sources of nighttime lighting along the proposed alignment; those that do exist are generally limited to distant vehicle headlights and exterior lighting from development in the Castroville area near the alignment's northern terminus. Given the uniformity of the landscape form and pattern, the sweeping views, and its proximity to proposed and designated scenic highways, the alignment is considered to have a moderate scenic quality. Similarly, given the agricultural landscape's contribution to the scenic appeal of this region, the visual sensitivity of the alignment is also considered moderate. The landscape exposure of the alignment is considered low, owing to its lack of prominence in views from public vantage points; the alignment may be visible, but is not conspicuous to motorists traveling along Highways 1 or 156. Based on the above-described factors, the aesthetic resource value of the above-described segment of the Castroville Pipeline is moderate.

Castroville Pipeline Optional Alignment 1

Castroville Pipeline Optional Alignment 1 is within both the Agricultural and Urban and Built-up landscape units. The landscape character in the vicinity of Nashua Road and the Monterey Peninsula Recreational Trail is predominantly flat agricultural land in row crop production. The character of the segment along Merritt Way and Merritt Street is urban, dominated by commercial and light industrial type development. Sources of nighttime lighting include vehicles traveling along Highways 1 and 156, and exterior lighting from development in the Castroville area. For the reasons described for the proposed Castroville Pipeline, above, and with consideration for Castroville's urban character, Optional Alignment is considered to have a moderate scenic quality and visual sensitivity. The landscape exposure of Optional Alignment is high; the alignment north of Nashua Road is visible to a large number of northbound motorists traveling on Highways 1 and 156 and users of the Monterey Peninsula Recreational Trail. However, as the alignment area is visible primarily to viewers in motion, views of the alignment are generally only fleetingly visible. For the above reasons, the aesthetic resource value of the Castroville Pipeline Optional Alignment is moderate.

Brine Discharge Pipeline and Pipeline to CSIP Pond

The proposed Brine Discharge Pipeline and Pipeline to CSIP Pond would extend from the MPWSP Desalination Plant site to the southern portion of the Monterey Regional Environmental Park. The pipelines would be sited at the intersection of Grass and Rangeland, Urban and Built-up, and Agricultural landscape units, characterized by undeveloped grasslands and agricultural fields to the south and southwest and the Monterey Regional Environmental Park MRWPCA Treatment Plant to the north and east. Sources of light and glare in the surrounding area include nighttime lighting emanating from the Monterey Regional Environmental Park and MRWPCA Treatment Plant, and automobile headlights along Charles Benson Road.

The visual exposure of the site is low because it is only seen for short durations by motorists traveling along Charles Benson Road or by visitors to the Monterey Regional Environmental Park. Furthermore, the visual sensitivity is low, as the area is not located within a vista or view corridor and is not valued for recreational uses. Given the surrounding industrial development, the visual quality is considered low. Based on the above-described factors, the aesthetic resource value of the proposed Brine Discharge Pipeline and Pipeline to CSIP Pond alignments is low.

Improvements to ASR System

ASR-5 and ASR-6 Wells

The proposed ASR-5 and ASR-6 Wells would be located in an area that is currently vegetated with oak and conifer trees in the Fitch Park military housing community, within the Urban and Built-up landscape unit (see **Figure 4.14-3a**, Photo 4). In the project vicinity, General Jim Moore Boulevard is a recently improved north-south thoroughfare surrounded by open space, recreational facilities, and suburban land uses. This four-lane roadway has two travel lanes in each direction, separated by a landscaped median. The densely vegetated surroundings of the ASR injection/extraction wells sites contribute to a moderate visual quality. Potential sources of light and glare include automobile headlights, streetlights along General Jim Moore Boulevard, nearby golf course facilities, and adjacent residential areas.

While numerous residences are located in the area, the ASR-5 and ASR-6 Wells would be visible only from those few homes adjacent to and west of General Jim Moore Boulevard. However, General Jim Moore Boulevard itself supports high daily traffic volumes, and the proposed ASR-5 and ASR-6 Wells sites would be slightly elevated above the road. As such, the sites are visible for short durations by motorists along this transportation corridor, and for longer durations by pedestrians and bicyclists. Therefore, the visual exposure of the ASR-5 and ASR-6 Wells sites is considered moderate. Additionally, while these facilities would not be within view of any designated scenic vistas or corridors, they would be located in a heavily vegetated area. Therefore, the visual sensitivity of the area is considered moderate. Based on the above-described factors, the aesthetic resource value of the area is moderate.

ASR Pipelines

The ASR Conveyance Pipeline, ASR Recirculation Pipeline, and ASR Pump-to-Waste Pipeline would extend along General Jim Moore Boulevard between the proposed ASR-5 and ASR-6 wells and existing facilities at Coe Avenue. The proposed pipelines would be sited within the road right-of-way, between the Urban and Built-up and Oak Woodland landscape units. Heading south from the ASR-5 and ASR-6 Wells, the landscape in this area is characterized by medium-density residential development and open space with dense stands of tall scrub vegetation and varying topography to the east, and golf course and public institutional development to the west. Sources of light and glare in the area include automobile headlights, streetlights along General Jim Moore Boulevard, nearby golf course facilities, and adjacent residential areas.

Despite the alignment's location within the Urban and Built-up landscape unit, the densely vegetated and open space areas on either side of the alignment contribute to the landscape's moderate visual quality. The pipeline would be sited within the road right-of-way, which is not an element important to the landscape's overall aesthetic appeal; therefore, the alignment is considered to have a low visual sensitivity. The alignment is visible primarily to motorists, but also cyclists and pedestrians traveling along General Jim Moore Boulevard. However, portions of the alignment may also be visible from residences situated along the roadway. As a result, the visual exposure is considered moderate. Based on the above-described factors, the aesthetic resource value for the proposed ASR Pipelines route is moderate.

Pipelines and Other Conveyance Facilities South of Reservation Road

New Transmission Main

The new Transmission Main would extend from its connection with the new Desalinated Water Pipeline at Reservation Road in Marina to existing facilities at the General Jim Moore Boulevard/Coe Avenue intersection in Seaside. The alignment would be sited within the Urban and Built-up and Beaches and Coastal Dunes landscape units— the former generally occurring to the east of Highway 1 and the latter generally occurring to the west. The character of the alignment area within Marina, east of Highway 1, is similar to that described previously for the adjacent segment of the new Desalinated Water Pipeline (south of Marina Green Drive), defined primarily by medium-density commercial and residential development. The visual character of the alignment area west of Highway 1, including that of the new Transmission Main optional

alignment, is defined by the adjacent highway to the east and mostly undeveloped expanses of coastal dunes, low-lying dune vegetation, and intermittent glimpses of the ocean to the west. The character of the alignment area within Seaside, east of Highway 1, is similar to that described previously for the ASR pipelines, defined by low density institutional and commercial development and residential communities, interspersed with large and mostly undeveloped patches of mature coastal scrub vegetation. Sources of light and glare along the alignment include nighttime lighting emanating from the developments in the vicinities of segments east of Highway 1, as well as automobile headlights along nearby roadways.

The visual quality of the proposed new Transmission Main alignment area overall is considered moderate, accounting for the mostly undeveloped coastal dunes landscape and associated views along the west side of Highway 1, as well as the more varied mix of urban, suburban, and open landscapes to the east. The visual sensitivity of the alignment area is considered moderate; segments to the west of Highway 1 are scenic areas, whereas segments along the more varied landscapes east of Highway 1 have less aesthetic appeal. The exposure of the site is considered high; the alignment area would be visible to users of the Monterey Peninsula Recreational Trail and motorists along Highway 1 and surface streets, as well as from adjacent residences as described for ASR Pipelines, above. Based on the above-described factors, the aesthetic resource value of the new Transmission Main route is high.

Terminal Reservoir

The Terminal Reservoir would be constructed on a site in the Coastal Shrub landscape unit. This site lies on a small ridge, surrounded by gently sloping hills and is covered with low scrub vegetation. The area has been disturbed to varying degrees by earthmoving activities associated with the expansion of General Jim Moore Boulevard and restoration and redevelopment at the former Fort Ord military base. The visual context on the west side of General Jim Moore Boulevard, opposite the proposed Terminal Reservoir site, includes high-voltage power lines, unpaved service roads, and residential development (see **Figure 4.14-3b**, Photo 6). Two large water storage tanks owned by the city of Seaside are visible from the intersection of Hilby Avenue and General Jim Moore Boulevard. Surrounding light and glare could emanate from such sources as nearby homes and automobile headlights along General Jim Moore Boulevard.

Existing overhead power lines and densely developed residential areas located within the adjacent Urban and Built-up landscape unit to the west diminish the visual quality of the proposed Terminal Reservoir site. Therefore, the site is given a moderate rating for visual quality. The visual exposure of the site is high, as it could be visible from several blocks of residences along Mescal Street and from vehicles traveling along General Jim Moore Boulevard. A small number of area residents would have distant views of the site; motorists on General Jim Moore Boulevard would have only fleeting views of the site. The visual sensitivity of the site is rated moderate, since the adjacent area is mostly vegetated and undeveloped, yet it is not situated within a scenic vista or view corridor and is not valued for recreational uses. Based on the above-described factors, the aesthetic resource value of the Terminal Reservoir site is moderate.

Carmel Valley Pump Station

The Carmel Valley Pump Station would be located approximately 240 feet south of Carmel Valley Road near the intersection of Rancho San Carlos Road. The proposed pump station site falls within the Urban and Built-up landscape unit. The area is characterized by inconspicuous, large-lot, low-density single-family residential development nestled between undulating hills covered in coastal scrub and oak woodlands to the north, and the wooded Carmel River corridor to the south (see **Figure 4.14-3b**, Photo 8). Sources of nighttime lighting include exterior lighting from homes adjacent to the site and headlines from occasional traffic along Carmel Valley and Rancho San Carlos Roads. In this area, Carmel Valley Road is a proposed scenic highway. For these reasons, the visual quality of the landscape is high. However, the site's visual sensitivity and landscape exposure are considered low. Despite its proximity to Carmel Valley Road, the site contributes little to the landscape's aesthetic appeal; the site is flat, disturbed and without mature vegetation, and is not plainly visible from any nearby public vantage point. Based on the above-described factors, the aesthetic resource value of the Carmel Valley Pump Station site is moderate.

Ryan Ranch–Bishop Interconnection Improvements

The Ryan Ranch–Bishop Interconnection Improvements would extend from the intersection of Highway 68 and Ragsdale Drive, through the Ryan Ranch community, and then along Ragsdale Drive, Lower Ragsdale Drive, Wilson Drive, and Blue Larkspur Lane. This route is located between the Hillside Residential and Urban and Built-up landscape units, an area characterized by suburban commercial/business-park development amid large tracts of vegetated open space. Sources of light and glare include nighttime lighting emanating from the surrounding Urban and Built-up landscape and automobile headlights along nearby roadways. The visual sensitivity is considered high given this project component's proximity to Highway 68, which is a state scenic highway. The visual exposure is moderate, as the alignment area is visible to motorists for several blocks. Despite the nearby commercial/business-park development, the vegetated open spaces surrounding the proposed Ryan Ranch–Bishop Interconnection Improvements contribute to a moderate visual quality. Based on the above-described factors, the aesthetic resource value of the Ryan Ranch–Bishop Interconnection Improvements is moderate.

Main System–Hidden Hills Interconnection Improvements

The Main System–Hidden Hills Interconnection Improvements alignment would extend for approximately 1,200 feet along Tierra Grande Drive within the Hillside Residential landscape unit. This area consists of single-family homes on large lots amid rolling hills and vast open spaces. Sources of light and glare include nighttime lighting emanating from nearby residences and automobile headlights along nearby roadways. The visual quality of this landscape unit is moderate due to the semi-natural state and open views of undeveloped lands. The visual exposure of the area is moderate. A small number of residents along Tierra Grande Drive would have views of construction activities associated with the Main System–Hidden Hills Interconnection Improvements. Motorists on upper Tierra Grande Drive would only have fleeting views of construction activities as they drove by the construction zone. The visual sensitivity of the site is rated moderate, because the adjacent area is mostly vegetated and undeveloped, yet not located

within a vista or view corridor and not valued for recreational uses. Based on the above-described factors, the aesthetic resource value of the Main System–Hidden Hills Interconnection Improvements is moderate.

4.14.3 Regulatory Framework

This section provides an overview of notable federal, state, and local environmental laws, policies, plans, regulations, and/or guidelines relevant to aesthetic resources. A brief summary of each is provided, along with a finding regarding the MPWSP's consistency with those regulatory requirements. The consistency findings concern the MPWSP as proposed, without mitigation. Where the MPWSP, as proposed, would be consistent with the applicable regulatory requirement, no further discussion of project consistency with that regulatory requirement is provided. Where the MPWSP, as proposed, would be potentially inconsistent with the applicable regulatory requirement, the reader is referred to a specific impact discussion in Section 4.14.6, Direct and Indirect Effects of the Proposed Project, below, where the potential inconsistency is addressed in more detail. Where applicable, the discussion in Section 4.14.6 identifies feasible mitigation that would resolve the potential inconsistency.

4.14.3.1 Federal Regulations

Guidelines for Desalination Plants in the Monterey Bay National Marine Sanctuary

As discussed in previous sections, MBNMS regulations are found in Title 15, Part 922 of the Unites States Code. In addition, the Guidelines for Desalination Plants in the Monterey Bay National Marine Sanctuary ("Desalination Plant Guidelines") were developed to guide siting, review, and development of desalination facilities in a manner that is protective of MBNMS resources. The Guidelines specify that desalination plants should be designed to minimize visual impacts on coastal resources. The subsurface slant wells would be located near the coast. However, due to intervening dune topography, they would be mostly, if not entirely, screened from view from the beach and offshore areas within MBNMS. As such, the project would not be expected to conflict with the Guidelines. Furthermore, mitigation has been identified to ensure that the slant well facilities avoid or minimize contrast with the surrounding setting (see Impact 4.14-3 and Mitigation Measure 4.14-3a, Facility Design). No other MPWSP facilities are proposed for locations that would be visible from MBNMS or would inhibit views of MBNMS. The Desalination Plant Guidelines are further addressed in Section 6.4 of this EIR/EIS.

Coastal Zone Management Act

The Coastal Zone Management Act (CZMA) of 1972 provides for management of the nation's coastal resources, including the Great Lakes, and balances economic development with environmental conservation. The California Coastal Commission has jurisdiction for CZMA implementation throughout the state.[1] The California Coastal Act contains numerous enforceable

[1] Except within the San Francisco Bay-Delta where the Bay Conservation and Development Commission has authority for implementation of CZMA within its jurisdictional area.

policies that are directed at protecting and, where feasible, restoring coastal resources. The California Coastal Commission applies the Coastal Act's policies when reviewing applications for coastal development permits in California state waters, including coastal scenic resources. The Coastal Commission also applies land use policies when reviewing federally licensed and permitted activities to ensure they are consistent with the State's coastal management program in accordance with the CZMA federal consistency provision. The Coastal Commission considers an application for a coastal development permit to cover the requirement for an applicant submitting a consistency certification to the Coastal Commission. Typically, the Coastal Commission will provide its response (concurrence, conditional concurrence, or objection) in its staff report for the coastal development permit.

4.14.3.2 State Regulations

California Scenic Highway Program

Three roadways in the project area—Highway 1, Highway 156, and Highway 68—are officially designated as state scenic highways (see **Figure 4.14-1**; Caltrans, 2011).Their corridors (defined as the area of land roughly adjacent to and visible from the highway) are subject to protection and regulation with respect to land use, site planning, advertising, earthmoving, landscaping, and design. For Caltrans to grant the status of Officially Designated State Scenic Highway, the local jurisdiction(s) must implement a Corridor Protection Program, either by adopting ordinances, zoning, and/or planning policies to preserve the scenic quality of the corridor or by documenting that such regulations already exist in various portions of local codes. Policies to prevent the visual degradation of roadway view corridors include County of Monterey General Plan policy GMP-3.3 and North County Area Plan policy NC-3.1. MPWSP pipeline construction would involve ground disturbance and vegetation removal in proximity to designated scenic highways. However, such disturbances would be temporary, limited to the construction phase and, upon completion of construction, pipeline alignments would be returned to their approximate pre-construction condition. No other MPWSP components would be visible from designated scenic highways. Therefore, the MPWSP would be consistent with the California Scenic Highway Program.

California Coastal Act

Some MPWSP facilities would be located in the California Coastal Zone, as defined in the California Coastal Act (Section 30103). Land use decisions within the Coastal Zone are subject to the provisions of the Coastal Act, which is administered by the California Coastal Commission. The Coastal Act requires local governments in the Coastal Zone to prepare a Local Coastal Program (LCP) that contains a land use plan and land use regulations to implement provisions of the Coastal Act. Once the Commission "certifies" (approves) the LCP, permit-issuing authority is transferred to the local government, subject to the terms of the certified LCP. For local jurisdictions without a certified LCP, the Commission retains permit-issuing authority under the Coastal Act. As stated in Coastal Act Section 30251, a primary objective of the Coastal Commission is to protect the scenic and visual character of the California coast. The Commission applies this standard to its review of applications for coastal development permits as well as to

LCP certifications. For the reasons described for the California Scenic Highway Program, MPWSP construction activities would be consistent with Coastal Act policies related to aesthetic resources. Operation of the MPWSP subsurface slant well operation would be potentially inconsistent with the Coastal Act's scenic resource protection policies. Potential effects on such coastal resources are discussed in Impacts 4.14-1 and 4.14-3.

4.14.3.3 Applicable Regional and Local Land Use Plans and Policies

Table 4.14-2 presents the regional, and local land use plans, policies, and regulations pertaining to aesthetic resources that are relevant to the MPWSP and that were adopted for the purpose of avoiding or mitigating an environmental effect and indicates project consistency with these regulatory requirements. Where the analysis concludes the proposed project would be consistent with the applicable requirement, the finding is noted and no further discussion is provided. Where the analysis concludes the proposed project would be potentially inconsistent with the applicable requirement, the reader is referred to the specific impact discussion in Section 4.14.6, Direct and Indirect Effects of the Proposed Project. In that subsection, the significance of the potential conflict is evaluated. Where the effect of the potential conflict would be significant, feasible mitigation is identified to resolve or minimize that conflict.

TABLE 4.14-2
APPLICABLE REGIONAL AND LOCAL PLANS AND POLICIES RELEVANT TO AESTHETIC RESOURCES

Project Planning Region	Applicable Plan	Plan Element/ Section	Project Component(s)	Specific Plan, Policy, or Ordinance	Relationship to Avoiding or Mitigating a Significant Environmental Impact	Project Consistency with Plan, Policy, or Ordinance
City of Marina (coastal zone and inland areas)	City of Marina General Plan	Community Land Use - Primary Policies	Subsurface slant wells, Source Water Pipeline, new Desalinated Water Pipeline, and new Transmission Main	***Policy 2.4.4:*** Wherever possible, lands with significant agricultural, natural habitat, or scenic value shall be retained and protected from degradation.	This policy is intended to preserve and protect significant landscape values.	Potentially Inconsistent: Pipeline construction would temporarily disrupt the scenic quality of Marina's coastal Highway 1 corridor. However, these facilities would be buried below ground surface. Following construction, work areas would be restored to their approximate pre-construction condition. Elements of the subsurface slant wells would be located aboveground and could be visible from the beach. This issue is addressed in Impact 4.14-3, which identifies mitigation measures that would minimize or avoid this potential inconsistency. *The project's implications for agricultural and biological resources are discussed in EIR/EIS Sections 4.16 and 4.6, respectively. Refer to* ***Tables 4.16-2*** *and* ***4.6-2*** *for additional discussion of project's conformity with applicable Marina General Plan policies related to these resource areas, respectively.*
City of Marina (coastal zone and inland areas)	City of Marina General Plan	Community Design & Development - Open Spaces and Significant Natural Features	Subsurface slant wells, Source Water Pipeline, new Desalinated Water Pipeline, and new Transmission Main	***Policy 4.17.3:*** Within built-up areas, existing topography shall be retained to make natural land forms more evident. This requirement of the General Plan may be fulfilled by minimizing grading and cutting and filling for roadways, by providing public space with outlooks at the higher elevations, and by locating taller structures on the upper slopes of hills.	This policy is intended to protect the visual integrity of natural landforms.	Consistent: Pipelines and the MPWSP seawater intake system would be sited primarily within previously disturbed areas and not involve substantial grading that would result in noticeable landform alterations in built-up areas.
City of Marina (coastal zone and inland areas)	City of Marina General Plan	Community Design & Development – Scenic and Cultural Resources	Subsurface slant wells, Source Water Pipeline, new Desalinated Water Pipeline, and new Transmission Main	***Policy 4.126.3:*** The visual character and scenic resources of the Marina Planning Area shall be protected for the enjoyment of current and future generations. To this end, ocean views from Highway One shall be maintained to the greatest possible extent; development on the primary ridgeline of the Marina dunes shall be avoided; new development proposed for the Armstrong Ranch should maintain an adequate setback from Highway One; landscape screening and restoration shall be provided as appropriate; new development should be sited and designed to retain scenic views of inland hills from Highway One, Reservation Road, and Blanco Road; and architectural review of projects shall continue to be required to ensure that building design and siting, materials, and landscaping are visually compatible with the surrounding areas.	This policy is intended to preserve and protect Marina's visual character and scenic resources.	Consistent: Pipeline and well construction would temporarily disrupt the scenic quality of Marina's coastal Highway 1 corridor. All pipelines would be buried below grounds surface. As discussed in Chapter 3, Description of the Proposed Project, following construction, all pipeline areas would be restored to their approximate pre-construction condition. Above-ground components of the subsurface slant wells would be low profile (8-12 inches in height) and distant (0.5 mile) from Highway 1. At this distance, these facilities would not be noticeable or obstruct coastal views from Highway 1.
City of Marina (coastal zone)	City of Marina Local Coastal Land Use Plan	Policies	Subsurface slant wells, Source Water Pipeline, new Desalinated Water Pipeline, and new Transmission Main	***Policy 33:*** To protect scenic and visual qualities of the Coastal area including protection of natural landforms, views to and along the ocean, and restoration and enhancement of visually degraded areas except in areas presently being mined.	This policy is intended to protect and enhance the scenic and visual quality of the Marina coast.	Potentially Inconsistent: Elements of the subsurface slant wells would be located aboveground; the above ground features could be visible, and the test well would be visible from the beach. This issue is addressed in Impact 4.14-3, which identifies mitigation measures that would minimize or avoid this potential inconsistency.
City of Seaside (coastal zone and inland areas)	Seaside General Plan	Conservation/ Open Space	New Transmission Main, ASR Conveyance Pipeline, ASR Pump-to-Waste Pipeline, ASR Recirculation Pipeline, and Terminal Reservoir	***Policy COS 8.1:*** Participate in local and regional efforts to reduce light pollution of night skies.	This policy is intended to protect dark night skies from impacts of light pollution.	Consistent: None of the project components proposed within Seaside's jurisdiction would require nighttime construction or lighting. The ASR-5 and ASR-6 Wells may require temporary nighttime construction and nighttime lighting. However, these project components are proposed for lands under federal jurisdiction and, therefore, would not be subject to Seaside General Plan policies.
City of Seaside (coastal zone and inland areas)	Seaside General Plan	Urban Design	New Transmission Main, ASR Conveyance Pipeline, ASR Pump-to-Waste Pipeline, ASR Recirculation Pipeline, and Terminal Reservoir	***Policy UD-1.1:*** Enhance the City's image and identity within the region's natural setting.	This policy is intended to ensure the aesthetic character of new development within the city is compatible with that of its natural surroundings.	Potentially Inconsistent: Development of an above-ground Terminal Reservoir east of General Jim Moore Boulevard could be incompatible with Seaside's natural setting. This issue is addressed in Impact 4.14-3, which identifies mitigation measures that would minimize or avoid this potential inconsistency. The ASR-5 and ASR-6 Wells would be constructed above ground and within Seaside, but would not be subject to this policy because they would be sited on federal lands. The remaining project components proposed within Seaside would not involve aboveground elements.

TABLE 4.14-2 (Continued)
APPLICABLE REGIONAL AND LOCAL PLANS AND POLICIES RELEVANT TO AESTHETIC RESOURCES

Project Planning Region	Applicable Planning Document	Plan Element/ Section	Project Component(s)	Specific Plan, Policy, or Ordinance	Relationship to Avoiding or Mitigating a Significant Environmental Impact	Project Consistency with Plan, Policy, or Ordinance
City of Seaside (coastal zone and inland areas)	Seaside General Plan	Urban Design	New Transmission Main, ASR Conveyance Pipeline, ASR Pump-to-Waste Pipeline, ASR Recirculation Pipeline, and Terminal Reservoir	***Policy UD-3.1*:** Protect private views of significant natural features, such as the Monterey Bay, Roberts Lake, the Pacific Ocean, the surrounding mountains and other important viewsheds.	This policy is intended to protect private views from disruption caused by new development.	Potentially Inconsistent: Development of an above-ground Terminal Reservoir east of General Jim Moore Boulevard could affect private views of the surrounding hillsides. This issue is addressed further in Impact 4.14-3, which identifies mitigation measures that would minimize or avoid this potential inconsistency. The ASR-5 and ASR-6 Wells would be constructed above ground and within Seaside, but would not be subject to this policy because they would be sited on federal lands. The remaining project components proposed within Seaside would not involve aboveground elements.
City of Seaside (coastal zone and inland areas)	Seaside General Plan	Urban Design	New Transmission Main, ASR Conveyance Pipeline, ASR Pump-to-Waste Pipeline, ASR Recirculation Pipeline and Terminal Reservoir	***Policy UD-3.2*:** Preserve the unique public views visible from the Highway 1 Corridor between Fremont Boulevard and the northern boundary of the city as identified in the Fort Ord Reuse Authority (FORA) Plan.	This policy is intended to protect designated important public view corridors within the city.	Consistent: The proposed project would involve no aboveground components between Fremont Boulevard and the northern boundary of the city that would be visible from the Highway 1 corridor. Therefore, no unique views would be affected.
City of Seaside (coastal zone and inland areas)	Seaside General Plan	Urban Design	New Transmission Main, ASR Conveyance Pipeline, ASR Pump-to-Waste Pipeline, ASR Recirculation Pipeline, and Terminal Reservoir	***Implementation Plan UD-3.2.1*:** Establish and enforce design guidelines in the Seaside Zoning Ordinance to preserve and protect the public viewsheds.	This policy is intended to protect designated important public viewsheds within the city.	Consistent: No above-ground project components are proposed within a Seaside designated public viewshed.
County of Monterey (inland areas)	Carmel Valley Master Plan	Area Development	Carmel Valley Pump Station and Main System-Hidden Hills Interconnection Improvements	***Policy CV-1.20:*** Design ("D") and site control ("S") overlay district designations shall be applied to the Carmel Valley area. Design review for all new development throughout the Valley, including proposals for existing lots of record, utilities, heavy commercial, and visitor accommodations, but excluding minor additions to existing development where those changes are not conspicuous from outside of the property, shall consider the following guidelines: b. Development either shall be visually compatible with the character of the valley and immediate surrounding areas or shall enhance the quality of areas that have been degraded by existing development. c. Materials and colors used in construction shall be selected for compatibility with the structural system of the building and with the appearance of the building's natural and man-made surroundings.	This policy is intended to ensure visual compatibility of development within the Carmel Valley Master Plan area.	Consistent: The Carmel Valley Pump Station would be comparable in scale to surrounding development. Further, prior to approval, the Carmel Valley Pump Station would be required to undergo design review, which would ensure policy conformity. The Main System-Hidden Hills Interconnection Improvements would be buried below ground and, therefore, would be visually compatible with the immediate surrounding areas.
County of Monterey (inland areas)	Greater Monterey Peninsula Area Plan	Conservation/Open space	Source Water Pipeline, MPWSP Desalination Plant, new Desalinated Water Pipeline, Brine Discharge Pipeline, Pipeline to CSIP Pond, Castroville Pipeline, Ryan Ranch-Bishop Interconnection Improvements	***Policy GMP-3.3:*** The Greater Monterey Peninsula Scenic Highway Corridors and Visual Sensitivity Map (Figure 14) shall be used to designate visually "sensitive" and "highly sensitive" areas generally visible from designated Scenic Highways. The following policies shall apply to areas that have one of these designations: ***Part e:*** New development to be located in areas mapped as "sensitive" or "highly sensitive" and which would be visible from a designated scenic route shall maintain the visual character of the area. In order to adequately mitigate the visual impacts of development in such areas, the following shall be required: 1. Development shall be rendered compatible with the visual character of the area using appropriate siting, design, materials, and landscaping; 2. Development shall maintain no less than a 100-foot setback from the scenic route right-of-way; 3. The impact of any earth movement associated with the development shall be mitigated in such a manner that permanent scarring is not created; 4. Tree removal shall be minimized; 5. Landscape screening and restoration shall consist of locally native plant and tree species consistent with surrounding native vegetation; 6. Architectural review of projects shall be required to ensure visual compatibility of the development with the surrounding area; and 7. New development in open grassland areas shall minimize its impact on the uninterrupted viewshed.	This policy is intended to protect designated important views of scenic areas generally visible from designated scenic highways.	Consistent: Source Water Pipeline, new Desalinated Water Pipeline, Castroville Pipeline, and Ryan Ranch-Bishop Interconnection Improvements construction activities would occur within areas identified by the County as "sensitive" or "highly sensitive" and would be visible during construction from designated or eligible scenic highways. However, as discussed in Chapter 3, Description of the Proposed Project, construction-period disturbance would be temporary and all pipeline construction areas would be restored to their approximate pre-construction condition.

TABLE 4.14-2 (Continued)
APPLICABLE REGIONAL AND LOCAL PLANS AND POLICIES RELEVANT TO AESTHETIC RESOURCES

Project Planning Region	Applicable Planning Document	Plan Element/ Section	Project Component(s)	Specific Plan, Policy, or Ordinance	Relationship to Avoiding or Mitigating a Significant Environmental Impact	Project Consistency with Plan, Policy, or Ordinance
County of Monterey (inland areas)	Greater Monterey Peninsula Area Plan	Conservation/Open space	Source Water Pipeline, MPWSP Desalination Plant, new Desalinated Water Pipeline, Brine Discharge Pipeline, Pipeline to CSIP Pond, Castroville Pipeline, Ryan Ranch-Bishop Interconnection Improvements	***Policy GMP-3.4*** Plant materials shall be used to integrate manmade and natural environments, to screen or soften the visual impact of new development, and to provide diversity in developed areas.	The intent of this policy is to soften and screen the visual impact of new development.	Consistent: Views of the proposed MPWSP Desalination Plant would be screened by existing trees along Charles Benson Road. The Carmel Valley Pump Station would be comparable in size and scale to surrounding development and not plainly visible from adjacent roadways. Therefore, additional vegetative screening is not expected to be necessary. Nevertheless, prior to approval, the Carmel Valley Pump Station would be required to undergo design review, which would ensure policy conformity. All pipelines would be buried below ground so would have no visual impact requiring screening.
County of Monterey (coastal zone and inland areas)	Monterey County General Plan	Conservation and Open Space	Source Water Pipeline, MPWSP Desalination Plant, new Desalinated Water Pipeline, Brine Discharge Pipeline, Pipeline to CSIP Pond, Castroville Pipeline, Carmel Valley Pump Station, Main System--Hidden Hills and Ryan Ranch--Bishop Interconnection Improvements	***Policy OS-1.1:*** Voluntary restrictions to the development potential of property located in designated visually sensitive areas shall be encouraged.	This policy in intended to protect visually sensitive areas from new development.	Consistent: The Carmel Valley Station would be the only above-ground project component constructed within a Monterey County-designated visually sensitive area. This facility would be small, relative to its surroundings, and would be located on a disturbed site that is not plainly visible from nearby roadways. As discussed in Chapter 3, Description of the Proposed Project (), construction-period disturbance would be temporary and all pipeline construction areas would be restored to their approximate pre-construction condition. All pipelines would be buried below ground.
County of Monterey (coastal zone and inland areas)	Monterey County General Plan	Conservation and Open Space	Source Water Pipeline, MPWSP Desalination Plant, new Desalinated Water Pipeline, Brine Discharge Pipeline, Pipeline to CSIP Pond, Castroville Pipeline, Carmel Valley Pump Station, Main System--Hidden Hills and Ryan Ranch--Bishop Interconnection Improvements	***Policy OS-1.2:*** Development in designated visually sensitive areas shall be subordinate to the natural features of the area.	This policy in intended to limit development in a way that will preserve natural features in visually sensitive areas.	Consistent: The Carmel Valley Pump Station would be the only above-ground project component constructed within a Monterey County-designated visually sensitive area. At 500-square-feet, this facility would be subordinate to the natural features of the area. As discussed in Chapter 3, Description of the Proposed Project, construction-period disturbance would be temporary and all pipeline construction areas would be restored to their approximate pre-construction condition. All pipelines would be buried below ground.
County of Monterey (coastal zone and inland areas)	Monterey County General Plan	Conservation and Open Space	Source Water Pipeline, MPWSP Desalination Plant, new Desalinated Water Pipeline, Brine Discharge Pipeline, Pipeline to CSIP Pond, Castroville Pipeline, Carmel Valley Pump Station, Main System--Hidden Hills and Ryan Ranch--Bishop Interconnection Improvements	***Policy OS-1.12:*** The significant disruption of views from designated scenic routes shall be mitigated through use of appropriate materials, scale, lighting and siting of development. Routine and Ongoing Agricultural Activities shall be exempt from this policy, except: 1) large-scale agricultural processing facilities, or 2) facilities governed by the Agricultural and Winery Corridor Plan.	This policy is intended to reduce the disruption of view from designated scenic routes through application of mitigation measures.	Consistent: The proposed project would not involve any components that would significantly disrupt views from designated scenic routes such as Highways 1 or 68.
County of Monterey (coastal zone and inland areas)	Monterey County General Plan	Conservation and Open Space	Source Water Pipeline, MPWSP Desalination Plant, new Desalinated Water Pipeline, Brine Discharge Pipeline, Pipeline to CSIP Pond, Castroville Pipeline, Carmel Valley Pump Station, Main System-Hidden Hills and Ryan Ranch-Bishop Interconnection Improvements	***Policy OS-5.5:*** Landowners and developers shall be encouraged to preserve the integrity of existing terrain and native vegetation in visually sensitive areas such as hillsides, ridges, and watersheds. Routine and Ongoing Agricultural Activities shall be exempt from this policy.	This policy is intended to protect the natural character of visually sensitive areas.	Consistent: Construction of the MPWSP Desalination Plant and Carmel Valley Pump Station are proposed for construction on previously disturbed sites and would not require substantial alteration of natural terrain or native vegetation. All pipelines would be buried below ground. Pipeline construction period activities could require alterations to existing natural terrain and removal of native vegetation. However, as discussed in Chapter 3, Description of the Proposed Project, upon completion of construction, all pipeline construction areas would be restored to their approximate preconstruction condition.

TABLE 4.14-2 (Continued)
APPLICABLE REGIONAL AND LOCAL PLANS AND POLICIES RELEVANT TO AESTHETIC RESOURCES

Project Planning Region	Applicable Planning Document	Plan Element/ Section	Project Component(s)	Specific Plan, Policy, or Ordinance	Relationship to Avoiding or Mitigating a Significant Environmental Impact	Project Consistency with Plan, Policy, or Ordinance
County of Monterey (coastal zone)	North County Land Use Plan	Resource Management	Source Water Pipeline and new Desalinated Water Pipeline	***Policy 2.2.2.1:*** Views to and along the ocean shoreline from Highway 1, Molera Road, Struve Road, and public beaches, and to and along the shoreline of Elkhorn Slough from public vantage points shall be protected.	This policy is intended to protect important public views two and along the shoreline.	Consistent: Source Water Pipeline and new Desalinated Water Pipeline construction activities would be temporarily visible from Highway 1. However, as discussed in Chapter 3, Description of the Proposed Project, the pipelines would be buried below ground and all pipeline construction areas would be restored to their approximate pre-construction conditions. Once constructed, the Source Water Pipeline and new Desalinated Water Pipeline would not interfere with views to and along the shoreline from Highway 1.
County of Monterey (coastal zone)	North County Land Use Plan	Resource Management	Source Water Pipeline and new Desalinated Water Pipeline	***Policy 2.2.2.2*:** The coastal dunes and beaches, estuaries, and wetlands should be designated for recreation or environmental conservation land uses that are compatible with protection of scenic resources. Facilities that are provided to accompany such uses shall be designed and sited to be unobtrusive and compatible with the visual character of the area.	This policy is intended to protect the visual character and recreational opportunities of dunes, beaches, estuaries, and wetlands from incompatible land uses.	Consistent: Within North County Land Use Plan area, the Source Water Pipeline and new Desalinated Water Pipeline would be constructed within existing disturbed roadway and railroad rights-of-way, and not be sited in dunes, beaches, wetlands, or estuaries. Therefore no such scenic resources would be affected.
County of Monterey (coastal zone)	North County Land Use Plan	Resource Management	Source Water Pipeline and new Desalinated Water Pipeline	***Policy 2.2.2.4*:** The least visually obtrusive portion of a parcel should be considered the most desirable site for the location of new structures. Structures should be located where existing topography and vegetation provide natural screening.	This policy is intended to minimize the visual impact of a new structure.	Consistent: The Source Water Pipeline and new Desalinated Water Pipeline would be sited within or along existing disturbed roadway and railroad rights-of-way. Once constructed, these facilities would be buried below ground and not be visible.
County of Monterey (coastal zone)	North County Land Use Plan	Resource Management	Source Water Pipeline and new Desalinated Water Pipeline	***Policy 2.2.2.5*:** Structures should be located to minimize tree removal and grading for the building site and access road. Disturbed slopes should be returned to their previous visual quality. Landscape screening and restoration should consist of plant and tree species complementing the native growth of the area.	This policy is intended to minimize the disruption to the landscape's visual quality tree removal and grading,	Consistent: The Source Water Pipeline and new Desalinated Water Pipeline would require trenching along existing disturbed roadway and railroad rights-of-way. However, as discussed in Chapter 3, Description of the Proposed Project, disturbed pipeline construction areas would be restored to their approximate pre-construction condition.
County of Monterey (coastal zone)	North County Land Use Plan	Resource Management	Source Water Pipeline and new Desalinated Water Pipeline	***Policy 2.2.3.3*:** Structures shall generally be sited so as not to block public views of the shoreline; development proposals shall be revised if necessary to accomplish this goal. Necessary structures in public view between the road and the shoreline (such as agricultural buildings) shall be functionally designed and sited as to protect the maximum possible open views. Other development in public view between the road and the shoreline (such as residential or commercial structures) shall be designed with materials, colors, landscaping, and fencing appropriate to the rural setting.	This policy is intended to protect important public views two and along the shoreline.	Consistent: The Source Water Pipeline and new Desalinated Water Pipeline would be buried below ground and would not block public views of the shoreline. Disturbed pipeline construction areas would be restored to their approximate pre-construction condition.
County of Monterey (inland areas)	North County Area Plan	Conservation/Open Space	Castroville Pipeline	**NC-3.1.** Within areas designated as "sensitive" or "highly sensitive" on the Scenic Highway Corridors and Visual Sensitivity Map (Figure 15), landscaping or new development may be permitted if the development is located and designed in such a manner that public views are not disrupted.	This policy is intended to protect important public views to and along scenic highway corridors and visually sensitive areas.	Consistent: The Castroville Pipeline would be buried below ground and would not permanently disrupt public views. Disturbed pipeline construction areas would be restored to their approximate pre-construction condition.

SOURCES: City of Marina, 2000, 1982; City of Seaside, 2004, 2013; Monterey County, 1982, 1985, 1996, 2010a, 2010b.

4.14.4 Evaluation Criteria

Implementation of the proposed project would have a significant impact related to aesthetic resources if it would:

- Have a substantial adverse effect on a scenic vista or visual impact on coastal resources;
- Substantially damage a scenic resource, including but not limited to trees, rock outcroppings, and historic buildings, within a state scenic highway corridor;
- Substantially degrade the existing visual character or quality of the site and its surroundings; or
- Create a substantial new source of light or glare that would adversely affect day or nighttime views in the area.

4.14.5 Approach to Analysis

This analysis of impacts on aesthetic resources examines the temporary (i.e., construction) and permanent (i.e., operational) effects of the proposed project based on application of the significance criteria outlined above. The analysis is divided into two main categories: (1) temporary and permanent scenic resource and visual character impacts, and (2) temporary and permanent lighting and glare impacts. Each criterion is discussed in the context of project components that share similar characteristics and/or geography. This structure parallels that of the environmental context, or setting, as presented in Section 4.14.2.3, Visual Setting of the Project Area. The impact conclusions consider the potential for changes in environmental conditions as well as consistency with applicable regulatory requirements enacted to protect the environment. Unless otherwise specified, the impact analysis and determinations for pipelines with optional alignments consider and apply to both the proposed pipeline alignment and optional alignment(s). The cumulative effects of the proposed project, when considered together with the effects of other past, present, and reasonably foreseeable future projects, are discussed in Section 4.14.7, Cumulative Effects of the Proposed Project.

The impact analysis is based on field observations conducted by ESA in September 2013 and April 2016; review of project maps and drawings; analysis of aerial and ground-level photographs; a rendering of the approximate size and location of the Terminal Reservoir as viewed from General Jim Moore Boulevard; and review of a variety of data available in public records, including local planning documents. The determination that a project component would or would not result in a “substantial” adverse effect on scenic resources or visual character considers the aesthetic resource value of the site and the MPWSP component’s visual impact severity (e.g., the nature and duration of the impact). The approach to determining aesthetic resource value and visual impact severity is described above in Section 4.14.1, Introduction, Key Concepts, and Terminology. For example, a project component with a high impact severity that would be located on a site with a low aesthetic resource value would result in a less-than-significant impact with respect to scenic or visual character. In other words, new conspicuous structures or visual changes in areas with a low aesthetic resource value may not necessarily result in substantial adverse effects on visual resources.

The determination that a project component would result in a substantial adverse effect related to light and glare considers the ambient lighting conditions of the project area and the types and locations of receptors that could be adversely affected by project components emitting or reflecting light. Spill-over of light beyond project sites has the potential to create a visual nuisance or hazard, interfering with vision, sleep, privacy and general enjoyment of the natural nighttime condition. Similarly, glare is caused by sunlit or artificial light reflecting from finished surfaces, such as glass windows and other reflective materials, which can result in similar nuisance or hazard conditions. Reflective light, such as that reflected from dark or mirrored glass building materials, is more common in urbanized portions of the project area. Light sensitive receptors include motorists; people within residential areas; and, in some situations, natural areas. Substantial adverse effects related to lighting and glare would result if the project were to cause nighttime or reflective light to extend beyond the project limits and result in a visual nuisance or hazard for light-sensitive receptors. Effects related to lighting impacts on natural areas are discussed in Section 4.6, Terrestrial Biological Resources.

For this analysis, the proposed facility sites and representative portions of the proposed pipeline alignments were photographed and observed from public vantage points (see photos in **Figures 4.14-3a** and **4.14-3b**). These observation points are representative examples of publicly accessible viewpoints from which the MPWSP components would normally be seen, either temporarily (during construction) or permanently (as aboveground structures). Section 4.14.1, Introduction, Key Concepts, and Terminology, describes these locations in more detail. The potential physical changes resulting from the MPWSP components are described below.

4.14.6 Direct and Indirect Effects of the Proposed Project

Table 4.14-3 presents the potential impacts on aesthetic resources as well as significance determinations for each impact.

TABLE 4.14-3
SUMMARY OF IMPACTS – AESTHETIC RESOURCES

Impacts	Significance Determinations
Impact 4.14-1: Construction-related impacts on scenic resources (vistas, roadways, and designated scenic areas) or the visual character of the project area and its surroundings.	LS
Impact 4.14-2: Temporary sources of substantial light or glare during construction.	LSM
Impact 4.14-3: Permanent impacts on scenic resources (vistas, roadways, and designated scenic areas) or the visual character of the project area and its surroundings**.**	LSM
Impact 4.14-4: Permanent new sources of light or glare.	LSM
Impact 4.14-C: Cumulative impacts related to aesthetic resources.	LSM

NOTES:
LS = Less than Significant, no mitigation proposed
LSM = Less than Significant impact with Mitigation

4.14.6.1 Construction Impacts

Impact 4.14-1: Construction-related impacts on scenic resources (vistas, roadways, and designated scenic areas) or the visual character of the project area and its surroundings. (*Less than Significant*)

Project construction activities could result in temporary impacts on scenic resources and the visual character of the project area and vicinity. Construction sites, vehicles, equipment and materials, stockpiles, and exposed soils would be temporarily visible from multiple public vantage points. Staging areas would include vehicle and equipment storage in the vicinity of MPWSP sites, generally within existing paved areas, and would not involve ground disturbing, vegetation removal, or other types of activities that would substantially impact scenic resources or the visual character of the area. Potential impacts on scenic resources and visual character as a result of construction activities are described below.

Subsurface Slant Wells

Construction activities for the subsurface seawater intake system would take place on the coast of Monterey Bay, in the CEMEX active mining area in northern Marina. As noted previously, the site of the proposed slant wells has been visually disturbed due to sand mining activities. Portions of the site are devoid of vegetation, have modified topography, and have been developed with temporary and permanent facilities. Mining equipment regularly moves throughout the mining area on the site. However, because of its proximity to Highway 1 and the coast, the site is considered to have a moderate aesthetic resource value (see Section 4.14.2, Setting/Affected Environment, for additional discussion).

Construction of the remaining subsurface slant wells in the CEMEX active mining area would take approximately 15 months to complete, and could take place anytime throughout the overall 24-month construction duration for the proposed project. Due to the site's topography and vegetation, views of the work areas would be limited from locations outside the CEMEX property. Viewed from the east, the worksite would largely be screened from view by the intervening dunes and Monterey cypress trees along the site's eastern (landward) perimeter. Motorists traveling along Highway 1 at speeds of 60 miles per hour would have distant and fleeting views of the work. Views from the beach would be similarly obscured by the large sand dunes that exist between the beach and the proposed well sites; however, such views would be nearer and longer in duration.

Given the industrial nature of the site, with its varied topography, denuded areas, and existing mining operations, construction activities would not contrast with the site's existing setting. Nor would these activities appear dominant, relative to the site's features and existing equipment, facilities, and operations. While increased construction activity would temporarily detract from the naturalistic aesthetic of the coast as viewed by passersby, these activities would not impair public views of the coast. For these reasons, project construction would have a moderate visual impact severity.

Construction of the subsurface slant wells would not have a substantial adverse effect on scenic resources or visual character and the impact would be less than significant.

MPWSP Desalination Plant

The MPWSP Desalination Plant site is located amidst agricultural fields and industrial land uses. The site lies within the Urban and Built-up landscape unit and, as discussed in Section 4.14.2, Setting / Affected Environment, the site has a low aesthetic resource value. Project construction would not contrast with the surrounding setting or appear dominant relative to surrounding features or land uses. This is because similar land disturbing activities and large equipment usage are commonplace in the operations on adjacent agricultural lands and the industrial Monterey Regional Environmental Park, also known as the Monterey County Landfill. Project construction would not impair public views of valued aesthetic resources. There are no designated scenic roadways or scenic viewpoints from which the MPWSP Desalination Plant site or construction activities would be visible. Rows of eucalyptus and Monterey Cypress trees to the south and west of the site would largely screen construction activities from passersby on Charles Benson Road. Motorists on Highways 1 and 183 would not likely notice project construction, given the distance of more than a mile between these highways and the MPWSP Desalination Plant site, and considering its proximity to the adjacent industrial park. For these reasons, project construction would have low visual impact severity.

Construction of the MPWSP Desalination Plant would not have a substantial adverse effect on scenic resources or visual character and the impact would be less than significant.

Pipelines and Other Conveyance Facilities North of Reservation Road

Pipeline construction would involve use of heavy equipment, trenching, and other earthwork that could be visible to public viewing areas. Pipeline installation would occur primarily within roadways. Outside of these areas, pipeline construction would involve limited removal of mature vegetation, including landscaping and trees. These impacts would not occur in the vicinity of a designated scenic highway, nor would they be to a degree that resulted in substantial damage to or degradation of scenic resources or visual quality of the alignment area. The duration of construction would be brief, as pipeline installation would typically progress at a rate of 150 to 250 feet per day, for a total of approximately 4 to 6 months, depending on the pipeline segment. Upon completion of construction, the disturbed area would be returned to its approximate pre-construction condition. Therefore, impacts would be temporary.

Pipeline construction would not substantially degrade the aesthetic character or scenic vistas in the vicinity of the proposed pipeline alignments. For these reasons, the visual impact of pipeline installation would be less than significant. The following subsections describe the locations where temporary impacts would occur for each pipeline component.

Source Water Pipeline

Source Water Pipeline construction could be visible to motorists along Highway 1, an eligible state scenic highway. These activities could temporarily contrast with the surrounding environment, but would not dominate the landscape or have a permanent effect on coastal views. Views of construction activities by motorists along Highway 1 would primarily be distant and fleeting due to high vehicle speeds. As construction of the pipeline approaches and crosses

beneath Highway 1, the potential would be greater for motorists to notice the construction activities. Construction activities would also be briefly visible to passing motorists and bicyclists on Del Monte Boulevard, Lapis Road and the Monterey Peninsula Recreational Trail. For these reasons, the impact severity of construction activities associated with the proposed Source Water Pipeline would be low.

New Desalinated Water Pipeline

Pipeline construction could be visible to motorists, cyclists, pedestrians, traveling along area roads, as well as from some residential areas in Marina. Views of construction activities by motorists and cyclists and pedestrians traveling along the Monterey Peninsula Recreational Trail would mostly be fleeting, as they would view the work while passing by or through the construction zone. Views of construction activity from residential areas in Marina and from Vince Dimaggio and Locke-Paddon Parks would be longer in duration. Construction activities would also be briefly visible to passing motorists and bicyclists on Del Monte Boulevard, Lapis Road, and the Monterey Peninsula Recreational Trail. These activities could temporarily contrast with the surrounding environment, but would not dominate the landscape or have a permanent effect on scenic views. For these reasons, the impact severity of construction activities associated with the new Desalinated Water Pipeline would be low.

Castroville Pipeline and Optional Alignment 2

Pipeline construction could be visible to motorists traveling along Monte Road, and possibly to motorists traveling along Highway 1. Views of construction activities by motorists would mostly be fleeting, as they would be in motion, traveling at speeds of 35 to 60 miles-per-hour. Given the degree of intensive agricultural activity along this alignment, the proposed pipeline construction activities would not contrast with the surrounding environment, nor would they dominate the landscape or have a permanent effect on scenic views. For these reasons, the visual impact severity of construction activities associated with the Castroville Pipeline would be low.

Castroville Pipeline Optional Alignment 1

The effects of the Castroville Pipeline Optional Alignment construction would be similar to those described for the proposed Castroville Pipeline alignment. Construction activities north of Nashua Road would be more prominently visible to motorists traveling along Highway 1. Similarly, within Castroville, the work would be visible to motorists, cyclists, and pedestrians traveling along Merritt Way and Merritt Street for longer durations. The overall effect would not be substantially different and the visual impact severity of construction activities would remain low.

Brine Discharge Pipeline and Pipeline to CSIP Pond

The Brine Discharge Pipeline and Pipeline to CSIP Pond would be constructed within or adjacent to the Grass and Rangeland, Urban and Built-up, and Agricultural landscape units, characterized by undeveloped grasslands and agricultural fields to the south and southwest and the Monterey Regional Environmental Park MRWPCA Treatment Plant to the north and east. Construction activities would be visible for short durations to motorists traveling along Charles Benson Road as

well as from areas within the Monterey Regional Environmental Park and MRWPCA Regional Wastewater Treatment Plant. Because the aesthetic resource value is low and construction activities would be in keeping with the types of activities already occurring in this area, there would be no appreciable contrast with the surrounding setting, and the work would not appear dominant relative to other activities on adjacent properties. Consequently, the impact severity of construction activities for the Brine Discharge Pipeline and the Pipeline to CSIP Pond would also be low.

Pipelines and Other Facilities South of Reservation Road

Improvements to ASR System

The ASR-5 and ASR-6 Wells and ASR Conveyance Pipelines would be constructed in an area of moderate aesthetic resource value. ASR-5 and ASR-6 Wells and ASR Conveyance Pipeline construction activities would be visible from General Jim Moore Boulevard and from nearby residences. Pipeline construction would proceed at a rate of approximately 150 to 250 feet per day and last 5 months; well construction would last 12 months. During this time, area residents, motorists, cyclists, and pedestrians traveling along General Jim Moore Boulevard would be exposed to views of construction activities of the type described for pipelines above, which would be conspicuous and would contrast with the aesthetic character of the surrounding landscape. Such views would be fleeting, as the viewers would be in motion. Given the width of the travel corridor, the expansive views it offers, and the height and mass of area structures and vegetation, the proposed work would not dominate the landscape, nor would it impair public views. For these reasons, the visual impact severity would be low. The visual impact of the ASR-5 and ASR-6 Wells and ASR Conveyance Pipeline installation would be less than significant.

Pipelines South of Reservation Road

Pipeline construction south of Reservation Road would involve the same types of activities and effects, and progress at the same general rate, as that described for pipelines north of Reservation Road. The effects would be temporary. Pipeline construction would not substantially degrade the aesthetic character or scenic vistas in the vicinity of the proposed pipeline alignment. For these reasons, the visual impact of pipeline installation would be less than significant. The following subsections describe the locations where temporary impacts would occur for each pipeline component.

The aesthetic resource value of pipeline alignment areas south of Reservation Road, which include lands within the Highway 1 and 68 scenic corridors, generally ranges from low to moderate, and most segments would be constructed within paved or disturbed roadway rights-of-way or utility easements. The aesthetic resources effects of the new Transmission Main (except the segment west of Highway 1, discussed below) and Ryan Ranch-Bishop and Main System-Hidden Hills Interconnection Improvements construction activities, and those associated with their respective optional alignments, would be substantially similar to those described for the new Desalinated Water Pipeline.

A segment of the proposed new Transmission Main would be constructed within the TAMC right-of-way, west of Highway 1 and east of Fort Ord Dunes State Park. Construction activities

along portions of this segment would be visible to motorists traveling along Highway 1 and cyclists and pedestrians traveling along the Monterey Peninsula Recreational Trail. Construction activities would contrast with the naturalistic setting of the Fort Ord Dunes State Park and coast to the west. The work would not appear dominant among the prominent dunes and state highway on either side of the alignment. Given the alignment's proximity to a proposed scenic corridor and established public viewpoints, the visual impact severity would be moderate.

Terminal Reservoir

The Terminal Reservoir would be constructed on a site approximately 1,000 feet east of General Jim Moore Boulevard. The site has a moderate aesthetic resource value. Due to its distance from the road and due to the intervening rolling and vegetated topography, the site would be minimally visible to motorists, bicyclists, and pedestrians traveling on General Jim Moore Boulevard, and from nearby residences. Nor would it substantially contrast with, dominate, or otherwise impair scenic views from public vantage points. While the proposed project area is located near the Fort Ord National Monument, the portion of the Monument nearest the work area is closed to the public due to potential hazards from unexploded ordinance. The nearest publicly accessible portions of the Fort Ord National Monument are located between 2 and 3 miles to the north or east of the Terminal Reservoir site. The visual impact severity would, therefore, be low.

Proposed construction would not degrade the aesthetic character or scenic vistas in the vicinity of the Terminal Reservoir site. For these reasons, Terminal Reservoir installation would be expected to have a less than significant impact with respect to aesthetic resources.

Carmel Valley Pump Station

The Carmel Valley Pump Station would be located in an area of moderate aesthetic resource value, characterized by large-lot, low-density single-family residential development nestled between undulating hills covered in coastal scrub and oak woodlands to the north, and the wooded Carmel River corridor to the south. The pump station site, which is set back from Carmel Valley Road by about 250 feet, has been previously disturbed and is not plainly visible from any nearby public vantage points. For these reasons, the work would not contrast with the setting, dominate the landscape, or otherwise impair scenic views. The visual impact severity is considered low.

Proposed construction would not degrade the aesthetic character or scenic vistas in the vicinity of the Carmel Valley Pump Station site. For these reasons, Carmel Valley Pump Station installation would be expected to have a less than significant impact with respect to aesthetic resources.

Impact Conclusion

Construction equipment and machinery, spoils stockpiles, vegetation removal, and exposed earth associated with the implementation of many project components would be temporarily visible to motorists, bicyclists, pedestrians, and other observers such as nearby residents and park visitors. Some of these construction activities would be visible from Highways 1, 68, and 156, which are eligible for designation or officially designated as State Scenic Highways. These construction activities could disrupt the visual character of the surrounding areas. However, due to the

temporary nature of these construction effects, and because work areas would be restored to their approximate pre-construction condition upon completion of construction, such impacts would be less than significant. Although mitigation is not required to reduce a significant impact under CEQA, this EIR/EIS recommends implementation of **Mitigation Measure 4.14-1 (Maintain Clean and Orderly Construction Sites)**.

Recommended Mitigation Measure

Although not required to reduce the above-described aesthetic resources impacts to a less-than-significant level, implementation of **Mitigation Measure 4.14-1 (Maintain Clean and Orderly Construction Sites)** is recommended for all construction sites to address temporary aesthetic resources impacts. The mitigation 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.

> **Mitigation Measure 4.14-1: Maintain Clean and Orderly Construction Sites.**
>
> As part of contract specifications, CalAm shall include a requirement that the construction contractor(s) keep staging and construction areas as clean and inconspicuous as practicable by storing construction materials and equipment at the proposed construction staging areas or in areas that are generally away from public view when not in use, and by removing construction debris promptly at regular intervals. If necessary, additional appropriate screening (e.g., temporary opaque fencing) shall be used at construction sites to buffer views of construction equipment and material, where the use of such screening materials would not further degrade the visual character or further obstruct views of scenic resources or vistas in the area. Screening is not required for pipeline construction areas.

Impact 4.14-2: Temporary sources of substantial light or glare during construction. (*Less than Significant with Mitigation*)

Nighttime construction activities would require temporary construction lighting, which could introduce substantial light into the project area. As discussed in Chapter 3, Description of the Proposed Project, Section 3.5, Project Construction, the majority of construction activities would occur during the daytime and would not cause light effects. However, extended work hours into the night could be necessary during construction of certain project components, including the subsurface slant wells along the coast, the proposed ASR injection/extraction wells (ASR-5 and ASR-6 Wells), and the MPWSP Desalination Plant. There would be no nighttime lighting at staging areas. Unless otherwise exempted, nighttime construction may be subject to local ordinances governing work hours. See Section 4.12, Noise and Vibration, for additional discussion.

Project construction would not require large amounts of reflective materials that would result in substantial adverse effects related to glare. Any reflective materials required for project construction would be incidental to the construction process, limited to work areas, and be

temporary. Therefore, MPWSP construction would have a less-than-significant effect related to glare. The topic of glare is not addressed further in this section.

Subsurface Slant Wells

As discussed in Section 4.14.2.2, Landscape Units, the subsurface slant wells would be located in an area that is generally dark, with sources of nighttime lighting originating primarily from within the CEMEX sand mining facility and from vehicle headlights along Highway 1. Construction activities associated with the subsurface slant wells would be required to occur 24 hours a day and 7 days a week, for a total of 15 months (but could occur anytime over the 24-month overall construction period). 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 sites would be approximately 1,900 feet seaward of Highway 1 and approximately 0.5 mile north of the nearest residences. 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 Marina residents.

The impact from nighttime lighting associated with subsurface slant well construction would be potentially significant. **Mitigation Measure 4.14-2 (Site-Specific Nighttime 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 impacts associated with nighttime construction of subsurface slant wells would be reduced to less-than-significant levels.

MPWSP Desalination Plant

The MPWSP Desalination Plant would be constructed on a vacant parcel that currently does not contain substantial sources of light. Nearby sources of light include headlights from vehicles traveling along Charles Benson Road and nighttime security lighting in adjacent agricultural areas and at the adjacent industrial park. Construction activities and lighting requirements would be similar to those described above for the subsurface slant wells. The MPWSP Desalination Plant construction activities could occur for up to 24 hours a day, 7 days a week, for approximately 24 months, creating a new substantial source of temporary lighting. The only potentially affected receptors would be motorists traveling along Charles Benson Road at night. However, the site is screened from view along Charles Benson Road by a row of mature eucalyptus and Monterey Cypress trees. Beyond Charles Benson Road, the road nearest the site is Del Monte Boulevard, located more than 0.5 mile to the west. Two homes located 0.5 and 1 mile northwest of the plant site are located within view of the Dole and Budweiser processing facility, Highway 1, and Monte Road. The nighttime light from these sources would be more than that from nighttime construction of the MPWSP Desalination Plant. As a result, any nighttime lighting impacts on area motorists and area residents would be negligible.

The temporary lighting impacts associated with nighttime construction at the MPWSP Desalination Plant would be less than significant.

Pipelines North of Reservation Road with Nighttime Lighting

The pipelines and other conveyance facilities proposed for areas north of Reservation Road would be constructed in settings similar to those described above for the subsurface slant wells and the MPWSP Desalination Plant. These pipelines are the Source Water Pipeline, new Desalinated Water Pipeline, Castroville Pipeline, Brine Discharge Pipeline, Pipeline to CSIP Pond, and all related optional alignments. However, segments of the Castroville Pipeline and Castroville Pipeline Optional Alignment 1 would pass through a more densely developed area of Castroville, which has more diverse and intensive nighttime lighting than other portions of the project area north of Reservation Road. Pipeline construction may involve nighttime construction, which might be necessary to meet the MPWSP construction schedule. Pipelines and conveyance facilities north of Reservation Road that could require nighttime construction include the Source Water Pipeline, new Desalinated Water Pipeline, Brine Discharge Pipeline, Pipeline to CSIP Pond, and Castroville Pipeline, as well as any corresponding optional alignments. Nighttime construction activities would require the use of lighting similar to or the same as that required for the subsurface slant wells and MPWSP Desalination Plant. Such construction lighting would introduce substantial sources of light into areas that presently have little nighttime lighting. This light would affect nighttime views from and could temporarily affect nighttime motorists' vision along Highway 1, Highway 156 (for Castroville Pipeline Optional Alignment 1), Merritt Way (for Castroville Pipeline Optional Alignment 1), Merritt Street, Monte Road, Lapis Road, Charles Benson Road, and Del Monte Boulevard.

The impact from nighttime lighting associated with pipeline construction activities would be potentially significant. **Mitigation Measure 4.14-2 (Site-Specific Nighttime 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 impacts associated with nighttime construction of pipelines north of Reservation Road would be reduced to less-than-significant levels.

ASR-5 and ASR-6 Wells

The primary source of lighting in the vicinity of the proposed ASR-5 and ASR-6 Wells is street lighting along General Jim Moore Boulevard; however, other sources of light in the area include headlights from automobiles traveling along General Jim Moore Boulevard, golf course and institutional facilities, and residential development. Construction of the ASR-5 and ASR-6 Wells would normally occur during the daytime; however, continuous 24-hour construction would be necessary for up to 8 weeks during well completion and testing. Construction lighting would introduce a new substantial source of light to the area, which could adversely affect nighttime views in the area, including by impairing motorists' ability to see the road or oncoming traffic, or disrupting residents of the nearby Fitch Park Military Housing area (e.g., prevented them from sleeping).

The potential impacts from nighttime lighting associated with ASR injection/extraction wells construction activities would be potentially significant. **Mitigation Measure 4.14-2 (Site-Specific Nighttime Lighting Measures)** requires implementation of site-specific construction

lighting control measures, as described above. With these measures implemented, temporary nighttime construction lighting impacts would be reduced to a less-than-significant level.

ASR Conveyance Pipelines, Ryan Ranch- Bishop Interconnection Improvements, and Main System-Hidden Hills Interconnection Improvements

As noted previously, pipeline construction would typically take place during daytime hours although nighttime construction might be necessary along certain segments to meet the MPWSP construction schedule. This EIR/EIS assumes that construction of the ASR Conveyance Pipelines, Ryan Ranch- Bishop Interconnection Improvements, and Main System-Hidden Hills Interconnection Improvements would occur only during daytime hours. As a result, no construction-related light impacts would result during installation of these facilities.

New Transmission Main

Nighttime construction may be necessary for certain segments of the new Transmission Main and its optional alignment. Ambient nighttime lighting varies throughout the project area south of Reservation Road. There is some existing nighttime lighting from overhead street lights, shopping centers, and other commercial uses along Marina's Del Monte Boulevard. Sources of nighttime lighting are more diverse, fewer, and more dispersed west of Highway 1 in Marina and Seaside, along General Jim Moore Boulevard; these areas tend to be the darkest within the planning area.

Nighttime construction lighting would introduce substantial sources of new light into areas that presently have little nighttime lighting and increase ambient nighttime lighting within other areas. This light would affect nighttime views and could temporarily affect nighttime motorists' vision along Highway 1 and other roadways along which nighttime pipeline construction would occur.

The impact related to temporary sources of light during construction of the new Transmission Main and its optional alignment is considered potentially significant. However, implementation of **Mitigation Measure 4.14-2 (Site-Specific Nighttime Lighting Measures)**, which requires that CalAm implement site-specific nighttime construction lighting measures, including using light shields and directing lights downward, would reduce the impact to a less-than-significant level.

Terminal Reservoir and Carmel Valley Pump Station

The Terminal Reservoir and Carmel Valley Pump Station would be constructed during daylight hours. No impact related to lighting during construction would result.

Consistency with Regulatory Requirements

In addition to the physical impacts described above, as noted in Section 4.14.3, Regulatory Framework, MPWSP nighttime construction could conflict with applicable regulatory requirements related to aesthetic resources. Elements of the proposed MPWSP may be potentially inconsistent with provisions of the California Coastal Act and Seaside General Plan that were established for the purpose of avoiding or minimizing impacts on aesthetic resources. As

discussed in the preceding paragraphs, **Mitigation Measure 4.14-2 (Site-Specific Nighttime Lighting Measures)**, requires that CalAm implement site-specific nighttime construction lighting measures. With these measures implemented, the MPWSP would be consistent with the above-noted regulatory requirements.

Impact Conclusion

Project construction activities have the potential to introduce temporary sources of substantial light into the project area. This impact would be significant but mitigable for the subsurface slant wells and the ASR-5 and ASR-6 Wells, as well as for the Source Water Pipeline, Brine Discharge Pipeline, Pipeline to CSIP Pond, Castroville Pipeline, new Desalinated Water Pipeline, new Transmission Main, and their corresponding optional alignments. Implementation of **Mitigation Measure 4.14-2 (Site-Specific Nighttime Lighting Measures)**, which requires site-specific construction lighting controls, would reduce the potential impacts of nighttime construction lighting to a less-than-significant level. No impacts related to nighttime lighting would result from construction of the ASR pipelines, Terminal Reservoir, Carmel Valley Pump Station, Ryan Ranch- Bishop Interconnection Improvements, and Main System-Hidden Hills Interconnection Improvements.

Mitigation Measures

Mitigation Measure 4.14-2 applies to all project components where nighttime construction is required, including the subsurface slant wells and the ASR-5 and ASR-6 Wells, as well as the Source Water Pipeline, Brine Discharge Pipeline, Pipeline to CSIP Pond, Castroville Pipeline, new Desalinated Water Pipeline, new Transmission Main, and their corresponding optional alignments.

Mitigation Measure 4.14-2: Site-Specific Nighttime Lighting Measures.

To prevent exterior lighting from affecting nighttime views, the design, construction, and operation of lighting at MPWSP facilities, shall adhere to the following requirements:

- Use of low-intensity street lighting and low-intensity exterior lighting shall be required.
- Lighting fixtures shall be cast downward and shielded to prevent light from spilling onto adjacent offsite uses.
- Lighting fixtures shall be designed and placed to minimize glare that could affect users of adjacent properties, buildings, and roadways.
- Fixtures and standards shall conform to state and local safety and illumination requirements.

CalAm shall ensure these measures are implemented at all times during nighttime construction and for the duration of all required nighttime construction activity.

4.14.6.2 Operational and Facility Siting Impacts

Impact 4.14-3: Permanent impacts on scenic resources (vistas, roadways, and designated scenic areas) or the visual character of the project area and its surroundings. (*Less than Significant with Mitigation*)

Permanent new aboveground facilities, if visible from public vantage points, could affect scenic resources or substantially degrade the existing character of the project area and its surroundings. This discussion of permanent new facilities is limited to aboveground project components. Once constructed, the proposed pipelines would be underground and thus would have no permanent impacts on scenic resources or the visual character of the area.

Subsurface Slant Wells

The new subsurface slant well sites would be located within a large depression in the interior of the CEMEX property, surrounded by dunes that rise in elevation from 10 to 50 feet above the base of the depression. The existing well site (WS-1) is also located in the interior of the property and surrounded by similar topography. As discussed in Section 4.14.2, Setting / Affected Environment, the proposed location of the subsurface slant wells has a moderate aesthetic resource value. Above-ground components associated with each of the six subsurface slant well sites include one 8-inch-tall concrete wellhead vault per slant well, 12-inch-tall concrete pump-to-waste vault, and an approximately 11-foot-tall fiberglass electrical control cabinet. At five of the subsurface slant well sites, the above-ground facilities would be constructed atop a concrete pad, ranging in size from 5,250 to 6,025 square feet.

The site's dune topography and vegetation would substantially limit views of the subsurface slant well sites from locations outside of the CEMEX property. From a distance of approximately 2,000 feet, the above-ground subsurface slant well facilities may be visible to motorists traveling along an approximately 0.5-mile segment of Highway 1. As motorists would be traveling at speeds of 60 miles per hour and focused on the road, rather than distant views to the west, potential views from this vantage point would be fleeting. Views from the beach would be similarly obscured by the intervening dune topography; although, such views would be nearer and longer in duration. Given their size relative to the surrounding dune topography and other structures on the site, the above-ground facilities would not appear dominant relative to surrounding features and would not obstruct coastal views. At the same time, the design, color, and texture of the surface of these facilities could make them more conspicuous or incompatible with the coastal setting. Incompatible surfacing could detract from the visual character of the area. For these reasons, the visual impact severity is considered moderate.

The impact of the subsurface slant wells on scenic coastal resources and visual character would be significant. **Mitigation Measure 4.14-3a (Facility Design)** requires that CalAm design the facilities to avoid or minimize contrast with the surrounding setting. With implementation of this measure, the aesthetic resources impacts would be reduced to a less-than-significant level.

MPWSP Desalination Plant

The MPWSP Desalination Plant would be constructed on the upper terrace (approximately 25 acres) of a 46-acre parcel, adjacent to the industrial Monterey Regional Environmental Park. As discussed in Section 4.14.2, Setting / Affected Environmental, the site is located in the Urban and Built-up landscape unit and has a low aesthetic resource value. As described more fully in Section 3.2.2, MPWSP Desalination Plant, structures proposed for the site would generally range in size from 6,000 to 30,000 square feet in area and rise to heights of up to 35 feet.

A row of mature eucalyptus and Monterey cypress trees along Charles Benson Road would screen or block views to the MPWSP Desalination Plant from the south and west (including from Highway 1), and the river terrace in this area would partially obstruct views of the MPWSP Desalination Plant from areas farther east. **Figure 4.14-4** shows the site of the proposed MPWSP Desalination Plant as viewed from Highway 1. As shown in the photograph, considering the distance to the Monterey Regional Environmental Park and its existing industrial character, the facilities proposed at the MPWSP Desalination Plant site would not be particularly discernible from Highway 1. As such, the MPWSP Desalination Plant facilities would not contrast with the surrounding setting. Similarly, the proposed facilities would not dominate the setting relative to surrounding features; developments in the adjacent Monterey Regional Environmental Park and MRWPCA Regional Wastewater Treatment Plant are of a similar size and scale. Given the site's low aesthetic resource value, absence of scenic resources, and limited visual accessibility, operation of the MPWSP Desalination Plant would not impair public views of aesthetic resources. For these reasons, the visual impact severity is considered low.

Operation of the MPWSP Desalination Plant would not have a substantial adverse effect on scenic resources or visual character and the impact would be less than significant.

ASR-5 and ASR-6 Wells

The proposed ASR-5 and ASR-6 Wells would be located immediately east of General Jim Moore Boulevard and south of Ardennes Circle in the Fitch Park military housing area. Along the tree-lined General Jim Moore Boulevard are single-family residences, a golf course, and a school. There are no scenic highways in the immediate vicinity. As discussed in Section 4.14.2, Setting / Affected Environmental, these facilities would be located in an area with moderate aesthetic resource value.

Permanent aboveground structures associated with the ASR-5 and ASR-6 Wells include pump houses and fencing. The pump and electrical control system for each well would be housed in an 11-foot-tall, 900-square-foot concrete pump house. A 9.5-foot-tall security fence would enclose the approximately 0.4- and 0.5-acre area around the ASR-5 and ASR-6 Wells, respectively.

These facilities would be noticeable from General Jim Moore Boulevard and nearby residences. The aboveground facilities would be small relative to existing structures and buildings in the area and would not block any views of scenic resources. As other ASR facilities and other utility infrastructure exists along General Jim Moore Boulevard, including the ASR Phase I project located 1 mile to the south, the proposed ASR wells would not be out of character with the surrounding area. However, depending upon the design and finish of the pump houses and fences, the ASR-5

SOURCE: ESA, 2013

205335.01 Monterey Peninsula Water Supply Project

Figure 4.14-4

Existing Views of MPWSP Desalination Plant Site from Highway 1

and ASR-6 facilities could contrast with the surrounding residential setting. The visual impact severity of these ASR system improvements would, therefore, be moderate.

The presence of the MPWSP ASR-5 and ASR-6 Wells could have a substantial adverse effect on scenic resources or visual character, which would be significant. **Mitigation Measures 4.14-3a (Facility Design)** and **4.14-3b (Facility Screening)** require that CalAm design the facilities to avoid or minimize contrast with the surrounding setting and screen them from public view to the extent feasible. With implementation of this measure, the impact would be less than significant.

Terminal Reservoir

The site of the proposed Terminal Reservoir, which is located approximately 1,000 feet east of General Jim Moore Boulevard, has a moderate aesthetic resource value.

The Aboveground Tanks Option would be constructed on a 0.75-acre concrete pad. The Terminal Reservoir would consist of two 3-million-gallon tanks; each tank would be 33 feet tall and 130 feet in diameter. Security fencing would enclose a 3.5-acre area around the Terminal Reservoir. **Figure 4.14-5** shows a simulated view of the Terminal Reservoir from General Jim Moore Boulevard.

As indicated in the figure, the mostly undeveloped area surrounding the reservoir is devoid of trees or other massive structures, and the large tanks of the Terminal Reservoir would be a prominent feature in the landscape, even when viewed from a distance. Therefore, the Terminal Reservoir would potentially contrast with the surrounding area and would likely be noticed by a casual observer. While they would not dominate the landscape, as viewed from General Jim Moore Boulevard, the Terminal Reservoir tanks would be noticeable along the horizon. These facilities would not be noticeable from the publicly accessible portions of the Fort Ord National Monument, which are located approximately 3 miles northeast of the Terminal Reservoir site. Nevertheless, because of impacts on scenic views from General Jim Moore Boulevard, the visual impact severity of the Terminal Reservoir would be high.

Operation of the Terminal Reservoir could have a substantial adverse effect on scenic resources or visual character and the impact would be significant. As discussed for the ASR-5 and ASR-6 wells, implementation of **Mitigation Measures 4.14-3a (Facility Design)** and **4.14-3b (Facility Screening)** would reduce such impacts to a less-than-significant level.

Carmel Valley Pump Station

The Carmel Valley Pump Station would be located in an area characterized by residential development, scrub-covered hills, and the wooded Carmel River corridor. The aesthetic resource value of the Carmel Valley Pump Station site is considered moderate. Above-ground facilities associated with the Carmel Valley Pump Station include a 500-square-foot, 11-foot-tall pump station enclosure. A separate 100-square-foot electrical control building would be constructed outside of the pump station building. The structures would be subordinate in size to structures on adjacent properties, most of which are more than 1,000 square feet in area. The pump station site, which is set back from Carmel Valley Road by about 250 feet, is not plainly visible from any

Existing View

Simulated View

SOURCE: ESA, 2013

205335.01 Monterey Peninsula Water Supply Project

Figure 4.14-5

Visual Simulation of Terminal Reservoir from General Jim Moore Boulevard

nearby public vantage points due to intervening topography and vegetation. For these reasons, the Carmel Valley Pump Station would not contrast with the setting, dominate the landscape, or otherwise impair scenic views. The visual impact severity is considered low.

Operation of the Carmel Valley Pump Station would not have a substantial adverse effect on scenic resources or visual character and the impact would be less than significant.

All Pipelines

All proposed pipelines would be installed below ground and would not involve substantial removal of vegetation and or trees that would substantially damage scenic resources or degrade the visual quality of the alignment areas. Therefore, no permanent impact on visual resources would result.

Consistency with Regulatory Requirements

In addition to the physical impacts described above, as noted in Section 4.14.3, Regulatory Framework, MPWSP operations could conflict with applicable regulatory requirements related to aesthetic resources. Elements of the proposed MPWSP may be potentially inconsistent with provisions of the California Coastal Act, Marina General Plan and Local Coastal Program, and Seaside General Plan that were established for the purpose of avoiding or minimizing impacts on aesthetic resources. As discussed in the preceding paragraphs, **Mitigation Measures 4.14-3a (Facility Design)** and **4.14-3 (Facility Screening)** require that CalAm design the facilities to avoid or minimize Terminal Reservoir contrast with the surrounding natural setting and screen these facilities from public view. With these measures implemented, the MPWSP would be brought into conformance with the above-noted regulatory requirements.

Impact Conclusion

Permanent aboveground facilities proposed for the MPWSP could have an adverse impact on scenic resources or the existing visual character of facility sites within the project area. This impact would be significant but mitigable for the subsurface slant wells, ASR-5 and ASR-6 wells, and Terminal Reservoir. This impact would be reduced to a less-than-significant level with implementation of **Mitigation Measures 4.14-3a (Facility Design)** and **4.14-3b (Facility Screening)**, which require that CalAm design the facilities to avoid or minimize contrast with the surrounding setting and ensure the facilities are screened from public views to the extent feasible. Although mitigation is not required for the MPWSP Desalination Plant, or the Carmel Valley Pump Station, this EIR/EIS recommends implementation of **Mitigation Measures 4.14-3a (Facility Design)** and **4.14-3b (Facility Screening)** for all above-ground project components to further reduce potential aesthetic resources effects and facilitate compatibility of project design with the natural and built environment. No operational impacts related to scenic resources and visual character would result from below-ground facilities, including proposed pipelines and optional alignments.

Mitigation Measures

Mitigation Measure 4.14-3a applies to the subsurface slant wells, ASR-5 and ASR-6 wells, and Terminal Reservoir; could also apply to other facilities, but not required to avoid a significant impact.

> **Mitigation Measure 4.14-3a: Facility Design.**
>
> CalAm shall avoid reflective exterior finishes and treat visible structures with earth-tone finishes to reduce contrast with the ground surface and increase compatibility with the visual setting. Primary structures shall be treated with complementary colors in the brown, tan, gray, or green color spectrum, or with other natural colors. Choose paint and exterior finishes to ensure that structures blend into the surrounding landscape.

Mitigation Measure 4.14-3b applies to the ASR-5 and ASR-6 wells and Terminal Reservoir; could also apply to other facilities, but not required to avoid a significant impact.

> **Mitigation Measure 4.14-3b: Facility Screening.**
>
> CalAm shall ensure that fencing is designed to be minimally intrusive and to complement the architectural character of the proposed facility and the community. Fencing design shall be coordinated with nearby landscaping and MPWSP facility design to ensure all project components blend with the surrounding community and/or natural setting. Native plants, trees, or shrubs shall be used whenever practicable to screen views of the proposed aboveground facilities. Facility screening shall be in keeping with the character of the site and setting, and walled perimeters shall be avoided in natural settings to minimize the dominance of structures.

Impact 4.14-4: Permanent new sources of light or glare. (*Less than Significant with Mitigation*)

New sources of light and glare emanating from or reflecting off of the proposed facilities could disrupt the lighting environment of the project area as viewed from public vantage points and adjacent lands. An area's existing level of ambient light is a factor in determining project impacts, as the incremental effects of new lighting tends to be less pronounced in well-lit areas. This impact pertains to those project components that propose permanent exterior nighttime lighting. Project components that do not propose exterior lighting, including all pipelines, would not result in impacts with respect to introducing permanent sources of light or glare. None of the proposed facilities would have reflective finishes and so MPWSP operations would have no impact related to glare.

Subsurface Slant Wells

The subsurface slant wells and the electrical control building and electrical control panel for the wells would not require additional exterior lighting. Therefore, this project component would not cause impacts related to new sources of light.

MPWSP Desalination Plant

Lighting proposed at the MPWSP Desalination Plant 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 industrial Monterey Regional Environmental Park and MRWPCA Regional Wastewater Treatment Plant. Existing trees would screen site security lighting from direct view along Charles Benson Road, and there are no residential properties in the area that would be affected by nighttime lighting at the site. As a result, increased nighttime lighting at the MPWSP Desalination Plant would have a less-than-significant impact with respect to adverse effects on nighttime views.

All Pipelines

Pipelines and other conveyance facilities would be located below ground and therefore would not cause or contribute to light impacts.

Improvements to ASR System

Nighttime lighting at the proposed ASR injection/extraction wells could be required for site safety and security purposes. If not properly contained, light spillover from these proposed fixtures could adversely affect motorists' ability to see the road at night or disturb nearby residents. These effects would be most apparent to motorists and residents along General Jim Moore Boulevard and Ardennes Circle.

The potential impacts from unconfined nighttime lighting associated with ASR injection/extraction wells operation would be significant. However, with implementation of **Mitigation Measure 4.14-2 (Site-Specific Nighttime Lighting Measures)**, the impact would be reduced to a less-than-significant level. The measure would reduce nighttime light impacts by requiring use of low-intensity lighting, and that lights be shielded or directed downward to prevent light spillage into adjoining areas.

Terminal Reservoir

The Terminal Reservoir would require nighttime security lighting. Lighting for this facility would be similar to that discussed above for the ASR injection/extraction wells. However, the proposed Terminal Reservoir site is less developed and has less ambient night lighting. Permanent lighting proposed for the Terminal Reservoir would introduce a new source of nighttime light to the area. Due to the Terminal Reservoir site's distance from General Jim Moore Boulevard and residential developments, the lighting would not be highly visible from public areas. However, it would constitute the only source of light in an otherwise unlit and undeveloped area. As described for the ASR-5 and ASR-6 wells and while not necessary to mitigate a potentially significant impact, implementation of **Mitigation Measure 4.14-2 (Site-Specific Nighttime Lighting Measures)** at Terminal Reservoir would insure the impact would be less-than-significant. Operation of the Terminal Reservoir therefore, would not cause or contribute to adverse light effects and the impact would be less than significant.

Carmel Valley Pump Station

The Carmel Valley Pump Station would require minimal nighttime security lighting. The proposed site is located approximately 240 feet south of Carmel Valley Road. The area is dark at night and has few sources of nighttime lighting. While unlikely to affect area motorists due to intervening topography and vegetation, new sources of lighting at the Carmel Valley Pump Station site could disturb residents as near as 250 feet from the source.

The potential impacts from unconfined nighttime lighting associated with the Carmel Valley Pump Station would be significant. However, with implementation of **Mitigation Measure 4.14-2 (Site-Specific Nighttime Lighting Measures)**, the impact would be reduced to a less-than-significant level.

Consistency with Regulatory Requirements

In addition to the physical impacts described above, as noted in Section 4.14.2, Regulatory Framework, MPWSP nighttime construction could conflict with applicable regulatory requirements related to aesthetic resources that were adopted for the purpose of avoiding or mitigating an environmental effect. Elements of the proposed MPWSP may be potentially inconsistent with provisions of the California Coastal Act and Seaside General Plan that were established for the purpose of avoiding or minimizing impacts on aesthetic resources. As discussed in the preceding paragraphs, **Mitigation Measure 4.14-2 (Site-Specific Nighttime Lighting Measures)**, requires that CalAm implement site-specific nighttime lighting measures in facility design, construction, and operations. With these measures implemented, the MPWSP would be consistent with the above-noted regulatory requirements.

Impact Conclusion

Project operations would introduce permanent sources of substantial light into the project area. This impact would be significant but mitigable for the ASR injection/extraction wells, Terminal Reservoir, and the Carmel Valley Pump Station. Implementation of **Mitigation Measure 4.14-2 (Site-Specific Nighttime Lighting Measures)**, which requires site-specific lighting controls, would reduce the potential impacts of nighttime operations lighting to a less-than-significant level. Although such mitigation is not required for the MPWSP Desalination Plant or Terminal Reservoir, this EIR/EIS recommends implementation of **Mitigation Measure 4.14-2 (Site-Specific Nighttime Lighting Measures)** for all above-ground project components with permanent sources of nighttime lighting to further reduce potential light spillover and dark night skies impacts. No operational impacts related to nighttime lighting would result from below-ground facilities, including proposed pipelines and optional alignments.

Mitigation Measures

Mitigation Measure 4.14-2 applies to the ASR-5 and ASR-6 Wells and Carmel Valley Pump Station.

> **Mitigation Measure 4.14-2: Site-Specific Nighttime Lighting Measures.**
>
> (See Impact 4.14.2, above, for a description)

Recommended Mitigation Measures

Although not required, except to the extent discussed above, to reduce the above-described aesthetic resources impacts to a less-than-significant level; to the extent feasible, implementation **Mitigation Measure 4.14-2 (Site-Specific Nighttime Lighting Measures)** is recommended for all above-ground project components with permanent sources of nighttime lighting, including the MPWSP Desalination Plant and Terminal Reservoir.

Mitigation Measure 4.14-2 applies to the MPWSP Desalination Plant and Terminal Reservoir

(See Impact 4.14.2, above, for a description)

4.14.7 Cumulative Effects of the Proposed Project

The cumulative scenario and cumulative impacts methodology are described in Section 4.1.7. Table 4.1-2 lists potential cumulative projects.

Impact 4.14-C: Cumulative impacts related to aesthetic resources. (*Less than significant with mitigation*)

The geographic scope of potential cumulative impacts on aesthetic resources encompasses the locations from which a viewer could see the MPWSP construction or operations elements along with views of other projects in the cumulative scenario. The timeframe during which the MPWSP could contribute to cumulative aesthetic resources effects includes the 24-month construction phase, as well as the anticipated approximately 40-year operations phase. A significant cumulative effect on aesthetic resources would result if the effects of the MPWSP combined in space and time with those of cumulative projects to cause substantial degradation of the same scenic resources. A significant cumulative effect related to light and glare would result if the effects of the MPWSP combined in space and time with those of other cumulative projects to cause substantial nuisance or hazard conditions on the same light-sensitive receptor.

Cumulative Construction Impacts

As discussed in Impact 4.14-1, the MPWSP construction activities would have temporary adverse visual impacts (e.g., presence of construction vehicles, staging of materials, and exposure of soils). However, given their temporary nature and that these areas would be restored to their approximate pre-construction condition following construction, such impacts would not be expected to have a significant impact with respect to aesthetic resources. Projects described in Table 4.1-2 whose effects could combine with those of proposed project construction to have an adverse effect on scenic resources include Fort Ord Dunes State Park Campground (No. 46) and the Castroville Bicycle and Pedestrian Overcrossing (No. 36). The remaining cumulative projects in proximity to the MPWSP and with construction schedules that could result in the types of effects described above either are not proposed for scenic areas or would not be visible from the MPWSP (or scenic resources affected by the MPWSP) due to topography or other visual obstruction.

Both projects are situated along scenic corridors, but also within near-highway areas and proximate to existing development. Construction of these projects would involve aesthetic resource impacts similar to those described for MPWSP construction in Impact 4.14-1. Such impacts would be visible mainly to motorists traveling along Highway 1 in Seaside and Highway 156 and Merritt Way in Castroville. Implementation of these projects concurrent with or sequential to the new Transmission Main or Castroville Pipeline Optional Alignment 1, respectively, would extend the duration of time passersby are exposed to these impacts. However, as motorists would be traveling at high rates of speed, and likely focused on the road, such views would be fleeting. The overall duration of the visual disturbance would be temporary, limited to the construction phases of these projects. For these reasons, the impact severity would not be substantially different from that described previously for individual pipeline construction. For these reasons, the effects of MPWSP construction would not combine with those of cumulative projects to cause a significant cumulative effect with respect to aesthetic resources (*less than significant*).

As analyzed in Impact 4.14-2, proposed project construction would have a less-than-significant impact related to glare, and potential glare would be minimal and site-specific and thus would not contribute to a cumulative aesthetic impact. However, construction could result in a significant nighttime lighting impact associated with nighttime construction of the subsurface slant wells, Source Water Pipeline, Brine Discharge Pipeline, Pipeline to CSIP Pond, new Desalinated Water Pipeline, new Transmission Main, Castroville Pipeline, and ASR-5 and ASR-6 wells. None of the projects identified in **Table 4.1-2** are proposed in areas or at a time that would be affected by proposed project-related nighttime construction lighting or glare. Therefore, no overlap with construction of these project elements is anticipated. If overlap did occur, the combined effects could exceed the established thresholds of significance, resulting in a significant cumulative impact. However, following implementation of **Mitigation Measure 4.14-2 (Site-Specific Nighttime Lighting Measures)**, the proposed project would have a less-than-significant impact related to nighttime construction lighting, and its contribution to any cumulative impacts would be reduced to a level that is not cumulatively considerable because this measure would ensure that nighttime lighting has minimal spillover from active construction sites (*less than significant with mitigation*).

Cumulative Operations Impacts

As analyzed relative to Impact 4.14-3, the MPWSP Desalination Plant, ASR-5 and ASR-6 wells, and the Carmel Valley Pump Station would have a less-than-significant effect related to scenic resources and visual character. The subsurface slant wells and Terminal Reservoir, as viewed from Highway 1 and General Jim Moore Boulevard, respectively, could result in significant impacts on scenic resources and visual character. However, none of these components would cause or contribute to a significant cumulative impact on scenic resources or visual character, because none of the projects identified in **Table 4.1-2** is proposed for a location that would be visible from an above-ground MWPSP component and have an adverse effect on the same scenic resource. Consequently, the combined operations-related effects of the MPWSP and cumulative projects identified in **Table 4.1-2** would not result in a significant cumulative effect with respect to scenic resources and visual character (*less than significant*).

As analyzed in Impact 4.14-4, proposed project operation would have no impact related to glare. The effects of the MPWSP Desalination Plant's operational nighttime lighting would be less than significant. The proposed ASR-5 and ASR-6 Wells, the Terminal Reservoir, and the Carmel Valley Pump Station would each require nighttime security lighting that could have substantial adverse effects on nearby receptors. However, no projects identified in **Table 4.1-2** are proposed for areas that would be affected by MPWSP nighttime security lighting. Consequently, the combined operations-related effects of the MPWSP and cumulative projects identified in **Table 4.1-2** would not result in a significant cumulative effect with respect to permanent sources of light and glare (*less than significant*).

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4.15 Cultural and Paleontological Resources

Sections	Tables	Figures
4.15.1 Introduction	4.15-1 Criteria for Determining Paleontological Potential	4.15-1 Culturally Sensitive Areas
4.15.2 Setting/Affected Environment	4.15-2 Applicable Regional and Local Land Use Plans and Policies Relevant to Cultural and Paleontological Resources	4.15-2 Historic Resources in the Source Water Pipeline APE
4.15.3 Regulatory Framework	4.15-3 Damage Threshold to Historic Buildings from Construction Equipment	
4.15.4 Evaluation Criteria	4.15-4 Summary of Impacts – Cultural and Paleontological Resources	
4.15.5 Approach to Analysis		
4.15.6 Direct and Indirect Effects of the Proposed Project		
4.15.7 Cumulative Effects of the Proposed Project		

4.15.1 Introduction

This section discusses the potential for the various components of the Monterey Peninsula Water Supply Project (MPWSP or proposed project) to affect previously identified and/or inadvertently discovered cultural and paleontological resources. Cultural resources include architectural resources, archaeological resources, traditional cultural properties, and human remains. Paleontological resources include fossilized remains of vertebrate and invertebrate organisms, fossil tracks, and plant fossils.

Based on CEQA Guidelines Section 15064.5(a), historical resources include, but are not limited to, any object, building, structure, site, area, place, record, or manuscript that is historically or archaeologically significant or that is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California. Generally, a lead agency considers a resource to be “historically significant” if the resource meets the criteria for listing in the California Register of Historical Resources (California Register) (Public Resources Code [PRC] 5024.1).

Under the National Historic Preservation Act (54 U.S.C. § 300301 et seq.) implementing regulations, historic properties are defined as any prehistoric or historic-era district, site, building, structure, or object included on, or eligible for inclusion on, the National Register of Historic Places (National Register) (54 U.S.C. § 300308). Unless the property possesses exceptional significance, it must be at least 50 years old to be eligible for National Register listing (NPS, 1990). Historic properties that meet federal criteria are also considered historical resources under CEQA, in accordance with PRC Section 5024.1(d)(1). Historical resources and historic properties refer to significant architectural/structural resources, significant archaeological resources (including maritime resources such as shipwrecks), and traditional cultural properties.

4.15.1.1 Definitions

Cultural Resources

Architectural/Structural Resources

Architectural/structural resources are typically elements of the built environment, including but not limited to buildings, structures, objects, sites, and districts; these resources range from single-family residences, stores, schools, and factories to downtown commercial districts, ranches, military bases, roads, railroads, bridges, tunnels, gardens, and statues. The term "structure" is used to create distinction between infrastructure and facilities, such as roads, railroads, trails, bridges, dams, canals, ditches, and retaining walls, and buildings made for purposes other than human shelter such as barns, sheds, or workshops. A structure that has lost its historical configuration or pattern of organization through deterioration or demolition (e.g., bridge footings, foundations) is usually considered a ruin and categorized as an archaeological site.

Archaeological Resources and Traditional Cultural Properties

An archaeological site is defined as "the location of a significant event, a prehistoric or historic-era occupation or activity, or a building or structure, whether standing, ruined, or vanished, where the location itself possesses historic, cultural, or archaeological value regardless of the value of any existing structure" (NPS, 1990). Prehistoric archaeological materials might include obsidian and chert flaked stone tools (e.g., projectile points, knives, scrapers) or toolmaking debris; culturally darkened soil ("midden") containing heat-affected rocks, artifacts, or shellfish remains; and stone milling equipment (e.g., mortars, pestles, handstones, or milling slabs); and battered stone tools such as hammerstones and pitted stones. Historic-era materials might include stone, concrete, adobe, or wooden footings, foundations, and walls; artifact-filled wells or privies, and sheet refuse; or deposits of metal, glass, and/or ceramic refuse. Shipwrecks and other maritime related resources such as remnant wharfs and piers can be considered archaeological resources. Faunal and floral remnants can be associated with both prehistoric and historic-era sites. Human remains can be associated with archaeological sites or found in an isolated context.

A Traditional Cultural Property (TCP) is a property that is eligible for inclusion in the National Register based on its associations with the cultural practices, traditions, beliefs, lifeways, arts, crafts, or social institutions of a living community. The cultural significance of a TCP is derived from the role the property plays in a community's historically rooted beliefs, customs, and practices.

Paleontological Resources

Paleontological resources are the fossilized remains of plants and animals, including vertebrates (animals with backbones), invertebrates (e.g., starfish, clams, snails, and marine coral), and fossils of microscopic plants and animals (microfossils). The age and abundance of fossils depend on the location, topographic setting, and particular geologic formation in which they are found. Fossil discoveries not only provide a historical record of past plant and animal life but can assist geologists in dating rock formations. In addition, fossil discoveries can expand our understanding of the time periods and geographic ranges of existing and extinct flora or fauna.

4.15.1.2 Area of Potential Effects

The Area of Potential Effects (APE) is the study area for architectural/structural, archaeological, and paleontological resources and is the area that could be affected by the proposed project. This analysis relies on the federal definition of APE, which is "the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist" (36 CFR 800.16(b)). The proposed project is equivalent to the federal undertaking.

Direct APE (Archaeological/Paleontological APE)

The *direct* APE (also the archaeological and paleontological APE) is identical to the lateral extent of the project area boundary (see **Figures 3-2** and **3-3** through **3-15** in Chapter 3, Description of the Proposed Project). Like the project area boundary, the direct APE represents all areas where construction-related ground disturbance could occur, including open excavations, construction work areas, and staging areas. Not all portions of the direct APE (project area boundary) would necessarily be disturbed. The horizontal direct APE for nonlinear facilities (i.e., the MPWSP Desalination Plant, subsurface slant wells, Terminal Reservoir, ASR-5 and ASR-6 Wells, and Carmel Valley Pump Station) is based on the anticipated footprint and construction-related disturbance associated with each facility.

The standard width of the direct APE for pipelines proposed in undeveloped areas is approximately 100 feet; for pipelines proposed within existing roadways, the width of the direct APE is equal to the width of the road right-of-way (typically 30 to 100 feet from curb to curb). Pipeline trenches would generally be no more than 6 feet wide, except in areas with sandy soils and where there are no constraints to excavating a wider trench (i.e., known resources, geography, existing utilities, or other facilities that restrict the construction area). In these areas, a trench width of up to 10 or 15 feet could potentially be used to reduce costs related to shoring the trench. For all pipelines, the length of the direct APE is equal to the length of the proposed pipeline.

The depth of the direct APE varies for each of the project components. Pipeline depths would average 8 feet below the ground surface, with deeper excavations required where pipelines would be installed via trenchless technologies (i.e. jack and bore, horizontal directional drilling, etc.). The maximum construction area for the Desalination Plant would be the 25-acre development area. Depth of ground disturbance for the facilities would not exceed 12 feet below ground surface. The slant wells would be approximately 900 to 1,000 feet long and drilled at approximately 14 degrees below horizontal to extend up to 356 feet seaward of the MHW line (except #8, which would not extend past the MHW line) and to a depth of 190 to 210 feet beneath the sea floor. The direct APE for the subsurface slant wells includes an area within MBNMS.

Indirect APE (Architectural/Structural APE)

The *indirect* APE (also the architectural and structural APE) encompasses the direct APE as well as the area of indirect impact, which for historic architectural resources includes the viewshed or setting visible from a project component as well as the area subject to construction-related vibration.

The horizontal extent of the indirect APE is inclusive of any areas that could be subject to significant vibration effects from construction equipment. For project pipelines that are proposed in roadways, the indirect APE encompasses the width of the road right-of-way (typically 50 to 75 feet from curb to curb) as well as buildings and structures within 45 feet of the outside curb. The indirect APE for the subsurface slant wells and the ASR-5 and ASR-6 Wells encompass a 25-foot radius from the point of insertion (i.e., from the locations where the drill rigs would be operated). For project components in unpaved areas, the indirect APE is 45 feet from the centerline of the pipeline or a 45-foot buffer from a project component. For pipeline installations that would require trenchless construction techniques employing installation of sheet piles, the indirect APE is 85 feet from the jacking or receiving pit.

With respect to project effects on the viewshed or setting visible from a project component, the majority of the project components would be constructed below ground (i.e., pipelines) and would not affect the viewshed or setting associated with potential historical resources. For aboveground components, the viewshed and/or setting visible from a project component is included in the indirect APE. Section 4.14, Aesthetic Resources, further addresses the potential aesthetic and visual quality impacts associated with implementation of the proposed project.

4.15.2 Setting / Affected Environment

The study area for evaluation of cultural and paleontological resources impacts is the area of direct and indirect impact for the proposed project as described above in Section 4.15.1.2 Area of Potential Effects.

4.15.2.1 Cultural Setting

This section presents a brief overview of the environmental, geological, ethnographic, and historical background of the project vicinity. The project area extends across portions of unincorporated Monterey County and the cities of Marina, Seaside, Sand City, and Monterey. This section has been partially adapted from Jones and Holson (2009).

Natural Environment

The Monterey Bay area is bounded on the north by the Santa Cruz Mountains and on the south by the Gabilan and Santa Lucia Mountains. There are extensive alluvial plains in the southern half of the area between the coast and the mountains. A great submarine canyon extends from Moss Landing into the Pacific Ocean (Gordon, 1996).

The Monterey Bay area has two seasons—a cooler, wetter winter season and a warmer, drier summer season. Average annual rainfall in this area ranges from 15 to 27 inches, increasing with elevation. This area is temperate, with weather conditions varying from cloudy and rainy to clear and fair.

The Monterey Bay area is home to a vast array of floral and faunal species that would have been utilized by both prehistoric and early historic-period populations. Mayer and Laudenslayer (1988)

describe the two dominant habitats in the Monterey Bay area as coastal oak woodland and coniferous montane hardwood. Native to coastal oak woodland is the coast live oak tree. During the Mission Period (1769–1834), early settlers in the area affected the integrity of this habitat through the introduction of agriculture and animal husbandry; in addition, the importation of aggressive annual species hindered the development of young oaks. As a result, portions of the woodland have become open woodlands or savannas. Over 60 species of mammals and over 110 species of birds—including California quail, deer, and squirrel—live in the coastal oak woodland habitat. A variety of tree species are found in coniferous montane hardwood habitat, including coast live oak, big-leaf maple, Pacific madrone, tan oak, canyon live oak, Coulter pine, and coastal redwood. Animals found in the coniferous montane hardwood habitat include California quail, plain titmouse, scrub jay, rufous-sided towhee, Bewicks wren, bush tit, and acorn woodpecker, among others.

Geological Context

The California coast has undergone dramatic landscape changes since humans began to inhabit the region more than 10,000 years ago. Rising sea levels and increased sedimentation into streams and rivers are among the changes (Helley et al., 1979). In many places, the interface between older land surfaces and Holocene-age landforms are marked by a well-developed buried soil profile (or "paleosol"). Paleosols preserve the composition and character of the earth's surface prior to subsequent sediment deposition; thus, paleosols have the potential to preserve archaeological resources if the area was occupied or settled by humans (Meyer and Rosenthal, 2007). Because human populations have grown since the arrival of the area's first inhabitants, younger paleosols (late Holocene) are more likely to yield archaeological resources than older paleosols (early Holocene or Pleistocene).

The direct APE intersects several geologic deposits, including artificial fill, Holocene-age dune sand, Holocene-age alluvial deposits, older Pleistocene-age marine terrace deposits, and bedrock (**Figure 4.15-1**). A geoarchaeological assessment completed for the Transportation Agency for Monterey County's (TAMC) Light Rail Transit Project indicated that portions of the direct APE have a high sensitivity for buried archaeological resources (Meyer in Ruby, 2010). According to Meyer's assessment (Meyer in Ruby, 2010:29), the potential for buried archaeological resources can be determined based on three assumptions:

- Archaeological sites tend to be located near perennial water sources;
- Archaeological deposits from successive time periods are more common because the density of human populations increased over time; and
- The longer a landform remained at the surface, the greater the probability that any one spot on that landform was occupied.

The Monterey Bay area locations determined to have the highest potential for buried archaeological sites are associated with channels or estuaries (Meyer in Ruby, 2010) that traverse the direct APE. This includes Tembladero Slough and Salinas River.

Based on the above-described geoarchaeological assessment, there is potential for deeply buried, well-developed soil horizons to be present in portions of the direct APE, and thus potential for

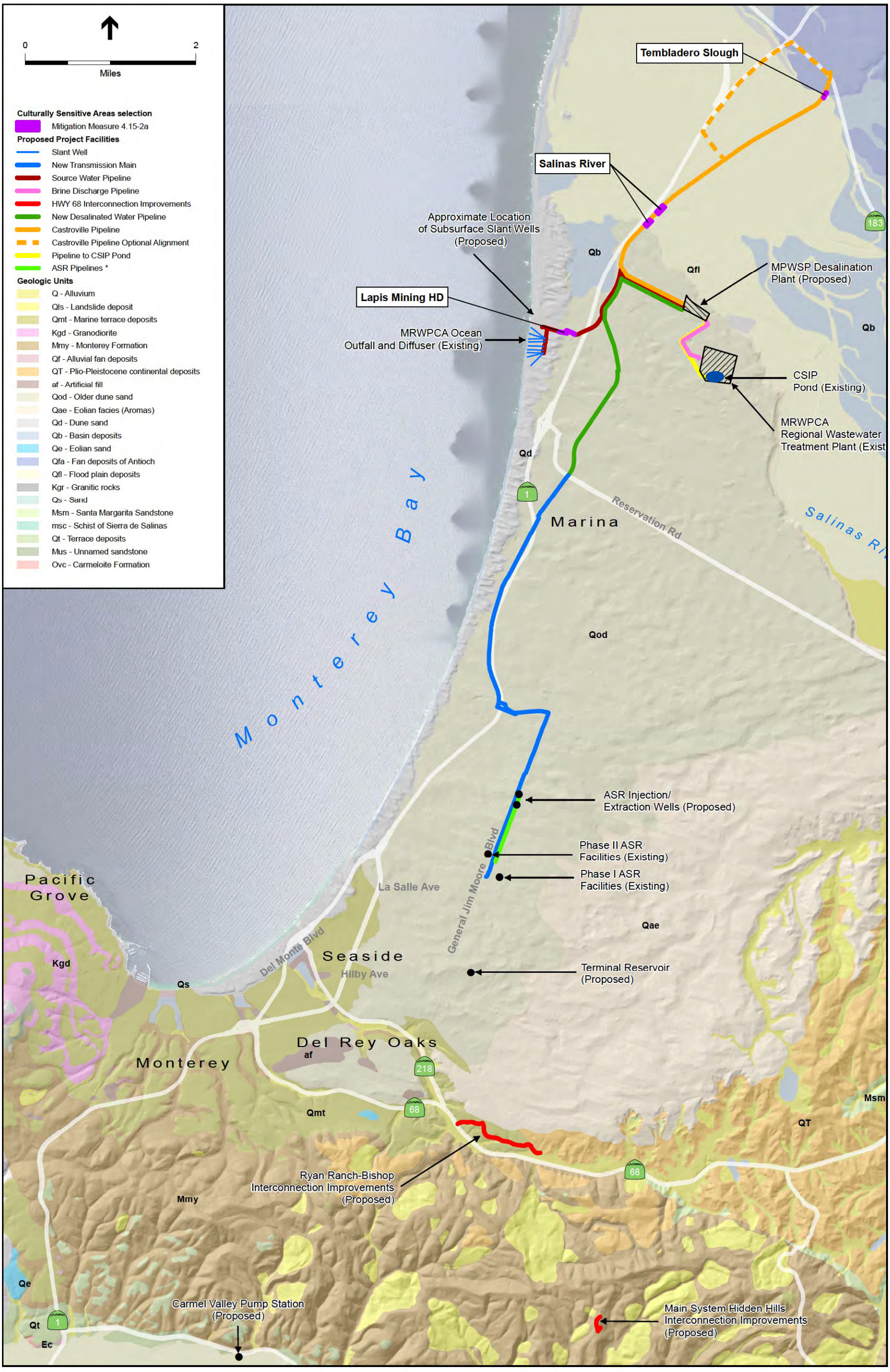
archaeological resources associated with those buried soils to be encountered during project work. Those locations include Tembladero Slough near Castroville and the Salinas River (see **Figure 4.15-1**). It is not recommended that additional subsurface investigations for deeply buried sites be conducted for the proposed project for the following reasons: few deeply buried sites have been previously discovered in the Monterey Bay vicinity, ground disturbance in the direct APE at locations with a high archaeological sensitivity would be relatively narrow (generally 6 feet wide) and linear (rather than areal); and the active coastal dune environment may have destroyed, disturbed, and/or removed archaeological materials.

Prehistoric Context

Archaeologists have developed individual cultural chronological sequences tailored to the archaeology and material culture of each subregion of California. Each of these sequences is based principally on the presence of distinctive cultural traits and stratigraphic separation of deposits. Jones et al. (2007) provide a framework for the interpretation of the Central Coast and the Monterey Bay Area. The authors divide human history on the Central Coast into six broad periods: the *Paleo-Indian Period* (pre-8000 B.C.), the *Early Archaic Period* (8000 to 3500 B.C.), the *Early Period* (3500 to 600 B.C.), the *Middle Period* (600 B.C. to A.D. 1000), the *Middle/Late Transition Period* (1000 to 1250 A.D.), and the *Late Period* (A.D. 1250–1769). The periods have been largely defined on the basis of distinctive bead types; typological analysis and radiocarbon dating of *Olivella* beads show the bead sequence in the Monterey Bay Area as generally similar to those of the California Central Valley and the Santa Barbara coast. Economic patterns, stylistic aspects, and regional phases further subdivide cultural periods into shorter phases. This scheme uses economic and technological types, socio-politics, trade networks, population density, and variations of artifact types to differentiate between cultural periods.

Evidence of human habitation during the *Paleo-Indian Period*, characterized by big-game hunters occupying broad geographic areas, has not yet been discovered in the Monterey Bay Area. The oldest known occupation of the Monterey Bay area dates from ca. 5000 B.C., however data representing this earliest occupation is limited. The *Early Archaic Period* is represented by the *Millingstone Culture* (800 to 3500 B.C.) and is marked by large numbers of handstones and/or millingslabs, crude core and cobble-core tools, and less abundant flake tools and large side-notched projectile points. Millingstone components have been identified at locations in Monterey County near Elkhorn Slough and Monterey Peninsula. Faunal remains indicate that Millingstone people exploited shellfish, fish, birds, and mammals, and with a majority of Millingstone sites less than 25 kilometers from the shoreline there appears to have been a focus on shellfish consumption.

The *Early* and *Middle Periods* are represented by the *Hunting Culture* (3500 B.C. to A.D. 1250), which was marked by large quantities of stemmed and notched projectile points. During the *Early Period* (3500 to 600 B.C.), the first cut shell beads and the mortar and pestle are documented in burials, indicating the beginning of a shift from mobility to sedentism. During the *Middle Period*, (600 B.C. to A.D. 1000), geographic mobility may have continued, although groups began to establish longer-term base camps in localities from which a more diverse range of resources could be exploited. The first rich black middens are recorded from this period. The addition of milling tools, obsidian and chert concave-base projectile points, and the occurrence of sites in a wider



NOTE.
*Refer to figure 4.2-2 for "A" geologic cross-section information and 4.2-3 for "B" geologic cross-section information.

SOURCE: CGS, 2002

205335.01 Monterey Peninsula Water Supply Project

Figure 4.15-1
Culturally Sensitive Areas

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range of environments suggest that the economic base was more diverse and required logistical hunting techniques. Coastal habitation was still preferred but large Hunting Culture middens have also been identified in inland valleys.

The *Late Period* (A.D. 1250–1769) is distinguished from the Hunting Culture by large amounts of Desert side-notched and Cottonwood arrow points, small bifacial bead drills, bedrock mortars, hopper mortars, distinct *Olivella* bead types, and steatite disk beads. These assemblages represent social complexity developed toward lifeways of large, central villages with resident political leaders and specialized activity sites. This differs dramatically from the Hunting Culture materials and may represent developments associated with population increase, environmental changes, and ethnic migrations.

Ethnographic Setting

Based on a compilation of ethnographic, historic, and archaeological data, Milliken et al. (2009) describes a group known as the Ohlone, who once occupied the general vicinity of the project area. While traditional anthropological literature portrayed the Ohlone peoples as having a static culture, today it is better understood that many variations of culture and ideology existed within and between villages. While these "static" descriptions of separations between native cultures of California make it an easier task for ethnographers to describe past behaviors, this masks Native adaptability and self-identity. California's Native Americans never saw themselves as members of larger "cultural groups," as described by anthropologists. Instead, they saw themselves as members of specific villages, perhaps related to others by marriage or kinship ties, but viewing the village as the primary identifier of their origins.

Levy (1978) describes the language group spoken by the Ohlone, known as "Costanoan." This term is originally derived from a Spanish word designating the coastal peoples of Central California. Today Costanoan is used as a linguistic term that references to a larger language family spoken by distinct sociopolitical groups that spoke at least eight languages (as different as Spanish is from French) of the same Penutian language group. The Ohlone once occupied a large territory from San Francisco Bay in the north to the Big Sur and Salinas Rivers in the south. The proposed project is in the greater Rumsen-speaking tribal area; their territory extended from Point Sur northward to the lower Pajaro River, and included the present-day cities of Monterey, Seaside, Marina, and Carmel. Dialects of the Rumsen language were spoken by four independent local tribes, including *Rumsen* in Monterey, *Ensen* of the Salinas vicinity, *Calenda Ruc* of the central shoreline of Monterey Bay, and *Sargentaruc* of the Big Sur Coast. Five villages were present in their territory at the time of Spanish contact: *Achasta*, *Tucutnut*, *Soccorronda*, *Echilat* and *Ichxenta* (Milliken et al., 2009).

Economically, Ohlone engaged in hunting and gathering. Their territory encompassed both coastal and open valley environments that contained a wide variety of resources, including grass seeds, acorns, bulbs and tubers, bear, deer, elk, antelope, a variety of bird species, and rabbit and other small mammals. The Ohlone acknowledged private ownership of goods and songs, and village ownership of rights to land and/or natural resources; they appear to have aggressively protected their village territories, requiring monetary payment for access rights in the form of

clamshell beads, and even shooting trespassers if caught. After European contact, Ohlone society was severely disrupted by missionization, disease, and displacement. Today, the Ohlone, while not federally recognized, still have a strong presence in the Monterey Bay Area, and are highly interested in their historic and prehistoric past.

Historic-Era Background

This brief history of Monterey County was adapted from *Historic Spots in California* (Hoover et al., 2002) and supplemented by Breschini et al. (1983). The following discussion summarizes the major events of the post-contact period in the project vicinity.

Spanish Period

Although the first Spanish incursions into the Monterey area began in the early 17th century (with the 1602 Vizcaino expedition), it was not until over a century later that the Spanish government took an active interest in colonizing the territory then known as Alta California. Captain Gaspar de Portola led a land expedition to Monterey by way of the coast in 1769 (Hoover et al., 2002). The first Spanish exploration of the Salinas Valley followed in 1774, when Don Juan Bautista de Anza's expedition established a route through the valley to Monterey. This route was known as El Camino Real, the Royal Road.

The mission system was an important institution in the colonization process of Alta California, the purpose of which was to Christianize the native people and turn them into tax-paying, Spanish-speaking colonists. The methods practiced by the Franciscan friars emphasized Hispanic modes at the expense of the traditional culture. The Spanish established 21 missions along El Camino Real, from San Diego to Sonoma, as well as presidios and pueblos. In the Monterey Bay area, Spanish authorities founded a presidio and mission in 1790 (further discussion below, in regional history). Other nearby Missions and pueblos also affected the native population of Monterey County, and established a new immigrant population.

Life for the new converts was (at best) difficult under the mission system. Converts were given European names and pressured to take up a sedentary way of life. Instead of relying on traditional skills such as fishing and gathering, converts were taught agricultural and pastoral techniques to produce supplies for the mission. Although the native population never completely abandoned their traditional lifeways, the social structure was severely disrupted. Many Native Americans died from European diseases to which they had no resistance, as well through abuse, violence, neglect, and military incursions. In contrast, the new colonial population prospered and grew, as did the animal populations and agricultural products that they brought with them.

Mexican Period

Spanish control of California ended with Mexican independence in 1821. In 1834, the Mexican government secularized the missions, freeing the Native Americans from the control of the missionaries. Returning to their traditional way of life was difficult, however, since land holdings were given to Mexican settlers ("Californios") rather than reverting to original ownership. A few Native Americans were granted land, but records show that, for the most part, the indigenous

people quickly lost ownership through land claims disputes and sales. Native people became increasingly marginalized as a result of decreasing population, the stresses of mission life, and the erosion of traditional knowledge. Some Native Americans returned to their villages and resumed their traditional economy, replacing bows and arrows with guns. Others found jobs as vaqueros, or cowboys, on the ranchos operated by Mexican settlers. Census records show the number of Native Americans declined steadily into the 20th century.

In Monterey County, 76 land grants were made to Mexican settlers, more than in any other county (Beck and Haase, 1980). The lands adjacent to the Salinas River were highly valued and accounted for approximately one-half of the total land grants made in Monterey County. Some grantees used their land to establish ranches with enormous, free-ranging herds of horses and Spanish cattle. Cattle powered the Californio economy; cattle hides and tallow were the medium of exchange in business transactions among the Californios and with many trading ships that came from the American east coast.

By 1846, the population of Alta California was comprised of an estimated 8,000 settlers and 10,000 indigenous people (Breschini and Haversat, 1983). This figure represents a drastic decline in the Native American population from the estimated 133,500 in 1770. During Mexican control of Alta California, several hundred Americans settled; some of the Americans became citizens of Alta California by marrying into Mexican families and received land grants.

American Period

The 1848 Treaty of Guadalupe Hidalgo brought Alta California under the control of the United States. News of the Gold Rush that same year sparked a huge migration into California. With the rapid influx of settlers came legal disputes over the ownership of lands awarded by Spanish or Mexican authorities. The new American government passed the Land Act of 1851, which placed the burden of proof-of-ownership on the grantees; as a result, the few Native Americans who had received grants lost their titles, as did many of the Hispanic owners. By congressional action, grant claims were heard by a board of land commissioners and then appealed in federal courts. The outcome of the litigation was that federal officials ultimately recognized approximately 75 percent of the Mexican land grants; however, the majority of the petitioners had already sold off most of their holdings (Hoover et al., 2002:xvi).

Farming during the American period was characterized by three types of pursuits: cattle and sheep ranching, grain farming, and irrigated agriculture. Cattle and sheep ranching dominated until the 1880s. During this time, free-ranging, comparatively wild Spanish cattle were replaced by American breeds of livestock and dairy cows. Fencing with wooden posts and barbed wire became a prominent feature across the landscape. During the 1880s, Monterey County was California’s third-ranking producer of livestock (Hoover et al., 2002). The development of railroads, including the Southern Pacific and regional lines such as the Monterey and Salinas Valley Railroad and the Pajaro Valley Consolidated Railroad, allowed for distribution and improved marketing for the central coast region. By 1901, the coast route was open and running between San Francisco and Los Angeles. Agriculture became more intensive as farming shifted to wheat and barley cultivation. Early crops included sugar beets and alfalfa. The present-day

Armstrong Ranch typifies commercial and agricultural development in Monterey County and along the central coast.

Regional History

Monterey. Captain Gaspar de Portolá was sent to Monterey with the objective of establishing Spain's first military base in Alta California (Hoover et al., 2002). After failing to find Monterey Bay on his first land expedition along the coast in 1769, he again set out with his party early the following year. He reached Monterey on May 24, 1770 and was followed by a support vessel carrying Father Junipero Serra and Captain Juan Pérez.

Father Junipero Serra founded a mission at the Presidio, which he moved to the Carmel Valley in 1771. Named Mission San Carlos Borroméo, the mission is located at the mouth of the Carmel River in present-day Carmel. Dedicated in 1797, it became the home of Father Serra in his later years. In Monterey, the Presidio and surrounding area became the focal point for military and commercial life in the Monterey Bay area. By 1796, a battery had been constructed consisting of fortifications known as "El Castillo" (Jackson et al., 1985). This site was equipped with several cannons and provided a defense for the bay, town of Monterey, and the Presidio. Both resources are listed in the National Register. El Castillo is individually listed in the National Register, and the Presidio is part of a National Register District.

Monterey was retained as the capital of Alta California following Mexican Independence in 1821, at which time the Port of Monterey was opened for trade. Settlement before Mexican Independence had been concentrated inside the walls of the Presidio. Following Independence and the opening of the port, settlement began to expand into what is now Old Monterey. Several Mexican-era adobes are still present and part of the Monterey Old Town Historic District, which is a designated National Historic Landmark District and listed in the California Inventory of Historical Resources and the National Register. The Monterey Old Town Historic District is a two-part, noncontiguous area in the City of Monterey that contains many of the historic buildings and adobes of Spanish and Mexican California. It was designated a Landmark District in 1970 due to its ability to convey the Spanish Colonial character of Monterey and California.

During the American Period, Monterey retained its regional importance. It was incorporated as a city in 1850 and remained a vital port. The first American Federal Courthouse in Monterey was located in the Gabriel de la Torre Adobe at 599 Polk Street. At the turn of the century, many Sicilian fishermen settled in Monterey and Cannery Row as the fishing industry, which focused primarily on sardines, became established in Monterey. The Italian character of Monterey endured until the 1950s when the sardine fisheries that supported Cannery Row collapsed. Cannery Row is currently maintained as a Monterey tourist attraction and community, and its family ties to Sicily remain strong.

Armstrong Ranch (previously Bardin Ranch). Armstrong Ranch in Monterey County is a 2,260-acre tract purchased by John G. Armstrong from James Bardin and the Bardin family in 1885. Armstrong Ranch is located north of Reservation Road. The original boundaries of the Armstrong Ranch included the proposed MPWSP Desalination Plant site, the subsurface slant

wells site, and a portion of the Source Water Pipeline; however, the current ranch boundaries are significantly reduced.

Armstrong came to San Francisco in 1868 and later settled in Monterey County. In 1885, Armstrong purchased 1,372.5 acres of land west of the Monterey and Salinas Railroad grade from James Bardin of the Bardin Ranch. Armstrong purchased three additional parcels from the Bardin family, totaling 2,800 acres. Armstrong sold approximately 400 acres of land to the San Francisco Sand Company in 1906. In 1973, the California Department of Transportation (Caltrans) condemned a linear tract of land passing through the Armstrong Ranch for use as a state highway. Construction of Highway 1 across the Armstrong Ranch began in 1974 (Clark, 1991:19).

Regional Railroads

Southern Pacific Railroad and the Del Monte Express. The existing TAMC railroad tracks are adjacent to the Castroville Pipeline and the new Transmission Main, and consist of the original Southern Pacific Railroad to Monterey. In 1865, a group of San Francisco businessmen formed Southern Pacific Railroad to construct a railroad from San Francisco to San Diego.

During the early 1870s, the Southern Pacific Railroad Company expanded its line down the Salinas Valley, stopping in Soledad. The line was used both as a freight line for farmers to ship produce north to the San Francisco region and as a passenger line for travelers heading to southern Monterey County destinations. From Soledad, southbound travelers could transfer to the Coast Line Stage Company stage routes (Ryan and Breschini, 2000). After buying up the narrow-gauge Monterey and Salinas Valley Railroad (see below) in 1879, Southern Pacific regraded the railroad route to Monterey as a standard-gauge line in 1880 and gained control of rail traffic in the Monterey area.

In coordination with the acquisition of the rail line to Monterey, the Pacific Improvement Company (PIC), the holding company for the owners of the Southern Pacific Railroad—Charles Crocker, Collis P. Huntington, Mark Hopkins, and Leland Stanford—built the Del Monte Hotel in Monterey. The palatial resort hotel was an attempt to attract a passenger trade for the railroad. When the Del Monte Hotel was opened in 1880, Southern Pacific began daily railroad service from San Francisco to the Monterey called the “Monterey Express.” After the reopening of the second Del Monte Hotel, the rail service was renamed the “Del Monte Express” in 1889 (Hoffmann, 2001a:4). Early Del Monte Express trains included a club car and a parlor-lounge-observation car, and catered to the tourist trade (Hoffmann, 2001a:5).

In 1888, Southern Pacific made plans to extend the rail service through Monterey to Pacific Grove and then on to the Carmel River (Oehlert, 1978:41). The railroad construction began in 1889, passed the Monterey Customs House and ended in Pacific Grove near Lake Mejela (Oehlert, 1978:42–43). The route to the Carmel River was never completed.

The Del Monte Express service was powered by steam engines until 1955, when diesel engines replaced them (Hoffmann, 2001b:4). Other changes occurred in the mid-twentieth century that had an effect on the railroad. From World War II on, after the Del Monte Hotel became a Naval

school, the number of tourist passengers using the Del Monte Express dropped (Hoffmann, 2001b:5). The advent of the automobile also had its effect on rail service. By 1957, rail service to Pacific Grove was cut back and the route ended at Monterey. In 1959, the U. S. Postal Service cancelled its San Francisco to Pacific Grove route, which used the train, and Southern Pacific started petitioning the California Public Utilities Commission to discontinue the Del Monte Express (Hoffmann, 2001b:6). In 1971, 82 years after it was started, the Del Monte Express service was terminated (Hoffmann, 2001b:6).

Monterey and Salinas Valley Railroad. The Monterey and Salinas Valley Railroad extended across the proposed MPWSP Desalination Plant site. In response to skyrocketing freight rates charged by the Southern Pacific Railroad, a group of Salinas Valley citizens began calling for an independently owned and operated railroad. Several prominent Monterey County businessmen formed the Monterey and Salinas Valley Railroad and filed articles of incorporation in February 1874 in the Monterey County Court House. Construction of the 18.5-mile narrow-gauge railroad began in April 1874 (Clark, 1991:322). The railroad began in Monterey near Adam Street and extended north beyond Marina, turning northeast across the valley to the Salinas River and finally heading southeast toward Salinas. The Monterey and Salinas Valley Railroad was the first narrow-gauge railroad in California and was designed to carry freight and passengers. As noted by Fabing and Hamman (1985), the Monterey and Salinas Valley Railroad completed its first round-trip in October 1874, bringing "...beans and barley from the J. Bardin Ranch."

As a result of financial losses, the Monterey and Salinas Valley Railroad was forced into bankruptcy not long after it began operation. The Southern Pacific Railroad purchased the Monterey and Salinas Valley Railroad in August 1879 at a foreclosure sale. The Southern Pacific Railroad replaced the narrow-gauge tracks from Castroville to Monterey with a new standard gauge line. The narrow-gauge line from Salinas to Marina (crossing the Bardin Ranch) was abandoned. Southern Pacific sold the Monterey and Salinas Valley Railroad locomotives, track, and equipment to the Nevada Central Railway.

Sand Mining

This discussion is relevant to the project facilities located in the CEMEX sand mining facility (subsurface slant wells and the segment of the Source Water Pipeline located east of Lapis Road). Beginning almost immediately after construction of the railroad and expanding following the 1906 earthquake in San Francisco, a sand mining industry developed along Monterey Peninsula's shore. Companies used sand from the coastal dunes that line Monterey Bay to produce both glass and building materials. Sand from Monterey's coastline was hauled by railroad and used in the rebuilding of San Francisco, as well as in the growing cities and towns across the state. The San Francisco Sand Company opened the CEMEX sand mining facility (also referred to herein as the Lapis Sand Mining Plant) north of Marina in 1906 and constructed a small spur from the main line that extended west to the dunes. At the industry's height, between 300,000 and 400,000 cubic yards of sand were removed annually from the region (Herbert et al., 2010:18). The CEMEX sand mining facility is the only remaining sand mining facility in operation in Monterey Bay and represents one of the earliest and largest sand mining operations in southern Monterey Bay. (SWCA, 2014).

4.15.2.2 Paleontological Setting

Existing conditions in the project area were evaluated based on a review of site-specific geotechnical reports. Paleontological literature from the University of California Museum of Paleontology database was also reviewed. No field surveys for paleontological resources were conducted for the proposed project.

Paleontological Assessment Standards

The Society of Vertebrate Paleontology (SVP) has established guidelines for the identification, assessment, and mitigation of adverse impacts on nonrenewable paleontological resources (SVP, 1996, 2010). Most practicing paleontologists in the United States adhere closely to the SVP's assessment, mitigation, and monitoring requirements as outlined in these guidelines, which were approved through a consensus of professional paleontologists and reflect the currently accepted standard practices. Many federal, state, county, and city agencies have either formally or informally adopted the SVP's standard guidelines for the mitigation of adverse construction-related impacts on paleontological resources. The SVP has helped define the value of paleontological resources and, in particular, indicates the following:

- Vertebrate fossils and fossiliferous (fossil-containing) deposits are considered significant nonrenewable paleontological resources and are afforded protection by federal, state, and local environmental laws and guidelines.
- A paleontological resource is considered to be older than recorded history, or 5,000 years before present, and is not to be confused with an archaeological resource.
- Invertebrate fossils are not significant paleontological resources unless they are present within an assemblage of vertebrate fossils or they provide undiscovered information on the origin and character of the plant species, past climatic conditions, or the age of the rock unit itself.
- A project paleontologist, special interest group, lead agency, or local government can designate certain plant or invertebrate fossils as significant.
- In accordance with these principles, the SVP outlined criteria for screening the paleontological potential of rock units and established assessment and mitigation procedures tailored to such potential. **Table 4.15-1** lists the criteria for high-potential, undetermined, and low-potential rock units.
    - Although not discussed in the SVP standards, certain earth materials and rock units are highly unlikely to contain paleontological resources, such as artificial fills, surface soils, and high-grade metamorphic rocks. While such materials were originally derived from rocks, they have been altered, weathered, or reworked such that the discovery of intact fossils would be rare.

TABLE 4.15-1
CRITERIA FOR DETERMINING PALEONTOLOGICAL POTENTIAL

Paleontological Potential	Description
High	Geologic units from which vertebrate or significant invertebrate or plant fossils have been recovered in the past, or rock formations that would be lithologically and temporally suitable for the preservation of fossils. Only invertebrate fossils that provide new information on existing flora or fauna or on the age of a rock unit would be considered significant. Common examples are: ● Most tertiary-age sedimentary rocks, especially fine-grained, low-energy deposits such as shale and mudstone ● Pleistocene-age alluvial fans, lake/playa deposits, shallow marine deposits, and marine terraces
Undetermined	Geologic units for which little or no information is available.
Low	Geologic units that are not known to have produced a substantial body of significant paleontological material, as demonstrated by paleontological literature and prior field surveys, and which are poorly represented in institutional collections. Common examples are: ● All intrusive igneous rocks (e.g., granites) ● Most metamorphic rocks and volcanic rocks (e.g., marble, slate, schist, basalt, etc.) ● Sediment deposited within the last 10,000 years (e.g., Holocene alluvium, bay muds/estuarine areas, slope wash, or recent landslide deposits)

SOURCE: SVP, 1996, 2010.

Geologic Setting and Paleontological Potential

Section 4.2, Geology, Soils, and Seismicity, describes the geologic units that the project components would be constructed on or within. Using the paleontological potential criteria described above in **Table 4.15-1**, the following geologic units may have the potential for paleontological resources:

- Older Dune Sands (Quaternary)
- Terrace Deposits (Pleistocene)
- Monterey Formation (Tertiary)

The marine Monterey Formation consists of siliceous and diatomaceous beds, with diatoms and some benthic foramanifera noted in the unit (Clark, 1997). Diatoms are a major group of algae and are among the most common types of phytoplankton. Most diatoms are unicellular, although they can exist as colonies in the shape of filaments or ribbons, fans, zigzags, or stars. Foraminifera are a phylum or class of amoeboid protozoa, characterized by a thin external net for catching food and usually an external shell. Most foraminifera are marine and typically live on or within the sea floor sediment (benthos), although a few species are floaters. The shells are commonly calcium carbonate or agglutinated sediment particles. They are usually less than 1 millimeter in size, but some are much larger, with the largest species reaching up to 20 centimeters. Diatoms and foraminifera are typically microfossils and are not readily apparent to the unaided eye. The Monterey Formation is an extensive unit and the noted microfossils are common. As shown on **Figure 4.15-1**, the Main System-Hidden Hills Interconnection Improvements is located in the Monterey Formation.

However, this alignment is also within existing road right-of ways where most shallow soils would have been reworked or replaced with imported fill.

The University of California Museum of Paleontology (UCMP) website notes that the Monterey Formation covers an extensive area of the state and in places consists of marine deposits rich in fossils (UCMP, 2013). Fossil finds in the unit include whales and dolphins, as well as the large numbers of finely preserved crabs, along with kelps and other large soft-bodied seaweeds, which are seldom found as fossils elsewhere. A database search of the UCMP website indicated a large number of fossils have been collected from the Monterey Formation in Monterey County, with the majority of the finds consisting of the microfossils discussed above. In addition, the UCMP collection includes near-coastal invertebrate and vertebrate species, primarily fan worms, bivalves (i.e., mollusks, clams, oysters, mussels, and scallops), and one whale specimen from an unidentified Monterey County location. None of the specimens with identified locations are in or near the locations of the project components.

The UCMP database search indicated a few microfossils from the younger geologic units (Older Dune Sands and Terrace Deposits) but none near the locations of the project components.

4.15.2.3 Existing Site Conditions

Background Research

Environmental Science Associates conducted a records search at the Northwest Information Center (NWIC) of the California Historical Resources Information System at Sonoma State University on June 18, 2010 (File No. 09-1597) and updated on February 28, 2013 (File No. 12-0934) and May 31, 2016 (File No. 15-1766). The purpose of the records search was to: (1) determine whether known cultural resources have been recorded within the direct and indirect APE; (2) assess the likelihood for unrecorded cultural resources to be present based on historical references and the distribution of nearby resources; and (3) develop a context for the identification and preliminary evaluation of cultural resources. The records search consisted of an examination of the following documents:

- **NWIC base maps** (U.S. Geological Survey [USGS] Castroville, Monterey, Seaside, and Marina, California 7.5-minute topographic maps) to identify recorded archaeological sites and studies within a 1/2-mile radius of the proposed project and recorded architectural/structural resources and studies conducted within or adjacent to the proposed project.
- **Resource Inventories:** California Department of Parks and Recreation (1976), *California Inventory of Historical Resources.* California Department of Parks and Recreation, Sacramento; California Office of Historic Preservation (2012), *Historic Properties Directory Listing for Monterey County* (through April 2012); California Department of Transportation (Caltrans), *Historic Bridge Inventory, District 4, Monterey County*, Updated 2010; California State Lands Commission Shipwreck Database.
- **Prehistoric Archaeology:** Jones, Terry, L., Nathan E. Stevens, Deborah A. Jones, Richard T. Fitzgerald, and Mark G. Hylkema, (2007), The Central Coast: A Midlatitude

Milieu. In *California Prehistory: Colonization, Culture, and Complexity*. Jones, Terry L., Klar, Kathryn A., eds., Altamira Press, MD.

- **Ethnographic Sources:** Levy, Richard (1978), Costanoan. In *California, Handbook of North American Indians, Vol. 8*, edited by Robert F. Heizer, pp. 485–495; William C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.; L. Kroeber (1925) *Handbook of the Indians of California.* Bureau of American Ethnology Bulletin 78. Smithsonian Institution, Washington, D.C.
- **Historical Background Sources:** Gudde, Erwin G. (1988), *California Place Names: The Origin and Etymology of Current Geographical Names.* Berkeley: University of California Press; Hoover, M.B., H.E. Rensch, E.G. Rensch, W.N. Abeloe (2002), *Historic Spots in California.* Revised by Douglas E. Kyle. Palo Alto, CA: Stanford University Press.
- **Historical Maps:** An extensive online historical map collection with approximately 50 maps and views of the Monterey Bay area is available online at http://davidrumsey.com.

Native American Consultation

The Native American Heritage Commission was contacted on October 19, 2010 to request a database search for sacred lands or other cultural properties of significance within or adjacent to the proposed project. An updated request was sent on June 13, 2016. A response was received on June 14, 2016. The sacred lands file did not contain any information on the presence of cultural resources in the vicinity of the proposed project. The Commission provided a list of Native American contacts that might have further knowledge of cultural resources in the vicinity of the proposed project. MBNMS conducted consultations according to the requirements of the National Historic Preservation Act (NHPA) of 1966, as amended. Native American consultation with the Ohlone tribes will be ongoing throughout the project.

Records Search Results

Records on file at the NWIC indicate that both architectural/structural and archaeological resources have been previously recorded within the records search radius, as defined in Study Methods above. The southwestern portion of the records search radius is located within an area rich in both prehistoric and historic-era resources, including the Monterey Old Town Historic District, the historic Presidio of Monterey, and the National Register-listed El Castillo (a large prehistoric habilitation site). The recently evaluated Lapis Sand Mining Plant Historic District in the vicinity of the proposed Source Water Pipeline has been determined eligible for listing in the National Register and the California Register (SCWA, 2014) (see the discussion under the heading, MPWSP Test Slant Well, below, for additional discussion).

Previous Studies

Dozens of cultural resources investigations have been completed in the project vicinity, primarily in the city of Monterey. Numerous shell middens as well as the Spanish- and Mexican-period occupations have been the focus of several studies and investigations. Several studies completed for linear projects (including the installation of fiber-optic cable, water lines, and the railroad) have evaluated cultural resources in the northern part of the proposed project. The closure of Fort

Ord resulted in several studies that included cultural resources surface surveys, archaeological and architectural evaluations, and an archaeological sensitivity study.

Portions of the project area were surveyed within the past decade for other projects using current standards and reporting methods. These previous studies are described below. Those areas previously surveyed within the past 5 years were not resurveyed for the proposed project.

CalAm Coastal Water Project EIR Cultural Resources Investigation

In 2009, Jones and Holson from Pacific Legacy, Inc. completed a cultural resources investigation for the Coastal Water Project (CWP) Environmental Impact Report (SCH No. 2006101004) (CPUC, 2009). There is some overlap between the proposed project and the facilities that were evaluated in the CWP EIR (Jones and Holson, 2009). Busby (2005) also completed a cultural resources assessment to support the CWP EIR.

Busby (2005) and Jones and Holson (2009) reviewed the archival records and previous studies completed within the CWP area and summarized those inventory efforts. They also completed a surface survey in select locations of the CWP area that had not been recently surveyed by a qualified archaeologist.

Monterey Peninsula Light Rail Transit Project Studies

Far Western Anthropological Group, Inc. (Far Western) and JRP Historical Consulting LLC (JRP) surveyed the Monterey Branch Line of the Southern Pacific Railroad in 2010 for the TAMC's proposed Light Rail Transit Project (Herbert et al., 2010; Ruby, 2010). Their study included an in-depth geoarchaeological assessment of the Monterey coastal area from Moss Landing to Pacific Grove, discussed above in Section 4.15.2.2, as well as a surface survey of the TAMC corridor including the Castroville Pipeline and the new Transmission Main.

Far Western and JRP surveyed the TAMC's proposed Light Rail Transit Project corridor, which included the railroad right-of-way from Castroville to Monterey. The majority of the survey was completed using narrow (less than 7-meter) transects; however, in some locations the survey area was wider, and transects were spaced approximately 20 meters apart. Visibility varied along the railroad tracks as the ground surface was covered in railroad ballast. Dense ice plant and pavement also obscured portions of the survey area.

Far Western recorded one prehistoric site adjacent to the Castroville Pipeline (see Study Findings below). As described in Section 4.15.2.2, above, the geoarchaeological assessment for the TAMC's proposed Light Rail Transit Project concluded that the corridor traverses areas with stream or river crossings, estuaries, and lagoons that are highly sensitive for buried prehistoric archaeological sites (Meyer in Ruby, 2010).

JRP recorded and evaluated the Monterey Branch Line of the Southern Pacific Railroad. With the exception of the Monterey Southern Pacific Passenger Depot (which was determined eligible for listing in the National Register in 2005 but is located outside of the direct APE), JRP recommended that the railroad and associated features were ineligible for listing in the National

Register (or the California Register) due to a lack of integrity (Herbert et al., 2010). As of this writing, the State Historic Preservation Officer (SHPO) has not yet concurred with this recommendation.

Fort Ord Studies

Terminal Reservoir would be located in the former Fort Ord military base and the ASR-5 and ASR-6 Wells would be located in the Fitch Park military housing community. Several cultural resources studies have been conducted within the boundaries of former Fort Ord, including: *Historical and Architectural Documentation Reports for Fort Ord* (Office of Directorate of Environmental Programs, 1993); *Historic-period Archaeological Survey at Henneken's Ranch and the Windmill Site, Fort Ord, Monterey County, California* (Bowman et al., 1994); *Management Summary of the Historic Period Archaeological Survey at Fort Ord, Monterey County, California* (Bowman, 1994); *A Cultural Resources Survey of 783 Hectares, For Ord, Monterey County, California* (Waite, 1994); *An Inventory of Historic-period Archaeological Sites at Fort Ord, Monterey County, California* (Babson, 1993); and *Historical and Architectural Documental Reports for Fort Ord, California* (Lapp et al., 1993). While Stilwell Hall and 35 other buildings were determined eligible for listing in the National Register, none of these architectural or structural resources are located at the Terminal Reservoir or the ASR-5 and ASR-6 Well sites.

Archaeological sensitivity studies of the former Fort Ord military base were performed to determine the nature and extent of archaeological resources on the base (Swernoff, 1981; U.S. Army Corps, 1992; Waite, 1994). During the 1981 study a total 1,047.5 acres were surveyed. While not physically surveyed, the 1981 study determined the Terminal Reservoir direct APE has a low sensitivity for prehistoric archaeological resources (Swernoff, 1981). Alternatively the 1992 investigation determined that the Terminal Reservoir direct APE to have a moderate sensitivity for prehistoric archaeological resources (U.S. Army Corps, 1992). While only one prehistoric archaeological resource has been recorded within the former Fort Ord military base, the paucity of sites within the large (+20,000-acre) military base can be attributed to the long period of U.S. Army occupation at the base and the resulting major disturbances; the shifting nature of the western half of the base's soils in dune areas; the steep nature of the eastern portion of the base; the marginal nature of much of the soils and landforms within the base; and the small percentage of archaeologically surveyed areas or subsurface archaeological testing (Swernoff, 1981).

The Advisory Council of Historic Preservation (ACHP), the SHPO, and the U.S. Army entered into a Programmatic Agreement to address issues related to cultural resources during base closure. The Programmatic Agreement incorporated the results of the archaeological survey completed by the U.S. Army and includes provisions for handling any previously unidentified cultural resources or human remains discovered during environmental testing and cleanup.

URS conducted a thorough pedestrian survey of the Terminal Reservoir portion of the APE on September 11, 2014. Survey transects were spaced approximately 5 to 10 meters apart. Surface visibility was highly variable throughout the APE. Certain areas of prior ground disturbance

(roads, staging areas, maneuver training areas, etc.) did have less vegetation and increased ground visibility. The vegetation consisted of low-lying grasses, coastal scrub and brush. Ground visibility in these areas was increased by intermittently scraping away the vegetation. Rodent-burrow back dirt piles, cut banks, and exposed sand dune areas were closely inspected for indicators of archaeological deposits. URS did not identify any cultural resources in the Terminal Reservoir APE.

MPWSP Test Slant Well Studies

This discussion is relevant to the subsurface slant wells at the CEMEX active mining area. As discussed in Chapter 3, Description of the Proposed Project, CalAm has constructed a test slant well at the CEMEX active mining area in north Marina. Environmental review covering the construction of the test slant well and operation of the pilot program was completed by the Monterey Bay National Marine Sanctuary in accordance with NEPA requirements in October 2014 and by the California Coastal Commission (CCC) in accordance with CEQA requirements in November 2014. The test slant well was also evaluated by the city of Marina in the *California American Water Slant Test Well Project Draft Initial Study/Mitigated Negative Declaration* (State Clearinghouse No. 2014051060) (City of Marina, 2014).

Under contract to the city of Marina and as part of that earlier CEQA effort, SWCA Environmental Consultants (SWCA) prepared a cultural resources investigation and evaluation for the test slant well (SWCA, 2014). SWCA evaluated the CEMEX sand mining facility (referred to therein as the Lapis Sand Mining Plant and CEMEX Plant) and determined it to be a Historic District eligible for listing in the National Register and the California Register under Criteria A/1 (association with an important event) and Criteria C/3 (architectural merit). The Lapis Sand Mining Plant Historic District includes several contributing resources: the Sorting Plant, Washing Plant, Canal Flume, Lapis Siding, Superintendent's Residence, Bunkhouse, Garage/Office, Maintenance Shop, Scale House and Office, and a number of small ancillary buildings spread throughout the property. The settling ponds and dredging pond located in the active mining area, just north of the Source Water Pipeline, were initially developed as part of the modernization of the facility in 1959–1960 (SWCA, 2014).

SWCA determined that development of the test slant well would result in direct damage or removal of the Lapis Siding, causing a significant impact on a Historic District contributor. SWCA recommended that the project be redesigned to avoid direct impacts on the Lapis Siding in adjacent areas that do not contain structures associated with the Lapis Sand Mining Plant. Several other contributing resources are located in close proximity of proposed trenching and earthmoving activities; however, given the industrial nature of the site, these activities would be consistent with the ongoing operations of the CEMEX sand mining facility. Construction and operation of the test slant well was not anticipated to have any visual effects on the Historic District because the test slant well and related components would be below ground (SWCA, 2014).

SWCA did not identify any archaeological resources at the CEMEX sand mining facility. However, SWCA recommended that all construction workers and supervisory personnel be required to attend a cultural resources awareness training session and that an archaeological

monitor be present during any ground-disturbing activities occurring within 100 feet of historic buildings (SWCA, 2014).

Survey Methods and Conditions

Environmental Science Associates surveyed portions of the direct APE that had not been recently surveyed according to current standards on October 26 and 27, 2010; November 29 and 30, 2010; September 20, 2012; March 8, 2013; June 7, 2013; April 24, 2014, and June 28, 2016 (Koenig and Brewster, 2014). Aerial photographs of the project vicinity and copies of USGS 7.5-minute topographic maps showing previously recorded cultural resources were used in the field to guide the survey effort. The survey corridor varied depending on location and project component. In narrow survey areas, transects were spaced approximately 5 to 10 meters apart. In wider survey areas, such as the desalination plant direct APE and the subsurface slant wells direct APE, survey transects were spaced approximately 10 to 20 meters apart.

Paved or built-up portions of the proposed project study area, such as streets in Monterey, Seaside Sand City, Marina, and unincorporated areas, were subject to a cursory survey that included driving the project route to identify historic-era buildings or other structures located within the indirect APE. Photographs were taken to document the typical styles of each neighborhood or block. Areas of exposed ground surface, including adjacent landscaping, were periodically checked, especially in the direct APE nearest to areas containing previously recorded cultural resources.

For the 2010 survey effort, permission was obtained to access the CEMEX active mining area (location of the proposed subsurface slant wells). URS surveyed the Terminal Reservoir APE on September 11, 2014 (Rehor, 2014).

Two previously developed Programmatic Agreements identified procedures for managing cultural resources in the project vicinity in accordance with the NHPA: a March 1993 Programmatic Agreement between the U.S. Army, the ACHP, and the SHPO addresses historic properties and accidental discovery procedures for the Presidio of Monterey Historic District. An April 1994 Programmatic Agreement between the U.S. Army, the ACHP, and the SHPO established that the Phase I Archaeological Survey for prehistoric sites identified no historic properties within the contiguous boundaries of the former Fort Ord military base. The Fort Ord Programmatic Agreement also summarized accidental discovery and monitoring requirements for continued environmental cleanup activities within the former Fort Ord military base property (Reese, 2004).

During the surface surveys, all exposed ground surface was checked for evidence of cultural materials or other evidence of past human use and occupation. Surface visibility was highly variable throughout the APE. Rodent burrow back dirt piles, cut banks, and exposed sand dune areas were closely inspected for indicators of archaeological deposits. Encountered cultural resources were formally recorded on the appropriate Department of Parks and Recreation 523 forms. All resources were photographed and plotted on a USGS 7.5-minute topographic quadrangle.

The proposed project is located in several diverse settings, including active and stable dune formations, paved city streets, and the Carmel Valley. Direct APE locations nearest to previously

recorded resources, including landscaped areas or other areas of exposed soils, were thoroughly inspected, as described below:

- The direct APE for the subsurface slant wells is located on the west side of active coastal dunes. Visibility was good (approximately 90 percent). This area has been highly disturbed from the activities at the CEMEX sand mining facility. The contributing resources to the Lapis Sand Mining Plant Historic District were noted during the survey.
- The MPWSP Desalination Plant direct APE was covered in low-lying grasses. The soil was a light brown sandy loam, and visibility was moderate (approximately 50 percent).
- City streets in Marina, Seaside, Sand City, Monterey, and unincorporated areas as well as along the Highway 68 satellite systems were paved, offering limited visibility. Unpaved areas adjacent to roadways were inspected, but natural vegetation and landscaping obscured the ground surface.
- Certain areas of the Terminal Reservoir APE had prior ground disturbance (roads, staging areas, maneuver training areas, etc.), less vegetation, and increased ground visibility. Survey transects were spaced approximately 5 to 10 meters apart. The vegetation consisted of low-lying grasses, coastal scrub and brush. Ground visibility in these areas was increased by intermittently scraping away the vegetation.

Study Findings

Architectural/Structural Resources

Subsurface Slant Wells, MPWSP Desalination Plant, and Improvements to ASR System

No historical resources listed in or eligible for listing in the California Register or historic properties listed in or eligible for listing in the National Register are located in the direct or indirect APE of the subsurface slant wells, the MPWSP Desalination Plant, or the two additional ASR injection/extraction wells (the ASR-5 and ASR-6 Wells), the ASR Pump-to-Waste Pipeline, the ASR Conveyance Pipeline, and the ASR Recirculation Pipeline.

Pipelines and Other Conveyance Facilities

No historical resources eligible for listing in the California Register or historic properties listed in or eligible for listing in the National Register are located in the direct or indirect APE for the proposed Brine Discharge Pipeline, Carmel Valley Pump Station, Ryan Ranch-Bishop Interconnection Improvements, and Main System-Hidden Hills Interconnection Improvements.

Previously identified cultural resources are in the vicinity of the direct and indirect APE of the Source Water Pipeline (Lapis Sand Mining Plant Historic District); the Castroville Pipeline, the new Desalinated Water Pipeline, and the new Transmission Main (Monterey Branch Line of the Southern Pacific Railroad).

The ***Lapis Sand Mining Plant Historic District*** is in the direct and indirect APE of the Source Water Pipeline. SWCA recorded and evaluated the historic district in 2014 as eligible for listing in the National Register and the California Register (**Figure 4.15-2**). The historic district comprises several contributing elements including the Sorting Plant, Washing Plant, Canal

Flume, Lapis Siding, Superintendent's Residence, Bunkhouse, Garage/Office, Maintenance Shop, Scale House and Office, a number of small ancillary buildings spread throughout the property, several settling ponds, and a dredging pond. The section of the proposed Source Water Pipeline located within the CEMEX sand mining facility would be aligned approximately 65 feet from the north side of contributing buildings to the District. As the buildings and structures contributing to the District are outside of the direct and indirect APE, no further consideration of the architectural components of this resource is necessary for the proposed project.

- The ***Monterey Branch Line of the Southern Pacific Railroad (P-27-002923)*** is adjacent to the Castroville Pipeline, the new Desalinated Water Pipeline, and the new Transmission Main. Fourteen contributing resources, including the railroad line and associated buildings, have been evaluated for their eligibility to the National Register (Herbert et al., 2010). One building (located outside the direct and indirect APE)—the Monterey Southern Pacific Passenger Depot—was recommended eligible for individual listing in the National Register. Previous evaluations of the railroad found that the surveyed portions and related structures, including the trestle at Tembladero Slough and the steel Warren Truss Bridge at the Salinas River, are not eligible for listing in the National Register.

  The most recent recording and evaluation effort included all portions of the Monterey Branch Line from Moss Landing to Monterey. The evaluation concluded that while the Monterey Branch Line appears to meet the significance criteria for listing in the National Register, it lacks integrity to convey its significance. Therefore, it was recommended to be ineligible for listing in the National Register (Herbert et al., 2010). As a result, no further consideration of this resource is necessary for the proposed project.

Archaeological Resources

Subsurface Slant Wells

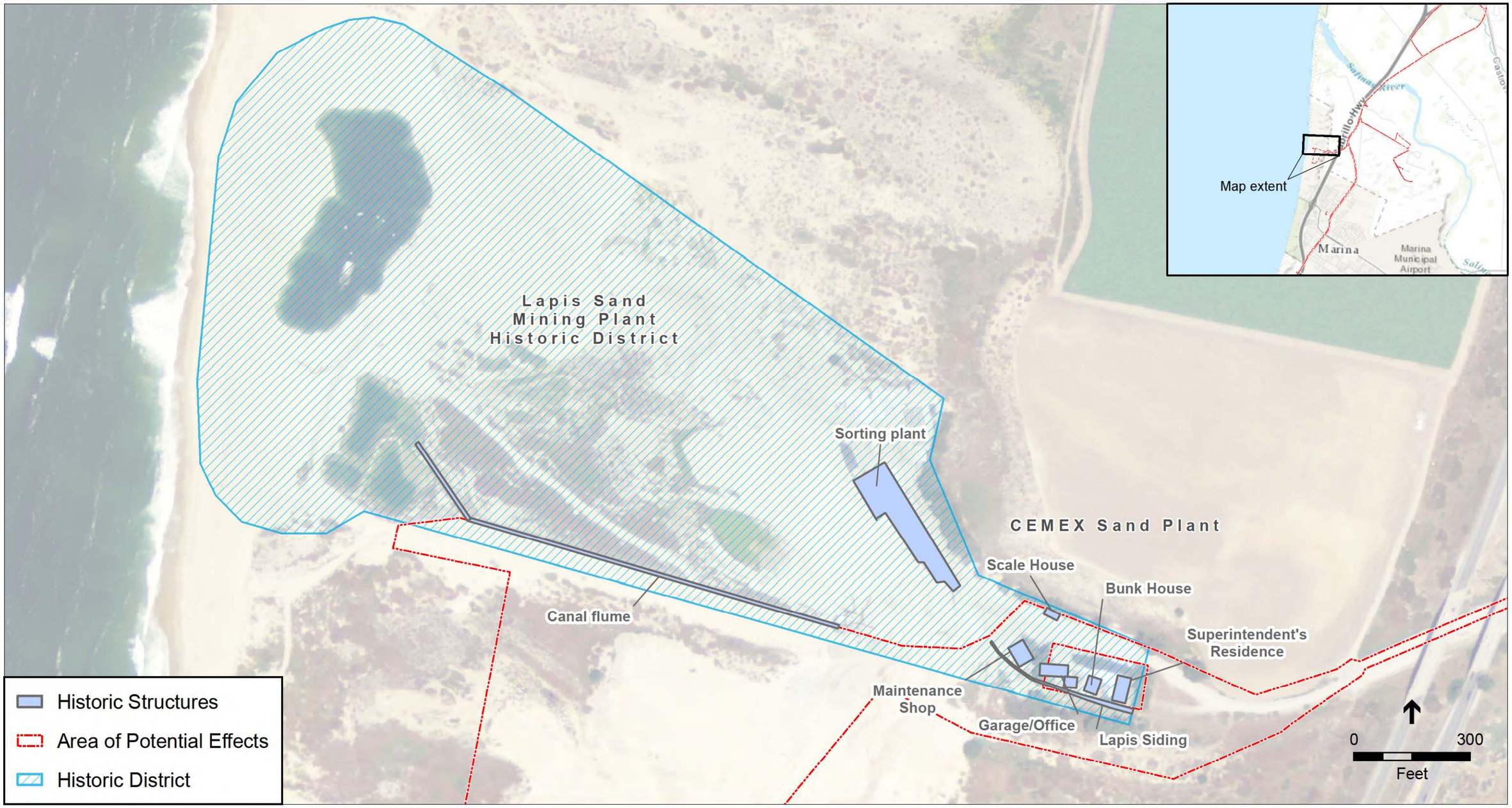
No prehistoric or historic-era archaeological resources have been previously identified in the direct APE for the subsurface slant wells. No archaeological resources were identified in this direct APE during the 2010–2016 survey effort. There are no known TCPs in the vicinity of the subsurface slant wells.

While not comprehensive, the California State Lands Commission Shipwreck Database does not list known maritime resources in the vicinity of the Subsurface Slant Wells.

MPWSP Desalination Plant

No prehistoric archaeological resources have been previously identified in the direct APE for the MPWSP Desalination Plant. No prehistoric archaeological resources were identified in this direct APE during the 2010–2016 survey effort. There are no known TCPs in the vicinity of the MPWSP Desalination Plant. One historic-era resource, a railroad grade, has been previously identified in the MPWSP Desalination Plant direct APE.

- ***P-27-002417*** *(CA-MNT-2080H)*, a historic-era, narrow-gauge railroad grade, was recorded by Morgan et al. in 1998. The railroad grade consisted of cuts through low hills and sand dunes with raised berms across low-lying areas. No ties, spikes, or other artifacts related to the railroad were observed. The railroad grade represents the remains of California's first narrow-gauge railroad—the Monterey and Salinas Valley Railroad. This railroad was



SOURCE: National Map, ESRI

205335.01 Monterey Peninsula Water Supply Project

Figure 4.15-2

Historic Resources in the Source Water Pipeline APE

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constructed by local farmers to facilitate the shipping of produce to Salinas and was incorporated in 1874 (Morgan et al., 1998b). Jones and Holson revisited the grade in 2008 and recorded three discontinuous segments (Jones and Holson, 2009). The railroad grade is mapped within the proposed MPWSP Desalination Plant direct APE.

The railroad grade was not identified in the MPWSP Desalination Plant direct APE during the 2010 survey effort; this site is presumed to have been graded or otherwise leveled in the recent past. Because there are no remaining features associated with the railroad grade in the APE, no further consideration of this resource is necessary for the proposed project.

Pipelines and Other Conveyance Facilities North of Reservation Road

Proposed pipelines north of Reservation Road include the Pipeline to CSIP Pond, Source Water Pipeline, new Desalinated Water Pipeline, Castroville Pipeline, and Brine Discharge Pipeline. There are no known TCPs in the vicinity of these project components. One prehistoric resource has been previously recorded adjacent to the Castroville Pipeline direct APE. A historic-era fence line has been previously recorded adjacent to the direct APE of the Pipeline to CSIP Pond. Additionally, the Lapis Sand Mining Plant Historic District is within the direct APE of the Source Water Pipeline.

- Resource ***P-27-001207*** *(CA-MNT-1154)* is recorded as an area of midden, shell fragments, chert flakes, and a few historic-era glass fragments on the north side of Tembladero Slough east of the Castroville Pipeline. According to an article from *The Monterey Peninsula Herald* in 1979, a human burial was reportedly uncovered along Tembladero Slough in 1879 during construction of the Southern Pacific Railroad tracks.

  Prior documentation consists of a 1978 site record (Melander, 1978), a 1984 topographic plot (Basin, 1984), and a more recent site recording in 2010 (Ruby, 2010). According to the 1978 site record, the site is directly west of Salinas Road (Castroville Road / Highway 183) and is most visible on the south side of the knoll along Tembladero Slough, where flakes, shell, and glass were eroding. Melander did not have direct access to the main site area and was not able to fully delineate boundaries. He noted that Locus B of CA-MNT-727, a prehistoric habitation site, was directly across the road on the east side of Castroville Road / Highway 183 and that CA-MNT-1154 may represent a component of CA-MNT-727. The site boundaries plotted by Basin in 1984 place the site to the east of the direct APE of the Castroville Pipeline, downslope from the Southern Pacific Railroad tracks in the vicinity of the existing ranch complex.

  In 2010, Far Western archaeologists revisited the area for the TAMC Light Rail Transit Project and recorded weathered clamshell, a couple of chert flakes, and some broken glass and ceramics adjacent to the railroad tracks from the slough bank for approximately 150 meters (45 feet) to the north. The site boundaries were expanded to include the railroad tracks and an unknown boundary to the west (Ruby, 2010).

  Environmental Science Associates conducted a subsurface study in the vicinity of CA-MNT-1154 on June 28, 2016. Two archaeologists walked the direct APE of the Castroville Pipeline on the east side of the Southern Pacific Railroad tracks as well as adjacent to a cultivated field on the west side of the tracks. Within the cultivated field, clamshell fragments were noted however these appear to be associated with agricultural activities (i.e. soil augmentation) and not with a prehistoric use area as no midden soil or other evidence of human use or occupation such as lithic fragments were identified. On the east side of the tracks, in the direct APE, no shell was noted. A few fragments of modern window and

bottle glass were identified, but no historic-era glass or ceramics were observed. The soil adjacent to the tracks in the direct APE consisted of artificial fill; at a distance of approximately 10 feet from the tracks the native soil was a medium brown silty sand with gravel inclusions. The area adjacent to Tembladero Slough in both the direct APE and on the west side of the tracks had been highly disturbed from both construction of the existing trestle as well as from erosion. No cultural materials or midden soil was identified in the slough banks.

Based on the previous site documentation and the current survey effort, it does not appear that a significant prehistoric archaeological site (CA-MNT-1154) is within the direct APE of the Castroville Pipeline, however this is not conclusive. While no midden soil or artifacts were observed in the direct APE, there was reportedly a human burial uncovered in the vicinity. Section 4.15.6, Direct and Indirect Effects of the Proposed Project, below, provides recommendations regarding potential archaeological resources and/or human remains in the vicinity of Tembladero Slough.

- Resource ***P-27-002416*** *(CA-MNT-2079H)*, a historic-era fence line, was first recorded by Morgan et al. in 1998. The resource consists of two segments of fence and is adjacent to the Pipeline to CSIP Pond direct APE. The fence was constructed from 4- by 6inch vertical posts, 1- by 6-inch horizontal rails at the top and bottom, and vertical pickets of various sizes between the posts. Barbed wire was stapled to the fence. A chain-link fence had replaced a large section of the historic fence at the Monterey Regional Wastewater Treatment Plant. Pacific Legacy revisited the fence in 2008. At that time, the fence appeared to be in the same general condition as described by Morgan et al. (Jones and Holson, 2009).

  The fence was originally recorded in association with the Armstrong Ranch (Morgan et al., 1998a). The Armstrong Ranch (P-27-002415) also consisted of a former historic-era building cluster, a windmill (Feature 1), and a 120-foot-long fence line (Feature 2). A row of Cypress trees (Linear Feature 1), access roads, and a sparse artifact concentration were also noted. At the time of the 1998 recording, the buildings (including a residence, barn, and outbuildings) had been demolished and the vicinity graded and leveled for use as an equipment yard and agricultural field. The site was described as lacking integrity with limited data potential (Morgan et al., 1998a).

  In 2005, the area was resurveyed and functioned as an equipment storage yard and a staging area (Busby, 2005). The windmill had been removed by that time. Based on the surface components of the site, the Armstrong Ranch was recommended as ineligible for listing in the National Register and the California Register under any of the criteria (Busby, 2005).

  The fenceline was revisited during the 2010 survey effort. Section A of the fenceline is located in the direct APE, south of a row of Cypress trees along the access road leading to the Monterey Regional Water Treatment Plant. Section A consists of 4- by 6-inch vertical posts with barbed wire. Most of the posts have collapsed, and the barbed wire has been removed. Cross boards are scattered in the Cypress trees. Much of the segment has been replaced with a modern chain-link fence beginning at the water treatment plant's entrance gate. Section B of the fenceline is outside of the direct APE.

  Section A of the fence does not appear to meet any criteria for listing in the National Register, either individually or as a district contributor. The fenceline is associated with the Armstrong Ranch, which is an early American-period ranch in the Monterey Bay area; however; the fence itself does not represent an important event in the history of California (Criterion A) and is not specifically associated with a significant person (Criterion B). The

fence does not represent the craftsmanship of a master builder or style of construction (Criterion C) and does not have the potential to yield information important to history (Criterion D). Furthermore, the fence does not retain integrity of design, materials, workmanship, or feeling because a substantial portion of the original fence has been replaced by a chain-link fence. The fenceline has been previously recommended as ineligible for listing in the California Register (Busby, 2005:29), and the assessment of the fenceline performed for this study concurs with this recommendation. In addition, the fenceline does not appear eligible for the National Register, and no further consideration of this resource is necessary for the proposed project.

- ***Lapis Sand Mining Plant Historic District.*** Previous survey efforts did not identify any archaeological resources in the portion of the Source Water Pipeline direct APE located within the CEMEX sand mining facility (SWCA, 2014). However, the area surrounding this section of the pipeline alignment is generally considered to have a high potential for buried cultural resources associated with prehistoric populations and Native Americans. Additionally, the historic-era use of the CEMEX sand mining facility may have generated archaeological deposits, including refuse pits and buried foundations. As a result, the direct APE for this pipeline section should be treated as potentially sensitive for the presence of both prehistoric and historic-era archaeological resources. The area of greatest sensitivity is the eastern portion of the facility because this area contains buildings that are contributing elements of the Lapis Sand Mining Plant Historic District. This area has been subject to less ground disturbance from sand mining than the western portion of the Source Water Pipeline direct APE, and is more likely to contain intact prehistoric sites or buried historic-era archaeological features associated with the sand mining facility. Section 4.15.6, Direct and Indirect Effects of the Proposed Project, below, provides recommendations regarding potential archaeological resources in the Lapis Sand Mining Plant Historic District.

Improvements to ASR System

The proposed improvements to the Seaside Groundwater Basin ASR System include installation of two additional ASR injection/extraction wells (the ASR-5 and ASR-6 Wells), the ASR Pump-to-Waste Pipeline, the ASR Conveyance Pipeline, and the ASR Recirculation Pipeline. No prehistoric or historic-era archaeological resources have been previously identified in the direct APE for these improvements. No archaeological resources were identified in the direct APE for these improvements during the 2010–2016 survey efforts. There are no known TCPs in the vicinity of these project components.

Pipelines and Other Conveyance Facilities South of Reservation Road

Pipelines and other conveyance facilities south of Reservation Road include the new Transmission Main, Terminal Reservoir, Carmel Valley Pump Station, and interconnection improvements for Highway 68 satellite systems (i.e., Ryan Ranch-Bishop and Main System-Hidden Hills). There are no known prehistoric or historic-era archaeological resources or TCPs in the vicinity of these project components.

Summary of Cultural Resources Identified

This section summarizes significant cultural resources within the direct and indirect APE of the project components.

- **Subsurface Prehistoric Archaeological Resources.** Based on the geoarchaeological assessment described under Geological Context and the Study Results, there is the potential for buried prehistoric archaeological resources to exist at the locations shown on **Figure 4.15-1** as well as in the vicinity of the Castroville Pipeline at Tembladero Slough. Impact 4.15-2, below, analyzes the potential for project implementation to adversely affect previously unidentified prehistoric archaeological resources.
- **Subsurface Historic-era Archaeological Resources.** There is potential for unknown historic-era subsurface archaeological resources to be uncovered during installation of the Source Water Pipeline through the Lapis Sand Mining Plant Historic District. Artifacts or features related to the early establishment of the mining facility could be identified. Impact 4.15-2, below, analyzes the potential for project implementation to adversely affect previously unidentified historic-era archaeological resources.

4.15.3 Regulatory Framework

This section provides an overview of applicable federal, state, and local environmental laws, policies, plans, regulations, and/or guidelines (hereafter referred to generally as "regulatory requirements") relevant to cultural and paleontological resources. A brief summary of each is provided, along with a finding regarding the project's conformity with those regulatory requirements. The conformity findings concern the project as proposed, without mitigation. Where the project, as proposed, would be consistent with the applicable regulatory requirement, no further discussion of project consistency with that regulatory requirement is provided. Where the project, as proposed, would be potentially inconsistent with the applicable regulatory requirement, the reader is referred to a specific impact in Section 4.15.6, Direct and Indirect Effects of the Proposed Project. In that subsection, the significance of the potential conflict is evaluated. Where the effect of the potential conflict would be significant, feasible mitigation is identified to resolve or minimize that conflict.

4.15.3.1 Federal Regulations

National Historic Preservation Act

Section 106 of the National Historic Preservation Act of 1966 (54 U.S.C. § 300301 et seq.), as amended, requires that a federal agency with direct or indirect jurisdiction over a proposed federal or federally assisted undertaking, or issuing licenses or permits, consider the effect of the proposed undertaking on historic properties. A historic property may include a prehistoric or historic-era building, structure, object, site or district included in, or eligible for inclusion in, the National Register maintained by the U.S. Secretary of the Interior. Federal agencies must also allow the ACHP to comment on the proposed undertaking and its potential effects on historic properties.

The implementing regulations for Section 106 of the NHPA (36 CFR 800) require consultation with the SHPO, the ACHP, federally recognized Indian tribes and other Native Americans, and interested members of the public throughout the compliance process. The four principal steps are:

- Initiate the Section 106 process, including consultation with interested parties (36 CFR 800.3);

- Identify historic properties, i.e., resources included in or eligible for inclusion in the National Register (36 CFR 800.4);
- Assess the effects of the undertaking on historic properties within the area of potential effect (36 CFR 800.5); and
- Resolve adverse effects (36 CFR 800.6).

Adverse effects on historic properties are often resolved through preparation of a Memorandum of Agreement or Programmatic Agreement developed in consultation between the federal agency, the SHPO, Indian tribes, and interested members of the public. The ACHP is also invited to participate. The agreement describes stipulations to mitigate adverse effects on historic properties listed in or eligible for the National Register (36 CFR 60).

National Register of Historic Places

The National Historic Preservation Act established the National Register as "an authoritative guide to be used by federal, state, and local governments, private groups and citizens to identify the Nation's historic resources and to indicate what properties should be considered for protection from destruction or impairment" (36 CFR Section 60.2). The National Register recognizes both historic-era and prehistoric archaeological properties that are significant at the national, state, and local levels.

To be eligible for listing in the National Register, a resource must be significant in American history, architecture, archaeology, engineering, or culture. Buildings, structures, objects, sites or districts of potential significance must meet one or more of the following four established criteria (NPS, 1990):

A. Are associated with events that have made a significant contribution to the broad patterns of our history;

B. Are associated with the lives of persons significant in our past;

C. Embody the distinctive characteristics of a type, period, or method of construction or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

D. Have yielded, or may be likely to yield, information important in prehistory or history.

Unless the property possesses exceptional significance, it must be at least 50 years old to be eligible for National Register listing (NPS, 1990).

In addition to meeting the criteria of significance, a property must have integrity. Integrity is defined as "the ability of a property to convey its significance" (NPS, 1990). The National Register recognizes seven qualities that, in various combinations, define integrity. To retain historic integrity a property must possess several, and usually most, of these seven aspects. Thus, the retention of the specific aspects of integrity is paramount for a property to convey its significance. The seven factors that define integrity are location, design, setting, materials, workmanship, feeling, and association.

Although the National Register standards for historic integrity are high, the National Register accepts that a property "must also be judged with reference to the particular criteria under which a resource is proposed for eligibility." Most archaeological properties are evaluated under Criterion D; the most applicable qualities of integrity under this criterion are those of location, materials, and association.

Integrity also defines the research potential of a resource. To possess research potential, archaeological data must have integrity in the form of what has been called "focus" (Deetz, 1977). Focus in this context means the accuracy with which the archaeological remains represent a situation or condition. When focus is absent or inadequate because of disturbance, a resource does not retain integrity. Remains that represent several activities or have materials that cannot be separated from one another into discrete contexts may also lack focus and therefore integrity.

The MPWSP would be consistent with the NHPA requirements because MBNMS will initiate the Section 106 process, including consultation with interested parties; identify historic properties; assess the effects of the undertaking on historic properties within the Area of Potential Effect; and resolve adverse effects to historic properties.

Coastal Zone Management Act

Several sections of the Coastal Zone Management Act (CZMA) address the protection of cultural resources. This includes 16 U.S.C. Section 1452, which states that it is a national policy to encourage the development and implementation of management programs to achieve wise use of the land and water resources of the coastal zone, giving full consideration to ecological, cultural, historic, and esthetic values.

4.15.3.2 State Regulations

Office of Historic Preservation

The State of California implements the National Historic Preservation Act through its statewide comprehensive cultural resources surveys and preservation programs. The Office of Historic Preservation (OHP), as an office of the California Department of Parks and Recreation, implements the policies of the National Historic Preservation Act on a statewide level. The OHP also maintains the California Historical Resources Inventory. The SHPO is an appointed official who implements historic preservation programs within the state's jurisdictions.

California Register of Historical Resources

The California Register is "an authoritative guide in California to be used by state and local agencies, private groups, and citizens to identify the state's historical resources and to indicate what properties are to be protected, to the extent prudent and feasible, from substantial adverse change" (PRC Section 5024.1[a]). The criteria for California Register eligibility are based on National Register criteria (PRC Section 5024.1[b]; California Code of Regulations [CCR], Title 14, Section 4850 et seq.). Certain resources are determined by the statute to be automatically

included in the California Register, including California properties formally determined eligible for, or listed in, the National Register.

To be eligible for the California Register, a prehistoric or historic-era property must be significant at the local, state, and/or federal level under one or more of the following four criteria, which are similar to federal criteria. The resource:

1. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
2. Is associated with the lives of persons important in our past;
3. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
4. Has yielded, or may be likely to yield, information important in prehistory or history [PRC 5024.1(c)].

An eligible resource for the California Register must meet one of the criteria of significance described above and retain enough of its historical character or appearance (integrity) to be recognizable as a historical resource and to convey the reason for its significance.

Additionally, the California Register consists of resources that are listed automatically and those that must be nominated through an application and public hearing process. The California Register automatically includes the following:

- California properties listed in the National Register and those formally determined eligible for the National Register;
- California Registered Historical Landmarks from No. 770 onward; and
- California Points of Historical Interest that have been evaluated by the OHP and have been recommended to the State Historical Resources Commission for inclusion on the California Register in accordance with adopted criteria.

Resources that may be nominated to the California Register include:

- Individual historical resources;
- Historical resources contributing to the significance of an historic district under criteria adopted by the State Historical Resources Commission;
- Historical resources identified as significant in historical resources surveys, provided the survey meets the criteria listed in subdivision (g);
- Historical resources and historic districts designated or listed as city or county landmarks;
- Historic properties or districts that were designated or listed under a city or county ordinance, provided the criteria for designation or listing are consistent with the California Register; and

- Local landmarks or historic properties designated under any municipal or county ordinance.

California Environmental Quality Act

Historical Resources

CEQA requires lead agencies to determine, prior to approval, if a project would have a significant adverse effect on historical or unique archaeological resources.

The CEQA Guidelines generally recognize that a historical resource includes: (1) a resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the California Register (PRC Section 5024.1); (2) a resource included in a local register of historical resources, as defined in PRC Section 5020.1(k) or identified as significant in a historical resource survey meeting the requirements of PRC Section 5024.1(g); and (3) any object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California, provided the lead agency's determination is supported by substantial evidence in light of the whole record (14 CCR Section 15064.5[a]).

If a lead agency determines that an archaeological site is a historical resource, the provisions of PRC Section 21084.1 of CEQA and CEQA Guidelines Section 15064.5 apply. If an archaeological site does not meet the criteria for a historical resource contained in the CEQA Guidelines, then the site may be treated as a "unique" archaeological resource in accordance with the provisions of PRC Section 21083. As defined in Section 21083.2, a unique archaeological resource is an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

- Contains information needed to answer important scientific research questions, and there is a demonstrable public interest in that information;
- Has a special and particular quality such as being the oldest of its type or the best available example of its type; or
- Is directly associated with a scientifically recognized important prehistoric or historic event or person.

A non-unique archaeological resource is an archaeological artifact, object, or site that does not meet the criteria in PRC Section 21083.2(g) and need not be given further consideration, other than the simple recording of its existence by the lead agency if it so elects (PRC Section 21083.2[h]). The CEQA Guidelines note that if an archaeological resource is neither a unique archaeological nor a historical resource, the effects of the project on that resource shall not be considered a significant effect on the environment (14 CCR Section 15064.5[c][4]).

PRC Section 15064.5(f) requires a lead agency to make provisions for handling the accidental discovery of historical or unique archaeological resources during construction. Provisions include

an immediate evaluation of the find by a qualified archaeologist. Work may continue on other parts of the project site while historical or unique archaeological resource mitigation takes place.

In the event that human remains are discovered in any location other than a dedicated cemetery, PRC Section 15064.5(e) requires all work to stop until the county coroner in which the remains are discovered is contacted. If the coroner determines the remains to be Native American, the coroner must contact the Native American Heritage Commission within 24 hours. The Commission would then identify any person or persons it believes to be the most likely descended from the deceased individual.

Paleontological Resources

Paleontological resources also are afforded protection by environmental legislation set forth under CEQA. Appendix G (Part V) of the CEQA Guidelines provides guidance relative to significant impacts on paleontological resources, stating that a project will normally result in a significant impact on the environment if it will "…disrupt or adversely affect a paleontological resource or site or unique geologic feature, except as part of a scientific study."

The SVP has established standard guidelines that outline acceptable professional practices in the conduct of paleontological resource assessments and surveys, monitoring and mitigation, data and fossil recovery, sampling procedures, and specimen preparation, identification, analysis, and curation. Most California State regulatory agencies accept the SVP standard guidelines as a measure of professional practice.

California Public Resources and Administrative Codes

Several sections of the California Public Resources Code protect paleontological resources. Section 5097.5 prohibits "knowing and willful" excavation, removal, destruction, injury, and defacement of any paleontological feature on public lands (lands under state, county, city, district, or public authority jurisdiction, or the jurisdiction of a public corporation), except where the agency with jurisdiction has granted express permission. Section 5097.5 of the Public Resources Code specifies that any unauthorized removal of paleontological remains is a misdemeanor. Further, the California Penal Code Section 622.5 specifies that any person who willfully injures, disfigures, defaces, or destroys any object or thing of archaeological or historical interest or value, whether situated on private lands or within any public park or place, is guilty of a misdemeanor. PRC Section 30244 requires reasonable mitigation for impacts on paleontological resources that occur as a result of development on public lands.

The MPWSP would be consistent with the State requirements because CalAm has determined whether the project would have a significant adverse effect on historical resources, unique archaeological resources, paleontological resources, and human remains.

The California Coastal Act, as outlined in PRC Section 30344, provides for an inventory of manmade resources of cultural, historic, economic, and educational importance to the public.

4.15.3.3 Applicable Land Use Plans, Policies, and Regulations

Table 4.15-2 describes the regional and local land use plans, policies, and regulations pertaining to cultural resources that are relevant to the proposed project and that were adopted for the purpose of avoiding or mitigating an environmental effect. Also included in Table 4.15-2 is an analysis of project consistency with such plans, policies, and regulations. Where the analysis concludes the proposed project would not conflict with the applicable plan, policy, or regulation, the finding is noted and no further discussion is provided. Where the analysis concludes the proposed project may conflict with the applicable plan, policy, or regulation, the reader is referred to Section 4.15.6, Direct and Indirect Effects of the Project, for additional discussion. In that subsection, the significance of the potential conflict is evaluated. Where the effect of the potential conflict would be significant, feasible mitigation is identified to resolve or minimize that conflict.

TABLE 4.15-2
APPLICABLE REGIONAL AND LOCAL LAND USE PLANS AND POLICIES RELEVANT TO CULTURAL AND PALEONTOLOGICAL RESOURCES

Project Planning Region	Applicable Plan	Plan Element/ Section	Project Component(s)	Specific Plan, Policy, or Ordinance	Relationship to Avoiding or Mitigating a Significant Environmental Impact	Project Consistency with Plan, Policy, or Ordinance
City of Marina (coastal zone and inland areas)	City of Marina General Plan	Community Design and Development	Subsurface Slant Wells, Source Water Pipeline, new Desalinated Water Pipeline, and new Transmission Main	***Policy 4.126:*** The following scenic and cultural resources are deemed to be particularly valuable, and the following policies should be pursued. 1. All archaeological resources which may be present in the Marina Planning Area shall be protected and preserved. To this end, development proposed in areas of high archaeological sensitivity, i.e., the terraces and benches along the Salinas River, the peripheries of vernal ponds, and coastal beaches, shall be required to undertake a reconnaissance by a qualified archaeologist, and, where artifacts are identified, to protect and preserve such resources.	This policy is intended to protect and preserve archaeological resources.	Potentially Inconsistent: No known archaeological resources are present in the areas of Marina where MPWSP components are proposed. However, areas of high archaeological sensitivity exist in the Source Water Pipeline vicinity. Additionally, ground-disturbing activities associated with construction of the Subsurface Slant Wells, Source Water Pipeline, Desalinated Water Pipeline, and Transmission Main could result in the inadvertent discovery of and damage to unknown archaeological resources. This issue is discussed further in Impact 4.15-2.
City of Seaside (coastal zone and inland areas)	Seaside General Plan	Conservation/ Open Space	New Transmission Main, ASR Conveyance Pipeline, ASR Pump-to-Waste Pipeline, ASR Recirculation Pipeline, Terminal Reservoir	***Policy COS-5.1:*** Identify and conserve archaeological, architectural, and historic resources within Seaside.	This policy is intended to conserve archaeological, architectural, and historic resources.	Potentially Inconsistent: No known archaeological, architectural, and historical resources are present in the areas of Seaside where MPWSP components are proposed. Construction of project components within Seaside's coastal zone and inland areas would not impact any architectural or historical resources. However, construction would involve ground disturbing activities that could result in the inadvertent discovery of and damage to unknown archaeological resources. This issue is discussed further in Impact 4.15-2.
City of Seaside (coastal zone and inland areas)	Seaside General Plan	Conservation/ Open Space	New Transmission Main, ASR Conveyance Pipeline, ASR Pump-to-Waste Pipeline, ASR Recirculation Pipeline, ASR Settling Basin, Terminal Reservoir	***Implementation Plan COS-5.1.1:*** Assess and Mitigate Impacts on Cultural Resources. Continue to assess development proposals for potential impacts on sensitive historic, archaeological, and paleontological resources pursuant to the California Environmental Quality Act (CEQA). a) For structures that potentially have historic significance, require that a study be conducted by a professional archaeologist or historian to determine the actual significance of the structure and potential impacts of the proposed development in accordance with CEQA Guidelines Section 15064.5. The City may require modification of the project and/or mitigation measures to avoid any impact on a historic structure, when feasible. Assess development proposals for potential impacts on significant paleontological resources pursuant to of the California Environmental Quality Act Guidelines. If the project involves earthworks, the City may require a study conducted by a professional paleontologist to determine if paleontological assets are present, and if the project will significantly impact the resources. If significant impacts are identified, the City may require the project to be modified to avoid impacting the paleontological materials, or require mitigation measures to mitigate the impacts.	This policy is intended to assess and mitigate impacts on cultural resources, including historic, archaeological, and paleontological resources.	Potentially Inconsistent: No known cultural resources are present in the areas of Marina where MPWSP components are proposed. Construction of project components within Seaside's coastal zone and inland areas would not impact any architectural or historical resources. However, construction would involve ground disturbing activities that could result in the inadvertent discovery of and damage to unknown archaeological resources. The proposed project would not affect any geologic units that are known or suspected to contain paleontological resources.
County of Monterey (coastal zone and inland areas)	Monterey County General Plan	Public Service	Source Water Pipeline, MPWSP Desalination Plant, new Desalinated Water Pipeline, Brine Discharge Pipeline, Pipeline to CSIP Pond Castroville Pipeline, Main System-Hidden Hills and Ryan Ranch-Bishop Interconnection Improvements, and Carmel Valley Pump Station	***Policy PS-12.5:*** The Monterey County Historic Resources Review Board shall: a. Review and make recommendations on restoration, rehabilitation, alteration, and demolition proposals affecting identified historical and cultural resources. b. Work for the continuing education of county residents concerning historic resources; c. Seek financial support from local, state, and federal governments as well as the private sector to protect, preserve, and enhance the County's historic resources; d. Coordinate its activities with all groups concerned with the preservation of historic resources; and Review projects that involve historic resources on the National Register of Historic Places, California Register of Historical Resources, or the County's Local Register of Historic Resources to assure projects are consistent with good preservation practices.	This policy is intended to ensure the continued protection of Monterey County's historical and cultural resources on the National Register of Historic Places, California Register of Historical Resources, or the County's Local Register of Historic Resources.	Consistent: The proposed project would not involve development that would affect previously identified historical and cultural resources within unincorporated areas of Monterey County.

TABLE 4.15-2 (Continued)
APPLICABLE REGIONAL AND LOCAL LAND USE PLANS AND POLICIES RELEVANT TO CULTURAL AND PALEONTOLOGICAL RESOURCES

Project Planning Region	Applicable Plan	Plan Element/ Section	Project Component(s)	Specific Plan, Policy, or Ordinance	Relationship to Avoiding or Mitigating a Significant Environmental Impact	Project Consistency with Plan, Policy, or Ordinance
County of Monterey (coastal zone and inland areas)	Monterey County General Plan	Public Service	Source Water Pipeline, MPWSP Desalination Plant, new Desalinated Water Pipeline, Brine Discharge Pipeline, Pipeline to CSIP Pond, Castroville Pipelines, Main System-Hidden Hills and Ryan Ranch-Bishop Interconnection Improvements, and Carmel Valley Pump Station	***Policy PS-12.10:*** Historic landscape, consisting of resource features important to the setting of a designated historic site, such as mature trees and vegetation, walls and fences, within historic neighborhoods, districts, and heritage corridors for which there is an adopted plan shall be protected.	This policy is intended to protect historic landscapes contributing to the designation of those sites as historic.	Consistent: None of the project components are proposed for locations that would affect a historic landscape contributing to the designation of any historic site within unincorporated Monterey County.
County of Monterey (coastal zone and inland areas)	Monterey County General Plan	Public Service	Source Water Pipeline, MPWSP Desalination Plant, new Desalinated Water Pipeline, Brine Discharge Pipeline, Pipeline to CSIP Pond, Castroville Pipelines, Main System-Hidden Hills and Ryan Ranch-Bishop Interconnection Improvements, and Carmel Valley Pump Station	***Policy PS-12.11:*** An active involvement in historic and cultural resource management programs and support for the efforts of the Monterey County's historical organizations to preserve the County's historical resources shall be continued.	This policy is intended to ensure continued preservation of the County's historical resources.	Consistent: The proposed project would not involve development that would affect previously identified historical resources within unincorporated areas of Monterey County.
County of Monterey (coastal zone and inland areas)	Monterey County General Plan	Public Service	Source Water Pipeline, MPWSP Desalination Plant, new Desalinated Water Pipeline, Brine Discharge Pipeline, Pipeline to CSIP Pond, Castroville Pipelines, Main System-Hidden Hills and Ryan Ranch-Bishop Interconnection Improvements, and Carmel Valley Pump Station	***Policy PS-12.12:*** Historical and cultural resources and sites shall be protected through zoning and other regulatory means. New development shall be compatible with existing historical resources to maintain the special values and unique character of the historic properties.	This policy is intended to protect historical and cultural resources (including historical character) from impacts of new development.	Consistent: The proposed project would not involve development that would affect previously identified historical resources within unincorporated areas of Monterey County.
County of Monterey (coastal zone and inland areas)	Monterey County General Plan	Public Service	Source Water Pipeline, MPWSP Desalination Plant, new Desalinated Water Pipeline, Brine Discharge Pipeline, Pipeline to CSIP Pond, Castroville Pipeline, Main System-Hidden Hills and Ryan Ranch-Bishop Interconnection Improvements, and Carmel Valley Pump Station	***Policy PS-12.15:*** The special character of designated historic districts and neighborhoods shall be retained.	This policy is intended to ensure continued protection of designated historic districts and neighborhoods.	Consistent: None of the project components are proposed for locations that would affect a designated historic district within unincorporated Monterey County.
County of Monterey (coastal zone)	North County Land Use Plan	Resource Management	Source Water Pipeline and new Desalinated Water Pipeline	***Specific Policies 2.9.3*** 1. No development proposals in archaeologically sensitive areas or in areas described in policy 2.9.2(2) above shall be categorically exempt from environmental review. 2. When sufficient planning flexibility does not permit avoiding construction on archaeological or other types of cultural sites, adequate preservation measures shall be required. Mitigation shall be designed in accordance with guidelines of the State Office of Historic Preservation and the State of California Native American Heritage Commission. Any adverse impacts of development on archaeological or paleontological resources will be mitigated to the maximum extent feasible. 3. Off-road vehicle use, unauthorized collecting of artifacts, and other activities which could destroy or damage archaeological or cultural sites shall be prohibited. 4. Public access to or over known archaeological or paleontological sites should be limited, and concentrated in areas where supervision and interpretive facilities are available.	This policy is intended to minimize disturbance to archaeologically sensitive areas and limit public access to known archaeological and paleontological sites.	Potentially Inconsistent: No known archaeological or paleontological resources are present in the North County Land Use Plan areas where MPWSP components are proposed. However, project components would involve ground disturbing activities that could result in the inadvertent discovery of and damage to unknown archaeological resources. This issue is discussed further in Impacts 4.15-2. The proposed project would not affect any geologic units that are known or suspected to contain paleontological resources.
County of Monterey (coastal zone)	North County Land Use Plan	Resource Management	Source Water Pipeline and new Desalinated Water Pipeline	***General Policy 2.9.1:*** North County's archaeological resources, including those areas considered to be archaeologically sensitive but not yet surveyed and mapped, shall be maintained and protected for their scientific and cultural heritage values. New land uses, both public and private, should be considered compatible with this objective only where they incorporate all site planning and design features necessary to minimize or avoid impacts on archaeological resources.	This policy is intended to minimize and avoid impacts of development on archaeological resources.	Potentially Inconsistent: No known archaeological resources are present in the North County Land Use Plan areas where MPWSP components are proposed. However, project components would involve ground disturbing activities that could result in the inadvertent discovery of and damage to unknown archaeological resources. This issue is discussed further in Impacts 4.15-2.

TABLE 4.15-2 (Continued)
APPLICABLE REGIONAL AND LOCAL LAND USE PLANS AND POLICIES RELEVANT TO CULTURAL AND PALEONTOLOGICAL RESOURCES

Project Planning Region	Applicable Plan	Plan Element/ Section	Project Component(s)	Specific Plan, Policy, or Ordinance	Relationship to Avoiding or Mitigating a Significant Environmental Impact	Project Consistency with Plan, Policy, or Ordinance
County of Monterey (coastal zone)	North County Land Use Plan	Resource Management	Source Water Pipeline and new Desalinated Water Pipeline	***General Policies 2.9.2*** 1. Monterey County shall encourage the timely identification and evaluation of archaeological, historical, and paleontological resources, in order that these resources be given consideration during the conceptual design phase of land use planning or project development. 2. Whenever development is to occur in the coastal zone, including any proposed grading or excavation activity or removal of vegetation for agricultural use, the Archaeological Site Survey Office or other appropriate authority shall be contacted to determine whether the property has received an archaeological survey. If not, the parcel(s) on which the proposed development will take place shall be required to have an archaeological survey made if located: a. within 100 yards of the floodways of the Pajaro or Salinas Rivers, McCluskey, Bennett, Elkhorn, Moro Cojo, or Tembladero Sloughs, the Old Salinas River Channel or Moss Landing Harbor; b. within 100 yards of any known archaeological site (unless the area has been previously surveyed and recorded). The archaeological survey should describe the sensitivity of the site and appropriate levels of development, and development mitigation consistent with the site's need for protection. 3. All available measures, including purchase of archaeological easements, dedication to the County, tax relief, purchase of development rights, etc., shall be explored to avoid development on sensitive prehistoric or archaeological sites. 4. When developments are proposed for parcels where archaeological or other cultural sites are located, project design shall be required which avoids or substantially minimizes impacts on such cultural sites. To this end, emphasis should be placed on preserving the entire site rather than on excavation of the resource, particularly where the site has potential religious significance.	This policy is intended to avoid and minimize impacts of new development on archaeological, historical, and paleontological resources.	Potentially Inconsistent: No known archaeological, historical, or paleontological resources are present in the North County Land Use Plan areas where MPWSP components are proposed. However, areas of high archaeological sensitivity exist in the vicinity of proposed project components. Project construction would involve ground disturbing activities that could result in the inadvertent discovery of and damage to unknown archaeological resources. This issue is discussed further in Impacts 4.15-2. The proposed project would not affect any geologic units that are known or suspected to contain paleontological resources. None of the project components are proposed for locations that would affect a designated historic district within unincorporated Monterey County.
County of Monterey (inland areas)	North County Area Plan	Conservation/Open Space	Castroville Pipelines	***Policy NC-3.6:*** North County Historic Sites and other sites recommended by the Monterey County Historic Resources Review Board (HRRB) shall be considered for inclusion in a historical resources (HR) zoning district.	This program is intended to protect historic sites.	Consistent: The proposed project would not involve development that would affect previously identified North County Historic Sites and other sites recommended by the Monterey County Historic Resources Review Board (HRRB).
Fort Ord Reuse Authority (Seaside)	Fort Ord Reuse Plan	Conservation	ASR Conveyance Pipeline, ASR Pump-to-Waste Pipeline, ASR Recirculation Pipeline, and Terminal Reservoir	***Cultural Resources Policy A-1:*** The City of Seaside shall ensure the protection and preservation of archaeological resources at the former Fort Ord. ***Program A-1.1:*** The City of Seaside shall conduct a records search and a preliminary archaeological surface reconnaissance as a part of environmental review for any development project(s) proposed in a high archaeological resource sensitivity zone. ***Program A-1.2:*** The City of Seaside shall require that all known and discovered sites on the former Fort Ord with resources likely to be disturbed by a proposed project be analyzed by a qualified archaeologist with local expertise; recommendations made to protect and preserve resources and, as necessary, restrictive covenants imposed as a condition of project action or land sale. ***Program A-1.3:*** As a contractor work specification for all new construction projects, the City of Seaside shall include that during construction, upon the first discovery of any archaeological resource or potential find, development activity shall be halted within 50 meters of the find until ***the*** potential resources can be evaluated by a qualified professional archaeologist and recommendations made.	This program is intended to protect and preserve archaeological resources.	Potentially Inconsistent: No known archaeological resources are present within the areas of the former Fort Ord military base where the ASR Pipelines, ASR Settling Basin, ASR Pump Station, Terminal Reservoir, and Transfer Pipeline are proposed. However, ground-disturbing activities associated with the construction of these project components could result in the inadvertent discovery of and damage to unknown archaeological resources. This issue is discussed further in Impact 4.15-2.
U.S. Army Garrison, Presidio of Monterey	Integrated Cultural Resources Management Plan	Monterey County Installations and Facilities	ASR-5 and ASR-6 Wells and portions of the following pipelines occurring on Army land: ASR Conveyance Pipeline, ASR Pump-to-Waste Pipeline, ASR Recirculation Pipeline	Department of Defense Instruction 4715.16 and Army Regulation 200-1 require installations to develop an Integrated Cultural Resources Management Plan as an internal compliance document that integrates management and stewardship of cultural resources with ongoing mission activities and identifies compliance actions necessary to meet cultural resources regulatory requirements. General management actions that help prevent future impacts include consideration of cultural resources as early as possible in the project planning process, identification and avoidance of archaeologically and culturally sensitive areas, and ensuring that personnel responsible for the management of cultural resources receive adequate training.	This plan is intended to identify compliance actions necessary to meet federally mandated historic and cultural resources regulatory requirements.	Consistent: The proposed project would not involve development that would affect previously identified historical and cultural resources within Monterey County.

TABLE 4.15-2 (Continued)
APPLICABLE REGIONAL AND LOCAL LAND USE PLANS AND POLICIES RELEVANT TO CULTURAL AND PALEONTOLOGICAL RESOURCES

Project Planning Region	Applicable Plan	Plan Element/ Section	Project Component(s)	Specific Plan, Policy, or Ordinance	Relationship to Avoiding or Mitigating a Significant Environmental Impact	Project Consistency with Plan, Policy, or Ordinance
Fort Ord Reuse Authority (Monterey County)	Fort Ord Reuse Plan	Conservation	Ryan Ranch–Bishop Interconnection Improvements	***Cultural Resources Policy A-1:*** The County of Monterey shall ensure the protection and preservation of archaeological resources at the former Fort Ord. ***Program A-1.1:*** The County of Monterey shall conduct a records search and a preliminary archaeological surface reconnaissance as a part of environmental review for any development project(s) proposed in a high archaeological resource sensitivity zone. ***Program A-1.2:*** The County of Monterey shall require that all known and discovered sites on the former Fort Ord with resources likely to be disturbed by a proposed project be analyzed by a qualified archaeologist with local expertise, recommendations made to protect and preserve resources and, as necessary, restrictive covenants imposed as a condition of project action or land sale. ***Program A-1.3:*** As a contractor work specification for all new construction projects, the County of Monterey shall include that during construction, upon the first discovery of any archaeological resource or potential find, development activity shall be halted within 50 meters of the find until the potential resources can be evaluated by a qualified professional archaeologist and recommendations made.	This policy is intended to minimize and avoid impacts of development on archaeological resources.	Potentially Inconsistent: No known archaeological resources are present within the areas of the former Fort Ord military base where the ASR Pipelines, ASR Settling Basin, ASR Pump Station, Terminal Reservoir, and Transfer Pipeline are proposed. However, ground-disturbing activities associated with the construction of these project components could result in the inadvertent discovery of and damage to unknown archaeological resources. This issue is discussed further in Impact 4.15-2.

SOURCE: City of Marina, 2000; City of Seaside, 2004, 2013; City of Monterey, 2015; FORA, 1997; Monterey County 1982, 1985, 2010.

4.15.4 Evaluation Criteria

In accordance with Appendix G of the CEQA Guidelines, implementation of the proposed project would have a significant impact related to cultural and paleontological resources if it would:

- Cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5;
- Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5;
- Directly or indirectly destroy a unique paleontological resource or site or unique geological feature; or
- Disturb any human remains, including those interred outside of formal cemeteries.

In accordance with Section 106 of the NHPA, this analysis also considers the potential for the proposed project to result in adverse effects on historic properties. In accordance with the specific Criteria of Effect and Adverse Effect defined in 36 CFR 800.5 for the evaluation of an undertaking's effects on historic properties, implementation of the proposed project would have a significant impact related to cultural resources if it would:

> Cause an adverse effect on a historic property when it may alter the characteristics of the property that qualify the property for inclusion in the National Register. For the purpose of determining effect, alteration to features of the property's location, setting, or use may be relevant depending on a property's significant characteristics and should be considered.
>
> Cause an adverse effect when the effect on a historic property may diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Adverse effects on historic properties include, but are not limited to:
>
> (1) Physical destruction, damage, or alteration of all or part of the property;
>
> (2) Isolation of the property from or alteration of the character of the property's setting when that character contributes to the property's qualification for the National Register;
>
> (3) Introduction of visual, audible, or atmospheric elements that are out of character with the property or alter its setting;
>
> (4) Neglect of a property resulting in its deterioration or destruction; and
>
> (5) Transfer, lease, or sale of the property.

For the impact analysis, the State and federal evaluation criteria have been mutually considered.

4.15.5 Approach to Analysis

Ground disturbance and excavation during project construction could disturb or destroy known and previously unrecorded cultural resources, including historical, archaeological, and paleontological resources and human remains. Proposed project operations would have no impact on cultural and paleontological resources because operations would not cause additional ground disturbance or generate strong vibrations. Thus, the analysis below focuses only on construction-related impacts on cultural and paleontological resources.

4.15.5.1 Architectural/Structural Historical Resources

Potential impacts on architectural resources are assessed by identifying whether implementation of the proposed project could affect resources that have been identified as historic properties for the purposes of the NHPA or as historical resources for the purposes of CEQA. Individual properties and districts include those that are significant because of their association with important events, people, or architectural styles or master architects, or for their informational value (National Register and California Register Criteria A/1, B/2, C/3, and D/4) and that retain sufficient historic integrity to convey their significance. Criterion D/4 is typically applied to the evaluation of archaeological resources and not to architectural resources, as described below. Once a resource has been identified as significant, it must be determined whether the impacts of the project would "cause a substantial adverse change in the significance" of the resource (CEQA Guidelines Section 15064.5[b]). A substantial adverse change in the significance of a historical resource means "physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of [the] historical resource would be materially impaired" (CEQA Guidelines Section 15064.5[b][1]). A historical resource is materially impaired through the demolition or alteration of the resource's physical characteristics that convey its historical significance and that justify its inclusion in (or eligibility for inclusion in) the California Register or a qualified local register (CEQA Guidelines Section 15064.5[b][2]).

Construction activities that involve impact tools can produce significant groundborne vibration. Substantive sources of vibration during project construction would be: (1) the drill rigs used for drilling and development of the subsurface slant wells in the CEMEX active mining area; (2) the drill rigs used for drilling and development of the ASR-5 and ASR-6 Wells at the Fitch Park military housing area; (3) bulldozers used during general construction of facilities such as the MPWSP Desalination Plant; (4) jackhammers used to break up concrete during open-trench construction of pipelines; and (5) vibratory rollers used to repave streets and other previously paved areas after open-trench construction and for newly paved areas at the MPWSP Desalination Plant, ASR-5 and ASR-6 Wells, Terminal Reservoir, and pump stations. Additionally, where it is not feasible to install the proposed pipelines via open-cut trenching (i.e., creek and river crossings, highway crossings, and railroad crossings), trenchless methods such as jack-and-bore, drill-and-burst, horizontal directional drilling, and/or microtunneling would be employed. Trenchless construction methods typically require the use of impact or vibratory sheet pile drivers, which are a source of vibration.

Construction-related vibration—such as that generated by jackhammers, drill rigs, and vibratory rollers—can cause structural damage to historic-era buildings and structures (Wilson, Ihrig & Associates, 2009:40). Historic buildings in the project vicinity include primarily older masonry structures in the city of Monterey as well as wood frame buildings and corrugated metal industrial buildings at the CEMEX sand mining facility. This EIR/EIS uses a vibration threshold for historic buildings of 0.12 inches per second (in/sec) peak particle velocity (PPV) at a distance of 25 feet (Wilson, Ihrig, & Associates et al., 2012:12). **Table 4.15-3** presents the distances at which vibratory construction equipment that would be used during project construction would generate vibration levels at the 0.12-in/sec PPV damage threshold. The vibratory roller is the construction equipment that would have the greatest PPV, typically a PPV of 0.210 in/sec at 25 feet (New Hampshire, 2012). The Federal Transit Administration (FTA) provides an equation for estimating vibration at different distances based on a reference PPV of 25 feet for varying construction equipment. Using the FTA equation, at distances greater than 45 feet the vibration generated by a vibratory roller is lower than the 0.12 in/sec PPV damage threshold. At distances greater than 25 feet, the vibration level generated by a typical drill rig is lower than the 0.12 in/sec PPV damage threshold. At distances greater than 80 feet, the vibration level generated by vibratory pile driving of sheet piles is lower than the 0.12 in/sec PPV damage threshold. Beyond the distance of the damage threshold, no damage to historic buildings or structures is expected.

TABLE 4.15-3
DAMAGE THRESHOLD TO HISTORIC BUILDINGS FROM CONSTRUCTION EQUIPMENT

Equipment Type	Typical PPV at 25 feet	Approx. Distance of Damage Threshold (0.12 PPV in/sec)
Vibratory roller	0.210 in/sec	45 feet
Drill rig	0.12 in/sec	25 feet
Bulldozer	0.089 in/sec	20 feet
Jackhammer	0.035 in/sec	15 feet
Vibratory pile driver	0.73 in/sec	80 feet

SOURCE: Wilson, Ihrig, & Associates et al., 2012

4.15.5.2 Archaeological Resources

The significance of most prehistoric and historic-era archaeological sites is usually assessed under National Register and California Register Criterion D/4. This criterion stresses the importance of the information potential contained within the site, rather than its significance as a surviving example of a type or its association with an important person or event. Archaeological resources may qualify as historical resources under the definition provided in CEQA Guidelines Section 15064.5(a), or they may also be assessed under CEQA as unique archaeological resources, defined as archaeological artifacts, objects, or sites that contain information needed to answer important scientific research questions (PRC Section 21083.2). A substantial adverse change in the significance of an archaeological resource is assessed similarly to other historical resources, i.e., it means the destruction or material alteration in an adverse manner of those physical characteristics of the resource that convey its significance under the relevant criteria (CEQA Guidelines Section 15064.5[b][2]).

4.15.5.3 Paleontological Resources

The paleontological analysis evaluates the potential to encounter paleontological resources (i.e., plant, animal, or invertebrate fossils or microfossils) during excavations associated with the proposed project. The paleontological potential of the geologic units that would be disturbed is used to evaluate the potential to encounter paleontological resources at the location of each project component. A potentially significant impact on paleontological resources would occur if: (1) construction of the project components would move or excavate previously undisturbed bedrock (native rock) and/or (2) the bedrock to be disturbed has a high paleontological potential. The potential impacts related to paleontological resources were analyzed qualitatively, based on review of published geologic and paleontological data for the project area and professional judgment. No paleontological field surveys were conducted for the proposed project.

4.15.5.4 Human Remains

Human remains, including those buried outside of formal cemeteries, are protected under several state laws, including PRC Section 5097.98 and Health and Safety Code Section 7050.5. These laws are identified above in Section 4.15.4.2, State Regulations. This analysis considers impacts including intentional disturbance, mutilation, or removal of interred human remains.

4.15.6 Direct and Indirect Effects of the Proposed Project

Table 4.15-4 summarizes the proposed project's impacts and significance determinations for cultural and paleontological resources.

TABLE 4.15-4
SUMMARY OF IMPACTS – CULTURAL AND PALEONTOLOGICAL RESOURCES

Impacts	Significance Determinations
Impact 4.15-1: Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5 of the CEQA Guidelines or historic properties pursuant to 36 CFR 800.5 during construction.	NI
Impact 4.15-2: Cause a substantial adverse change during construction in the significance of an archaeological resource pursuant to Section 15064.5 of the CEQA Guidelines or historic properties pursuant to 36 CFR 800.5.	LSM
Impact 4.15-3: Directly or indirectly destroy a unique paleontological resource or site, or unique geological feature during construction.	LS
Impact 4.15-4: Disturbance of any human remains, including those interred outside of formal cemeteries, during construction.	LSM
Impact 4.15-C: Cumulative impacts related to cultural and paleontological resources.	LS

NOTES:
LS = Less than Significant
LSM = Less than Significant impact with Mitigation

4.15.6.1 Construction Impacts

Impact 4.15-1: Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5 of the CEQA Guidelines or historic properties pursuant to 36 CFR 800.5 during construction. (*No Impact)*

All Project Components

No historical resources listed in or eligible for listing in the California Register or historic properties listed in or eligible for listing in the National Register are within the direct or indirect APE of all project components. Therefore, no impact on historical resources or historic properties would result from construction of any project facilities.

Mitigation Measures

None proposed.

Impact 4.15-2: Cause a substantial adverse change during construction in the significance of an archaeological resource pursuant to Section 15064.5 of the CEQA Guidelines or historic properties pursuant to 36 CFR 800.5. (*Less than Significant with Mitigation*)

Castroville Pipeline

There is potential for buried prehistoric archaeological resources to exist in the vicinity of Tembladero Slough. Based on the previous site documentation and survey effort, it does not appear that a significant prehistoric archaeological site is within the direct APE of the Castroville Pipeline, however this is not conclusive. While no midden soil or artifacts were observed in the direct APE, there was reportedly a human burial uncovered in the vicinity. If previously unidentified archaeological resources are discovered and inadvertently damaged and/or destroyed during installation of the Castroville Pipeline, this would be a significant impact or an adverse effect. Impacts on previously unidentified archaeological resources could be reduced to a less-than-significant level with implementation of **Mitigation Measure 4.15-2a (Establish Archaeologically Sensitive Area)**. This measure requires cultural resources monitoring during project construction in an Archaeologically Sensitive Area (ASA) so that if archaeological resources are encountered, a qualified archaeological consultant can order cessation of work in the vicinity of the discovery and immediately assess the find to provide additional recommendations as necessary. Implementation of this mitigation measure would reduce potentially significant impacts on unknown prehistoric archaeological resources in the ASA to a less-than-significant level.

Based on the geoarchaeological assessment, there is potential for deeply buried well-developed soil horizons to be located in the direct APE at Tembladero Slough near Castroville and the Salinas River. Therefore, there is the potential for archaeological resources associated with those buried soils to be encountered during project work at the above locations. Project construction activities could result in damage or disturbance to such resources if they exist, a potentially

significant impact or adverse effect. As discussed in the Geological Context, given the relatively narrow (maximum width of 7 feet) and linear nature of the ground disturbance for the pipelines, the active coastal dune environment (which may have destroyed, disturbed, and/or removed archaeological materials), as well as the paucity of previously discovered deeply buried sites in the Monterey Bay vicinity, no additional subsurface investigations are recommended. To mitigate potential impacts or adverse effects on previously unidentified buried archaeological resources in these ASAs, this EIR/EIS recommends **Mitigation Measure 4.15-2a (Establish Archaeologically Sensitive Area)**.

In addition there is the potential to uncover as yet undiscovered resources during project construction. To mitigate potential impacts on previously undiscovered buried archaeological resources, CalAm shall implement **Mitigation Measure 4.15-2b (Inadvertent Discovery of Cultural Resources)** for all project components. This measure would ensure that work would halt in the vicinity of an archaeological find and that the resources were treated appropriately.

Source Water Pipeline

There is potential for previously undocumented historic-era subsurface archaeological resources to be uncovered and inadvertently damaged and/or destroyed during installation of the Source Water Pipeline through the Lapis Sand Mining Plant Historic District. This would be a significant impact. However, impacts on previously unidentified subsurface historic-era resources in the Lapis Sand Mining Plant Historic District could be reduced to a less-than-significant impact with implementation of **Mitigation Measure 4.15-2a (Establish Archaeologically Sensitive Area)**.

In addition there is the potential to uncover as yet undiscovered resources during project construction. To mitigate potential impacts on previously undiscovered buried archaeological resources, CalAm shall implement **Mitigation Measure 4.15-2b (Inadvertent Discovery of Cultural Resources)** for all project components.

All Other Project Components

No archaeological resources eligible for listing in the California Register or the National Register are located within the direct APE for all other project components. Therefore, no impact on known archaeological resources would result from construction of these facilities. There is however the potential to uncover as yet undiscovered resources during project construction. To mitigate potential impacts on previously undiscovered buried archaeological resources, CalAm shall implement **Mitigation Measure 4.15-2b (Inadvertent Discovery of Cultural Resources)** for all project components.

There are no known TCPs in the vicinity of all project components. In the event that an archaeological resource that qualifies as a TCP is identified during project construction, CalAm shall implement **Mitigation Measure 4.15-2b (Inadvertent Discovery of Cultural Resources)**

There are no known maritime resources, such as shipwrecks or other submerged resources, in the vicinity of all project components. Additionally, there will be no ground disturbing work in submerged areas that would have the potential to impact previously undocumented or unknown

shipwrecks. The proposed project would not cause an impact on maritime resources within MBNMS. To mitigate potential impacts on previously undiscovered maritime resources, CalAm shall implement **Mitigation Measure 4.15-2b (Inadvertent Discovery of Cultural Resources)** for all project components.

Land Use Plan & Policy Consistency

In addition to the physical impacts described above, as noted in **Table 4.15-2**, the proposed project could conflict with applicable land use plans, policies, or ordinances related to cultural resources that were adopted for the purpose of avoiding or mitigating an environmental effect. As described above, construction would involve ground-disturbing activities that could inadvertently disrupt or damage unknown archaeological sites. As a result, construction of project components could conflict with one or more of the following: California Coastal Act Section 30244, the City of Marina General Plan Policy 4.126, the City of Seaside Local Coastal Program Land Use Plan Policy LUD-CZ 2.11, Seaside General Plan Policy COS-5.1, the North County Land Use Plan Specific Policy 2.9.3 and General Policies 2.9.1 and 2.9.2, and the Fort Ord Reuse Plan Policy A-1 for Inland Areas and Monterey County. Each of these policies was adopted for the purpose of avoiding or minimizing impacts on archaeological resources. As discussed in the preceding paragraphs, **Mitigation Measures 4.15-2a (Establish Archaeologically Sensitive Area)** and **4.15-2b (Inadvertent Discovery of Cultural Resources)** would require archaeological monitoring and established protocols for accidental discovery of archaeological resources. With these measures implemented, the proposed project would be consistent with the above-noted policies.

Impact Conclusion

A significant impact on archaeological resources could occur during construction of the proposed Castroville Pipeline at Tembladero Slough and the Source Water Pipeline in the Lapis Sand Mining Plant Historic District; as well as those areas designated as archaeologically sensitive in the geoarchaeological analysis (Tembladero Slough near Castroville and the Salinas River). The impact or adverse effects would be reduced to a less-than-significant level with implementation of **Mitigation Measure 4.15-2a (Establish Archaeologically Sensitive Area)**.

While no additional impacts or adverse effects on archaeological resources are expected, the possibility of uncovering unknown archaeological resources in the remaining direct APE cannot be entirely discounted. The potential inadvertent discovery of archaeological resources could be a significant impact or adverse effect. Implementation of **Measure 4.15-2b (Inadvertent Discovery of Cultural Resources)** would ensure that potential impacts are less than significant.

Mitigation Measures

Mitigation Measure 4.15-2a applies to the Castroville Pipeline at Tembladero Slough and the Salinas River; and the Source Water Pipeline in the Lapis Sand Mining Plant Historic District.

> **Mitigation Measure 4.15-2a: Establish Archaeologically Sensitive Areas.**
>
> CalAm shall contract with a qualified archaeologist meeting the Secretary of the Interior's Qualification Standard (Lead Archaeologist) to prepare and implement an Archaeological

Monitoring Plan, and oversee and direct all archaeological monitoring activities during project construction. Archaeological monitoring shall be conducted for all subsurface excavation work within 100 feet of the Castroville Pipeline at Tembladero Slough and the Salinas River; and the Source Water Pipeline in the Lapis Sand Mining Plant Historic District. At a minimum, the Archaeological Monitoring Plan shall:

- Detail the cultural resources training program that shall be completed by all construction and field workers involved in ground disturbance;
- Designate the person(s) responsible for conducting monitoring activities, including Native American monitor(s), if deemed necessary;
- Establish monitoring protocols to ensure monitoring is conducted in accordance with current professional standards provided by the California Office of Historic Preservation;
- Establish the template and content requirements for monitoring reports;
- Establish a schedule for submittal of monitoring reports and person(s) responsible for review and approval of monitoring reports;
- Establish protocols for notifications in case of encountering cultural resources, as well as methods for evaluating significance, developing and implementing plan to avoid or mitigate significant resource impacts, Native American participation and consultation, collection and curation plan, and consistency with applicable laws including Section 7050.5 of the California Health and Safety Code and Section 5097.98 of the Public Resources Code;
- Establish methods to ensure security of cultural resources sites;
- Describe the appropriate protocols for notifying the County, Native Americans, and local authorities (i.e. Sheriff, Police) should site looting and other illegal activities occur during construction with reference to Public Resources Code 5097.99.

During the course of the monitoring, the Lead Archaeologist may adjust the frequency—from continuous to intermittent—of the monitoring based on the conditions and professional judgment regarding the potential to encounter resources.

If archaeological materials are encountered, all soil disturbing activities within 100 feet of the find shall cease until the resource is evaluated. The Lead Archaeologist shall immediately notify the CPUC and MBNMS of the encountered archaeological resource. The Lead Archaeologist shall, after making a reasonable effort to assess the identity, integrity, and significance of the encountered archaeological resource, present the findings of this assessment to the Lead Agencies. In the event archaeological resources qualifying as either historical resources pursuant to CEQA Section 15064.5 or as unique archaeological resources as defined by Public Resources Code 21083.2 are encountered, preservation in place shall be the preferred manner of mitigation.

If preservation in place is not feasible, the applicant shall implement an Archaeological Research Design and Treatment Plan (ARDTP). The Lead Archaeologist, Native American representatives, MBNMS and the CPUC shall meet to determine the scope of the ARDTP. The ARDTP will identify a program for the treatment and recovery of important scientific data contained within the portions of the archaeological resources located within the project

Area of Potential Effects (APE); would preserve any significant historical information obtained and will identify the scientific/historic research questions applicable to the resources, the data classes the resource is expected to possess, and how the expected data classes would address the applicable research questions. The results of the investigation shall be documented in a technical report that provides a full artifact catalog, analysis of items collected, results of any special studies conducted, and interpretations of the resource within a regional and local context. All technical documents shall be placed on file at the Northwest Information Center of the California Historical Resources Information System.

Mitigation Measure 4.15-2b applies to all project components.

Mitigation Measure 4.15-2b: Inadvertent Discovery of Cultural Resources.

Following implementation of Mitigation Measure 4.15-2a, if prehistoric or historic-era cultural materials are encountered, all construction activities within 100 feet shall halt and the Lead Agencies shall be notified. Prehistoric archaeological materials might include obsidian and chert flaked-stone tools (e.g., projectile points, knives, scrapers) or toolmaking debris; culturally darkened soil ("midden") containing heat-affected rocks, artifacts, or shellfish remains; and stone milling equipment (e.g., mortars, pestles, handstones, or milling slabs); and battered stone tools, such as hammerstones and pitted stones. Historic-period materials might include stone, concrete, or adobe footings and walls; filled wells or privies; and deposits of metal, glass, and/or ceramic refuse.

A Secretary of the Interior-qualified archaeologist shall inspect the find within 24 hours of discovery. If the find is determined to be potentially significant, the archaeologist, in consultation with MBNMS, the CPUC and the appropriate Native American representative shall determine whether preservation in place is feasible. Consistent with CEQA Guidelines Section 15126.4(b)(3), this may be accomplished through planning construction to avoid the resource; incorporating the resource within open space; capping and covering the resource; or deeding the site into a permanent conservation easement. If avoidance is not feasible, a qualified archaeologist, in consultation with the lead agency and the appropriate Native American representative, shall prepare and implement a detailed Archaeological Research Design and Treatment Plan (ARDTP). Treatment of unique archaeological resources shall follow the applicable requirements of Public Resources Code Section 21083.2. Treatment for most resources would consist of (but would not be not limited to) sample excavation, artifact collection, site documentation, and historical research, with the aim to target the recovery of important scientific data contained in the portion(s) of the significant resource to be impacted by the project. The ARDTP shall include provisions for analysis of data in a regional context, reporting of results within a timely manner and subject to review and comments by the appropriate Native American representative before being finalized, curation of artifacts and data at a local facility acceptable to the appropriate Native American representative, and dissemination of final confidential reports to the appropriate Native American representative, the Northwest Information Center of the California Historical Resources Information System, the CPUC, MBNMS and interested professionals.

Impact 4.15-3: Directly or indirectly destroy a unique paleontological resource or site, or unique geologic feature during construction. (*Less than Significant*)

All Project Components

The construction of the project components would require the excavation through several geologic units that have the potential to contain paleontological resources, particularly vertebrate fossils. These geologic units include the Older Dune Sands, Marine Terrace Deposits, and the Monterey Formation. Vertebrate fossils have been collected from the Monterey Formation, but not from the other listed geologic units. Encountering fossils, particularly, vertebrate fossils, would be considered a significant impact.

As discussed above in Section 4.15.2.1, Paleontological Setting, and Section 4.15.4, Regulatory Framework, the SVP has established professional standards for evaluating the potential for paleontological resources based on the type of geologic unit, the previous discovery of fossils within the geologic unit and within or in close proximity to the proposed project, and whether the fossils are uncommon. Of the geologic units through which the project components would require excavation, only the Monterey Formation is known to have vertebrate fossils that would qualify as a significant paleontological resource. However, the project components would be constructed within a limited extent of the Monterey Formation within the previously-disturbed rights-of way. In addition, the diatoms and benthic foraminifera that comprise much of the formation are not considered a significant paleontological resource. Therefore, the potential impact on paleontological resources would be considered less than significant and no mitigation is necessary.

Mitigation Measures

None proposed.

Impact 4.15-4: Disturbance of any human remains, including those interred outside of formal cemeteries, during construction. (*Less than Significant with Mitigation*)

All Project Components

While no known human remains have been documented within the proposed project direct APE, the possibility of inadvertently uncovering human remains cannot be entirely discounted. The potential inadvertent discovery of human remains is considered a significant impact. The impact would be reduced to a less-than-significant level with implementation of **Mitigation Measure 4.15-4 (Inadvertent Discovery of Human Remains)**. 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.

Mitigation Measures

Mitigation Measure 4.15-4 applies to all project components.

Mitigation Measure 4.15-4: Inadvertent Discovery of Human Remains.

In the event of discovery or recognition of any human remains during construction activities, such activities within 100 feet of the find shall cease. The Monterey County Coroner shall be contacted immediately. The Coroner then has two working days to determine if the remains are Native American. If the remains are determined to be Native American, and no investigation of the cause of death is required, the Native American Heritage Commission (NAHC) will be contacted within 24 hours. The NAHC will then identify and contact the person or persons it believes to be the Most Likely Descendant (MLD)" of the deceased Native American(s), who in turn would make recommendations to the project applicant, MBNMS and the CPUC for the appropriate means of treating the human remains and any grave goods.

4.15.7 Cumulative Effects of the Proposed Project

The cumulative scenario and cumulative impacts methodology are described in Section 4.1.7. Table 4.1-2 lists potential cumulative projects.

Impact 4.15-C: Cumulative impacts related to cultural and paleontological resources (*Less than Significant*)

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

The timeframe during which the proposed project could contribute to cumulative cultural resources effects is limited to the construction phase because operation of the proposed project would have no impact on cultural and paleontological resources.

A cumulatively significant cultural resources impact could result during construction if the incremental effects of the proposed project combined with those of one or more of the cumulative projects listed in **Table 4.1-2** to damage the same type of cultural resource within the APE.

Architectural Resources. No historical resources listed in or eligible for listing in the California Register or historic properties listed in or eligible for listing in the National Register are within the direct or indirect APE of all project components. Therefore, the project could not contribute to cumulative impacts on historical resources or properties (no impact).

Archaeological Resources and Human Remains. As analyzed in the context of Impacts 4.15-2 and 4.15-4, excavation associated with the proposed project could result in a less-than-significant impact on known and previously unidentified archaeological resources and/or human remains

following the implementation of recommended mitigation measures. This analysis conservatively assumes that all of the cumulative projects have a similar potential impact on known and previously unrecorded archaeological resources and/or human remains. Because each project's potential impacts would be site-specific, they could not overlap to combine with those of the proposed project and no significant cumulative effect would result (*less than significant*).

Paleontological Resources. The geographic scope of analysis for cumulative impacts on paleontological resources includes the Monterey Formation, which is known to contain significant paleontological resources including vertebrate fossils. While discovery within other geologic units affected by the project (i.e., Quaternary or Pleistocene) is possible, the likelihood is considered low because vertebrate fossils have only been collected from the Monterey Formation. The proposed project could result in a direct or indirect effect to paleontological resources located within these geologic units during excavation or other ground disturbing activities. The incremental impacts of the project could combine with those of one or more of the projects listed in **Table 4.1-2** to cause or contribute to a significant cumulative impact on paleontological resources if they directly or indirectly destroyed a unique paleontological resource or site or unique geologic feature.

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

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4.16 Agricultural Resources

Sections	Figures	Tables
4.16.1 Setting / Affected Environment 4.16.2 Regulatory Framework 4.16.3 Evaluation Criteria 4.16.4. Approach to Analysis 4.16.5 Direct and Indirect Effects of the Proposed Project 4.16.6 Cumulative Effects of the Proposed Project	4.16-1 Farmland Mapping Designations and Williamson Act Contracts 4.16-2 Farmland Mapping Designations and Williamson Act Contracts for the Castroville Pipeline	4.16-1 Monterey County Agricultural Land Summary and Conversion by FMMP Land Use Category (2010–2012) 4.16-2 Applicable Regional and Local Plans and Policies Relevant to Agricultural Resources 4.16-3 Summary of Impacts – Agricultural Resources 4.16-4 Project Facilities Proposed on Land Zoned for Agriculture

This section evaluates the potential for implementation of the Monterey Peninsula Water Supply Project (MPWSP or proposed project) to adversely affect existing agricultural operations or agricultural resources in the vicinity.

4.16.1 Setting/Affected Environment

The study area for agricultural resources is the project area boundary and contiguous properties. The project area boundary is defined as the area within which all construction-related disturbances would occur. This section provides an overview of agricultural resources in the Monterey region and identifies the resources within and adjacent to the project area, including designated farmland, grazing land, and land protected by Williamson Act contracts. There are no MBNMS resources that would be affected by impacts identified in this section; all impacts related to agricultural resources would occur outside of MBNMS boundaries. Therefore, MBNMS resources are not described in the environmental setting/affected environment.

Monterey County is California's third largest agricultural producer. Agricultural crop production and livestock grazing is the largest industry in the county, with approximately 56 percent of the land (or approximately 1.3 million acres) used for agricultural purposes. Of the total land in the county dedicated to agriculture, approximately 80 percent is used for grazing. The county's predominant crops are cool-season vegetables, strawberries, wine grapes, and nursery plants. Most of the agricultural lands are in the northern portion of the county and in the Salinas Valley (Monterey County, 2010).

Agricultural lands in the project area are concentrated north of Reservation Road in unincorporated Monterey County. This area contains a mosaic of predominantly row crop agricultural fields bordered by coastal dunes and beaches to the west. Project components proposed in this area include the Source Water Pipeline, MPWSP Desalination Plant, Brine Discharge Pipeline, Pipeline to CSIP Pond, new Desalinated Water Pipeline, and Castroville Pipeline.

4.16.1.1 Farmland Classifications

Farmland Mapping and Monitoring Program

The California Department of Conservation, Division of Land Resource Protection (CDC) maps important farmlands throughout California through the Farmland Mapping and Monitoring Program (FMMP). Important farmland is classified into the following categories based on soil conditions (i.e., their suitability for agriculture) and current land use.

- ***Prime Farmland*** is land that has the best combination of physical and chemical characteristics for long-term crop production. It has the soil quality, growing season, and moisture supply needed to sustain high crop yields when appropriately treated and managed. In addition, the land must have been used for irrigated agricultural production four years prior to the mapping date to qualify under this category.
- ***Farmland of Statewide Importance*** is similar to Prime Farmland in that it has a good combination of physical and chemical characteristics for crop production, but with minor shortcomings such as greater slopes and less ability to store moisture. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.
- ***Unique Farmland*** is land that does not meet the criteria for Prime Farmland or Farmland of Statewide Importance but has been used for the production of the state's leading agricultural crops. This land is usually irrigated, but may include the types of non-irrigated orchards or vineyards that are found in some climatic zones of California. Unique Farmland must have been in agricultural production at some time during the four years prior to the mapping date.
- ***Farmland of Local Importance*** applies to land of importance to the local agricultural economy as determined by the county. This land is either currently producing crops or has the capability of production, but does not meet the criteria of the preceding categories.
- ***Grazing Land*** is land on which the existing vegetation is suited to the grazing of livestock.

The FMMP updates its Important Farmland Series Maps every two years and produces a biannual report on the amount of land converted from agricultural to non-agricultural use. The most recent report, *California Farmland Conversion Report 2015*, summarizes land use conversion by FMMP category between 2010 and 2012. **Table 4.16-1** shows the total acreage and recent conversion of Prime Farmland, Unique Farmland, and Farmland of Statewide Importance in Monterey County. In summary, there was a net increase in acreage of Prime Farmland, Farmland of Statewide Importance, and Unique Farmland, but a decrease in grazing land between 2010 and 2012.

Important Farmland Designations in the Project Area

As shown in **Figures 4.16-1** and **4.16-2**, portions of the project area north of Reservation Road are within or adjacent to important farmland. The farmland in this area is categorized as Prime Farmland and Farmland of Statewide Importance. Important farmland borders the west side of the Source Water Pipeline and the new Desalinated Water Pipeline along Lapis Road between the CEMEX access road and Del Monte Boulevard. The proposed alignments of the Source Water Pipeline, new Desalinated Water Pipeline, and Castroville Pipeline would be installed outside of

TABLE 4.16-1
MONTEREY COUNTY AGRICULTURAL LAND SUMMARY AND CONVERSION BY FMMP LAND USE CATEGORY (2010–2012)

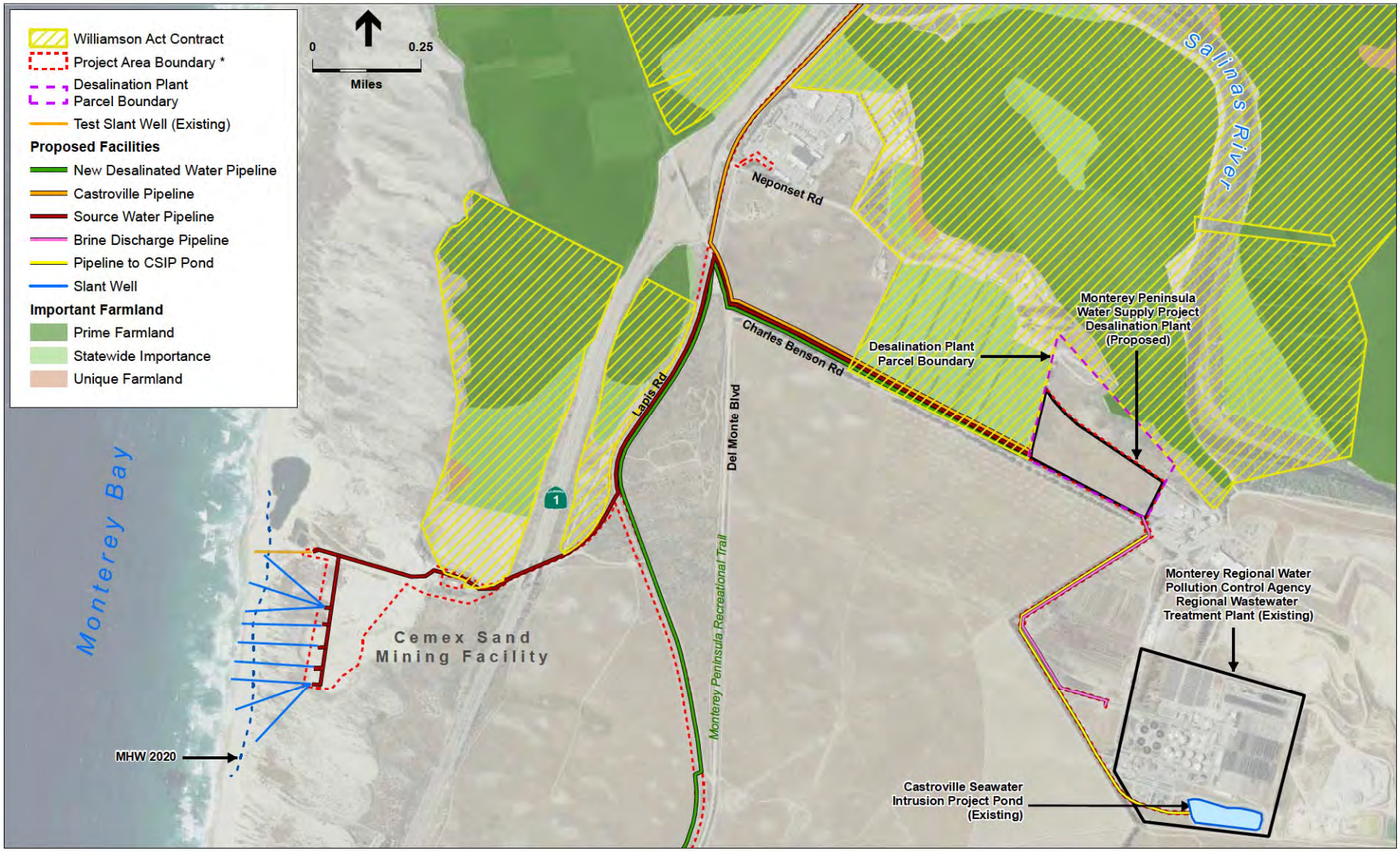
	Total Acreage Inventoried		2010–2012 Acreage Changes			
Land Use Category	**2010**	**2012**	**Acres Lost (-)**	**Acres Gained (+)**	**Total Acreage Changed**	**Net Acreage Changed**
Prime Farmland	166,252	166,327	1,127	1,202	2,329	75
Farmland of Statewide Importance	43,372	43,823	660	1,111	1,771	451
Unique Farmland	25,526	25,707	900	1,081	1,981	181
Farmland of Local Importance	0	0	0	0	0	0
Important Farmland Subtotal	**235,150**	**235,857**	**2,687**	**3,394**	**6,081**	**707**
Grazing Land	1,065,697	1,063,390	4,759	2,452	7,211	-2,307
Agricultural Land Subtotal	**1,300,847**	**1,299,247**	**7,446**	**5,846**	**13,292**	**-1,600**
Urban and Built-up Land	56,779	57,925	384	1,530	1,914	1,146
Other Land	757,256	757,710	2,397	2,851	5,248	454
Water Area	6,246	6,246	0	0	0	0
Total Area Inventoried	**2,121,128**	**2,121,128**	**10,227**	**10,227**	**20,454**	**0**

SOURCE: CDC, 2015a.

the Charles Benson Road paved roadway, and within important farmland that borders the north side of Charles Benson Road and west side of the MPWSP Desalination Plant site. If the Source Water Pipeline Optional Alignment, new Desalinated Water Pipeline Optional Alignment, and Castroville Pipeline Optional Alignment 2 were implemented, pipeline installation in the important farmland would be avoided because these optional alignments would be installed within the paved roadway of Charles Benson Road.

The 25-acre MPWSP Desalination Plant site is located on the upper terrace of a 46-acre parcel. Approximately 1.7 acre in the lower terrace of the parcel is designated as Prime Farmland, but is outside of the project area. As indicated above, important farmland also exists west of, but outside of, the MPWSP Desalination Plant site (see **Figure 4.16-1**). The proposed desalination plant site incorporates a 200 foot buffer from the adjacent farmland west of the site as shown in Figure 3-5b in Chapter 3, Description of the Proposed Project.

North of Neponset Road and south of the Salinas River crossing, important farmland borders the east side of the Castroville Pipeline and TAMC right-of-way for approximately 0.25 mile (1,200 feet). The remaining 2.75 miles of the Castroville Pipeline, between the Salinas River and Highway 183, would be installed in Monte Road and a dirt agricultural road (see **Figures 4.16-1** and **4.16-2**). Although most of Monte Road and the dirt agricultural road are mapped as important farmland, no crops are planted within these roads; they are used for the movement of vehicles, semi-trucks, and farm equipment.



NOTE:
*Project area boundary refers to the area within which all construction-related disturbance would occur.

SOURCE: ESA, 2016; CDOC, 2012; Monterey County, 2016

205335.01 Monterey Peninsula Water Supply Project

Figure 4.16-1

Farmland Mapping Designations and Williamson Act Contracts

NOTE:
*Project area boundary refers to the area within which all construction-related disturbance would occur.

SOURCE: ESA, 2016; CDOC, 2012; Monterey County, 2016

205335.01 Monterey Peninsula Water Supply Project

Figure 4.16-2
Farmland Mapping Designations and Williamson Act Contracts for the Castroville Pipeline

Approximately 950 feet of the Castroville Optional Alignment 1 would be installed along Nashua Road, and 1,900 feet of the Castroville Optional Alignment 1 would be installed along the Monterey Peninsula Recreational Trail and east of Highway 1. These areas are mapped as important farmland but no crops are planted in Nashua Road or the recreational trail. Approximately 1.2 miles (6,350 feet) of the Castroville Pipeline Optional Alignment 1 that is located east-to-west along Nashua Road and north-south along the Monterey Peninsula Recreational Trail is bordered to the north and east by important farmland, respectively (see **Figure 4.16-2**).

South of Reservation Road, land uses within and adjacent to the project area are predominantly urban and do not include agriculture, and the proposed facilities south of Reservation Road would not be within or adjacent to any important farmland (CDC, 2015b).

4.16.1.2 Williamson Act Program

The California Land Conservation Act of 1965, also known as the Williamson Act, is the State's primary program aimed at conserving private land for agricultural and open space uses. The Williamson Act provides a mechanism through which private landowners can contract with counties and cities to voluntarily restrict their land to agricultural and compatible open space uses. In return, Williamson Act contracts offer tax incentives by ensuring that land is assessed for its agricultural productivity rather than its highest and best use. Contracts typically restrict land use for a period of 10 years; however, some jurisdictions exercise the option to extend the term for up to 20 years. Contracts are automatically renewed annually unless the landowner files for non-renewal or petitions for cancellation. The CDC is responsible for administering the Williamson Act and prepares countywide maps of lands enrolled in Williamson Act contracts.

In 2013, Monterey County had a total of 732,954 acres of agricultural land protected under Williamson Act contracts and was ranked third in an assessment of California counties with the greatest number of new Williamson Act enrollments (CDC, 2015c).

Williamson Act Contracts in the Project Area

Lands under Williamson Act contract are present at several locations in the project area north of Reservation Road (see **Figures 4.16-1** and **4.16-2**). Lands under Williamson Act contract extend across a portion of the CEMEX access road west of Highway 1, and border the north side of the CEMEX access road between Highway 1 and Lapis Road. The Source Water Pipeline would be buried underneath the CEMEX access road. In addition, Williamson Act contracts border the west side of the Source Water Pipeline and the new Desalinated Water Pipeline alignments along Lapis Road between the CEMEX access road and Del Monte Boulevard. The proposed alignments for the Source Water Pipeline, new Desalinated Water Pipeline, and Castroville Pipeline would be installed within the southern edge of Williamson Act land located on the north side of Charles Benson Road and west of the MPWSP Desalination Plant site. Since the Source Water Pipeline Optional Alignment, new Desalinated Water Pipeline Optional Alignment, and Castroville Pipeline Optional Alignment 2 would be installed within the paved roadway of Charles Benson Road, implementation of these optional alignments would avoid construction in Williamson Act lands.

Williamson Act contracts border the south side of the Castroville Pipeline and TAMC right-of-way for approximately 1.4 miles between Neponset Road and the Monte Road/Nashua Road intersection. Roughly 0.5 mile of the section of Castroville Pipeline that would be installed in the dirt agricultural road located north of Monte Road/Nashua Road is mapped as land under Williamson Act contracts. However, as stated above, no crops are planted within the agricultural road as it has historically been and is currently used for the movement of vehicles, semi-trucks, and farm equipment. The eastern 0.8-mile of pipeline in the dirt agricultural road is bordered to the north by Williamson Act lands. The Castroville Pipeline Optional Alignment 1 is bordered to the north by Williamson Act contracts between the intersection of Monte Road/Nashua Road and the Monterey Peninsula Recreational Trail and for approximately 1 mile to the east of the Monterey Recreational Trail as the alignment heads northward from Nashua Road. No crops are planted in Nashua Road or the recreational trail.

South of Reservation Road there are no Williamson Act contracts within or adjacent to the project area (CDC, 2016).

4.16.2 Regulatory Framework

This section provides an overview of notable federal, state, and local environmental laws, policies, plans, regulations, and/or guidelines (hereafter referred to generally as “regulatory requirements”) relevant to agricultural resources. A brief summary of each is provided, along with a finding regarding the proposed project’s conformity with those regulatory requirements. The conformity findings concern the proposed project, without mitigation. Where the proposed project would be consistent with the applicable regulatory requirement, no further discussion of project consistency with that regulatory requirement is provided. Where the proposed project would be potentially inconsistent with the applicable regulatory requirement, the reader is referred to a specific, detailed impact discussion within Section 4.16.5, Direct and Indirect Effects of the Proposed Project. Where applicable, the discussion in Section 4.16.5 identifies feasible mitigation that would resolve or minimize the potential inconsistency.

4.16.2.1 Federal Regulations

Farmland Protection Policy Act

The Farmland Protection Policy Act (FPPA) is intended to minimize the impact of Federal programs on the unnecessary and irreversible conversion of farmland to nonagricultural uses. The FPPA seeks to protect Prime Farmland, Unique Farmland, Farmland of Local Importance, and Farmland of Statewide Importance from irreversible conversion to non-agricultural use. Projects are subject to FPPA requirements if they would irreversibly convert farmland to nonagricultural use and are completed by a Federal agency or with assistance from a Federal agency. Projects subject to FPPA should consider alternative actions that could lessen any adverse effects and assure that such projects are compatible with State and local programs and policies created to protect farmland. The U.S. Department of Agriculture (USDA) is responsible for administering the FPPA (USDA, 2016).

Consistency with FPPA is relevant to the proposed project because portions of the project require various Federal permits, approvals, or authorizations, as described in Section 3.5, Permits, Approvals, and Regulatory Requirements. Furthermore, it would be funded, in part, by the State Revolving Fund program, a federal-state partnership that provides low-interest loans for investments in water and sanitation infrastructure. The proposed project would not be subject to FPPA requirements because the project would not irreversibly convert farmland to nonagricultural use. See Impacts 4.16-1 and 4.16-2 for additional discussion.

4.16.2.2 State Regulations

California Land Conservation Act of 1965 (Williamson Act)

As described above, the California Land Conservation Act, or Williamson Act, is the State's primary program for conserving private land for agricultural and open space use. It is a voluntary, locally administered program that offers reduced property taxes on lands whose owners place enforceable restrictions on land use through contracts between the individual landowners and local governments.

The proposed alignments for the Source Water Pipeline, new Desalinated Water Pipeline, and Castroville Pipeline would be potentially inconsistent with the Williamson Act because they would be located on lands protected by Williamson Act contracts. This issue is further discussed below in Impact 4.16-2.

California Coastal Act

The California Coastal Act (Public Resources Code Section 30000 et seq.) provides for the long-term management of lands within California's coastal zone boundary. Of primary relevance to agricultural resources are Coastal Act policies concerning maintenance of agricultural lands in production and limitations on conversions of agricultural lands to non-agricultural uses. None of the MPWSP components subject to the Coastal Act is proposed on agricultural lands. Therefore, the MPWSP would not conflict with Coastal Act policies governing the productivity or conversion of agricultural.

4.16.2.3 Applicable Regional and Local Land Use Plans and Policies

Table 4.16-2 summarizes the regional and local land use plans, policies, and regulations pertaining to agriculture and indicates whether the proposed project is consistent with such plans, policies, and regulations. Where the analysis concludes the proposed project would be consistent with the applicable plan, policy, or regulation, the finding is noted and no further discussion is provided. Where the analysis concludes the proposed project is potentially inconsistent with the applicable plan, policy, or regulation, the reader is referred to the specific impact discussion in Section 4.16.5, Direct and Indirect Effects of the Proposed Project. In that subsection, the significance of the potential conflict is evaluated. Where the effect of the potential conflict would be significant, feasible mitigation is identified to resolve or minimize that conflict.

TABLE 4.16-2
APPLICABLE REGIONAL AND LOCAL PLANS AND POLICIES RELEVANT TO AGRICULTURAL RESOURCES

Project Planning Region	Applicable Plan	Plan Element/ Section	Project Component(s)	Specific Plan, Policy, or Ordinance	Relationship to Avoiding or Mitigating a Significant Environmental Impact	Project Consistency with Plan, Policy, or Ordinance
County of Monterey (coastal zone & inland area)	Monterey County General Plan	Agriculture	MPWSP Desalination Plant, Source Water Pipeline, new Desalinated Water Pipeline, Brine Discharge Pipeline, Pipeline to CSIP Pond, and Castroville Pipeline	***Policy AG-1.1:*** Land uses that would interfere with routine and ongoing agricultural operations on viable farmlands designated as Prime, of Statewide Importance, Unique, or of Local Importance shall be prohibited.	This policy is intended to protect agricultural operations on designated important farmlands from the loss of productivity as a result of incompatible land uses nearby.	Consistent: The proposed project would not introduce land uses that would interfere with routine and ongoing agricultural operations on viable farmlands. Although the proposed alignments for the Source Water Pipeline, new Desalinated Water Pipeline, and Castroville Pipeline would be installed within Farmland of Statewide Importance located on the north side of Charles Benson Road, impacts would be temporary and existing agricultural land uses could resume after pipeline installation is completed.
County of Monterey (coastal zone & inland area)	Monterey County General Plan	Agriculture	MPWSP Desalination Plant, Source Water Pipeline, new Desalinated Water Pipeline, Brine Discharge Pipeline, Pipeline to CSIP Pond, and Castroville Pipeline	***Policy AG-1.2:*** The County shall require that well-defined buffer areas be provided as partial mitigation for new non-agricultural development proposals that are located adjacent to agricultural land uses on farmlands designated as Prime, of Statewide Importance, Unique, or Local Importance.	This policy is intended to ensure that non-agricultural uses do not encroach on the agricultural lands.	Consistent: The proposed development on the MPWSP Desalination Plant site incorporates a 200-foot-wide buffer from the adjacent designated farmland located west of the site. Pipelines used for distribution of water are allowed in all zoning districts without a use permit and do not require a buffer provided they are buried at a sufficient depth to prevent conflicts with agricultural activities.
County of Monterey (coastal zone & inland area)	Monterey County General Plan	Agriculture	MPWSP Desalination Plant, Source Water Pipeline, new Desalinated Water Pipeline, Brine Discharge Pipeline, Pipeline to CSIP Pond, and Castroville Pipeline	***Policy AG-1.4:*** Viable agricultural land uses, including ancillary and support uses and facilities on farmland designated as Prime, of Statewide Importance, Unique, or of Local Importance shall be conserved, enhanced, and expanded through agricultural land use designations and encouragement of large lot agricultural zoning, except as provided in a Community Plan. Agriculture shall be established as the top land use priority for guiding further economic development on agricultural lands.	This policy is intended to preserve agricultural resources, protect prime agricultural soil, and deter conversion of farmland.	Consistent: The proposed project would not impede the viability, conservation, enhancement, or expansion of agricultural land uses. Although the Source Water Pipeline, new Desalinated Water Pipeline, and Castroville Pipeline would be installed in important farmland, impacts would be temporary and existing agricultural land uses could resume after pipeline installation is completed.
County of Monterey (coastal zone)	North County Land Use Plan	Agriculture	Source Water Pipeline and new Desalinated Water Pipeline	***Key Policy 2.6.1:*** The County shall support the permanent preservation of prime agricultural soils exclusively for agricultural use. The County shall also protect productive farmland not on prime soils if it meets State productivity criteria and does not contribute to degradation of water quality. Development adjacent to prime and productive farmland shall be planned to be compatible with agriculture.	This policy is intended to preserve agricultural resources, protect prime agricultural soils, and deter conversion of farmland.	Consistent: Pipeline installation would occur within roads or trails adjacent to, but outside of, agricultural lands. Therefore, the proposed project would not result in the permanent conversion of farmland to non-agricultural uses in areas within the North County Land Use Plan.
County of Monterey (coastal zone)	North County Land Use Plan	Agriculture	Source Water Pipeline and new Desalinated Water Pipeline	***Policy 2.6.2.1:*** Prime and productive farmland designated for Agricultural Preservation and Agricultural Conservation land use shall be preserved for agricultural use to the fullest extent possible as consistent with the protection of environmentally sensitive habitats and the concentration of development.	This policy is intended to preserve farmland designated for Agricultural Preservation and Agricultural Conservation land use.	Consistent: Pipeline installation would occur within roads or trails adjacent to, but outside of, agricultural lands. Therefore, the proposed project would not result in the permanent conversion of farmland to non-agricultural uses in areas within the North County Land Use Plan.

SOURCE: Monterey County, 1999, 2010.

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4.16.3 Evaluation Criteria

Implementation of the proposed project would have a significant impact related to agricultural resources if it would:

- Involve changes in the existing environment that, due to their location or nature, could result in the conversion of farmland to non-agricultural use;
- 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; or
- Conflict with existing zoning for agricultural use or with a Williamson Act contract.

4.16.4 Approach to Analysis

The analysis focuses on the potential for implementation of the proposed project to adversely affect agricultural resources through temporary disruption or disturbance of agricultural land uses and activities during construction, conversion of agricultural land to non-agricultural land uses during construction and operation, introduction of incompatible land uses or land use activities during operation, or through other changes to the physical environment that could result in loss or conversion of agricultural lands during construction and operation. Unless the land is zoned for agricultural uses, areas designated in the FMMP maps as Grazing Land are not considered in this analysis.

The approach is based largely on a comparison of the proposed project area, which is defined as the area within which all construction-related disturbance would occur, against important farmland as mapped in FMMP Important Farmland Series Maps, maps of Williamson Act contracts, and zoning maps. Existing use of land designated or zoned for agriculture was also considered. Since the project area encompasses all areas that would be disturbed, this analysis assumes that agricultural land that is adjacent to, but outside of, the project area boundary would not be subject to disturbance.

4.16.5 Direct and Indirect Effects of the Proposed Project

TABLE 4.16-3
SUMMARY OF IMPACTS – AGRICULTURAL RESOURCES

Impacts	Significance Determinations
Impact 4.16-1: Result in changes in the existing environment that, due to their location or nature, could temporarily disrupt agricultural activities or result in the permanent conversion of farmland to non-agricultural use.	LSM
Impact 4.16-2: Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use.	LS
Impact 4.16-3: Conflict with zoning for agricultural uses or with Williamson Act contracts.	LS
Impact 4.16-C: Cumulative impacts related to agricultural resources.	LSM

NOTES:
LS = Less than Significant impact, no mitigation proposed
LSM = Less than Significant impact with Mitigation

4.16.5.1 Construction Impacts

Impact 4.16-1: Result in changes in the existing environment that, due to their location or nature, could temporarily disrupt agricultural activities or result in the permanent conversion of farmland to non-agricultural use. (*Less than Significant with Mitigation*)

This impact addresses the potential for construction of the proposed project to result in physical changes to the environment that could temporarily disrupt agricultural activities or result in the conversion of farmland and land zoned for agricultural uses to non-agricultural uses.

Project construction activities, if not properly managed, could temporarily displace or disrupt agricultural land uses, or cause long-term changes in the existing environment that could ultimately result in the conversion of farmland and land zoned for agricultural uses to non-agricultural uses. For example, project construction activities could temporarily interfere with existing agricultural operations, or cause soil compaction from the movement of heavy construction vehicles and equipment, thereby adversely affecting the suitability of soil for agricultural production. Excavation and earthmoving activities during project construction could also result in the loss of fertile topsoil and effectively render previously productive agricultural land unusable. Project components constructed within agricultural lands could convert farmland to non –agricultural uses.

As discussed above in Section 4.16.1, Setting/Affected Environment, portions of the project area are located within, or adjacent to, important farmland and land zoned for agricultural uses. As stated above in Section 4.16.4, given that the project area encompasses all areas that would be disturbed during construction, this analysis assumes that agricultural land that is adjacent to, but outside of, the project area boundary would not be subject to construction disturbance. As a result, this impact focuses on the project facilities within project area boundaries that would require construction on agricultural land or parcels that are zoned for agricultural land uses — MPWSP Desalination Plant, Source Water Pipeline, new Desalinated Water Pipeline, Castroville Pipeline, and Castroville Pipeline Optional Alignment 1.

MPWSP Desalination Plant

The MPWSP Desalination Plant would be located on 25 acres of land zoned for Permanent Grazing. However, the land has been vacant since 1913 (RBF Consulting, 2012). Therefore, construction of the MPWSP Desalination Plan would not temporarily disrupt agricultural activities, as none currently are conducted on the site, and would have a less-than-significant impact with respect to conversion of land zoned for agricultural use to non-agricultural uses because no agricultural uses currently are present in this location.

Source Water Pipeline, New Desalinated Water Pipeline, and Castroville Pipeline

Construction activities associated with the installation of the Source Water Pipeline, new Desalinated Water Pipeline, and Castroville Pipeline would require surface disturbance and earthmoving activities within or near farmland in the following locations:

- The 4,000-foot segments of the Source Water Pipeline, new Desalinated Water Pipeline, and Castroville Pipeline located north of, and outside of, the Charles Benson Road paved roadway would be installed within designated farmland that is also zoned as Permanent Grazing; however, 2,500 feet (0.5 mile) of this stretch is private agricultural land currently under flower production.
- 2.4 miles of the Castroville Pipeline, between the Salinas River and the Tembladero Slough, would be installed in Monte Road and an unpaved agricultural road. This area is mapped as important farmland but crops are not grown in the roadway. Construction disturbance associated with the Castroville Pipeline would be confined to the road and road shoulder.
- Approximately 950 feet of the Castroville Optional Alignment 1 along Nashua Road is mapped as being within farmland but construction disturbance would be limited to the road and road shoulder and would not affect cultivated row crops.
- 1,900 feet of the Castroville Optional Alignment 1 along the Monterey Peninsula Recreational Trail and east of Highway 1 is also mapped as farmland but crops are not grown in the trail. Pipeline installation activities would be installed within and adjacent to the recreational trail and would not affect cultivated row crops.

Pipeline installation and earthmoving activities associated with the segments of the Source Water Pipeline, new Desalinated Water Pipeline, and Castroville Pipeline north of Charles Benson Road that would be installed in land zoned for Permanent Grazing would involve temporary construction impacts that would not persist after construction is completed and the construction site is restored. The pipeline installation and earthmoving activities associated with the 0.5-mile-long segments of the Source Water Pipeline, new Desalinated Water Pipeline, and Castroville Pipeline north of Charles Benson Road that are within cultivated farmland could result in the loss of topsoil and/or soil compaction and ultimately reduce agricultural productivity, a potentially significant impact. However, the impact would be reduced to a less-than-significant level with implementation of **Mitigation Measure 4.16-1 (Minimize Disturbance to Farmland)**. No impact would occur with any other segments of the Source Water Pipeline, new Desalinated Water Pipeline, and Castroville Pipeline or with the Castroville Optional Alignments 1 and 2.

All Other Proposed Facilities

Although other pipeline alignments north of Reservation Road border farmland, construction of these pipelines would not result in the disturbance of farmland because the disturbance would be contained within the project area boundary, which is outside of farmland. None of the proposed facilities located south of Reservation Road are located in close proximity to farmland. Therefore, construction of these facilities would not affect soil conditions in farmland areas and would not result in the conversion of farmland to non-agricultural uses. No impact would result.

Consistency with Regulatory Requirements

Due to the potential for installation of the Source Water Pipeline, new Desalinated Water Pipeline, and Castroville Pipeline north of Charles Benson Road to result in the conversion of farmland to non-agricultural uses, these pipelines are considered to be potentially inconsistent with applicable regulatory requirements related to agricultural resources that were adopted for the purposes of avoiding or mitigating an environmental effect, namely, the FPPA (described in Section 4.16.2.1, above). The 0.5-mile-long segments of the Source Water Pipeline, new

Desalinated Water Pipeline, and Castroville Pipeline that would be installed in the farmland north of Charles Benson Road would potentially conflict with the FPPA, which intends to protect farmland from being irreversibly converted to nonagricultural uses. However, CalAm and its construction contractors would be required to implement **Mitigation Measure 4.16-1 (Minimize Disturbance to Farmland)**, which would resolve any potential conflicts with the FPPA.

Impact Conclusion

Construction of the Source Water Pipeline, new Desalinated Water Pipeline, and Castroville Pipeline north of Charles Benson Road would cause physical changes to the environment that could result in the conversion of farmland to non-agricultural uses, a significant impact. Implementation of **Mitigation Measure 4.16-1 (Minimize Disturbance to Farmland)** would reduce this impact to a less-than-significant level. None of the other proposed facilities or pipeline alignments would result in conversion of farmland.

Mitigation Measures

Mitigation Measure 4.16-1 applies to the proposed alignments of the Source Water Pipeline, new Desalinated Water Pipeline, and Castroville Pipeline north of Charles Benson Road.

Mitigation Measure 4.16-1: Minimize Disturbance to Farmland.

CalAm and its construction contractor(s) shall incorporate the following measures into construction plans and specifications for all construction activities located in farmland areas to minimize adverse impacts on farmland:

- CalAm shall notify affected property owners at least 90 days prior to initiating construction activities that have the potential to interfere with agricultural operations.
- Construction contractor(s) shall minimize the extent of the construction disturbance, including construction access, in agricultural areas to the maximum extent feasible.
- During excavation and other earthmoving activities in designated farmland areas, the surface and subsurface soil layers shall be stockpiled separately when trenches are excavated. Segregated topsoil and subsoil shall be maintained and kept separated throughout all construction activities, and these soils shall subsequently be used to backfill excavations and shall be returned to its appropriate location in the soil profile.
- To avoid over-compaction of the top layers of soil, soil densities shall be measured prior to the start of construction activities, and surface soil (roughly the upper 3 feet of soil) shall be backfilled to within 5 percent of the original density.
- If necessary, following construction activities, the uppermost 3 feet of soil shall be ripped to achieve the appropriate soil density (within 5 percent of the original). Ripping may also be used in areas where vehicle and equipment traffic has compacted the topsoil layers.
- Existing agricultural drainage systems shall be inspected before and after construction to ensure they function as needed.
- Disturbed areas shall be restored to pre-construction conditions following construction.

4.16.5.2 Operational and Facility Siting Impacts

Impact 4.16-2: Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use. (*Less than Significant*)

This impact is related to the long-term conversion or loss of important farmlands. As discussed above in Section 4.16.1, Setting/Affected Environment, the FMMP Important Farmland Maps for Monterey County indicate that portions of the project area are located within, or adjacent to, lands designated as Prime Farmland and Farmland of Statewide Importance. Since the project area was designed to encompass all construction-related disturbances, no disturbance to land located outside of the project area is anticipated.

MPWSP Desalination Plant

As indicated in Section 4.16.1.1, above, approximately 1.7 acres of the northern portion of the larger 46-acre MPWSP Desalination Plant parcel are designated as Prime Farmland. However, the proposed desalination facilities would be constructed on the 25-acre MPWSP Desalination Plant site on the upper terrace of the parcel and outside of the area designated as Prime Farmland. Farmland of Statewide Importance exists west of the MPWSP Desalination Plant site. However, because the plant footprint would neither extend into the approximately 1.7 acre area nor outside of the project area boundary and into this adjacent parcel, no impact would result.

Source Water Pipeline, New Desalinated Water Pipeline, Castroville Pipeline

As described above in Section 4.16.1 and Impact 4.16-1, portions of the Source Water Pipeline, new Desalinated Water Pipeline, Castroville Pipeline north of Charles Benson road would be installed in designated important farmland. Portions of the Castroville Pipeline Optional Alignment 1 would be installed along right-of-ways or trails that are mapped as farmland but have no crops grown within them.

- The 2,500-foot-long (0.5-mile) segments of the Source Water Pipeline, new Desalinated Water Pipeline, and Castroville Pipeline would be installed in Farmland of Statewide Importance along the north side of Charles Benson Road. CalAm plans to negotiate an easement along the north side of the existing row of eucalyptus and cypress trees that line Charles Benson Road for this purpose. This easement could encompass up to 3 acres of Farmland of Statewide Importance. The affected farmland is currently used for flower cultivation.
- Approximately 2.4 miles of the Castroville Pipeline alignment between the Salinas River and the Tembladero Slough is mapped Prime Farmland and Farmland of Statewide Importance. This section of pipeline would be installed in Monte Road and the private dirt agricultural road along the edge of the cultivated rows and would not convert designated farmland to non-agricultural use.
- Approximately 950 feet of the Castroville Pipeline Optional Alignment 1 along Nashua Road, and 1,900 feet of the Castroville Pipeline Optional Alignment 1 along Highway 156 and the Monterey Peninsula Recreational Trail, south of Tembladero Slough, is mapped as Prime Farmland. These pipeline sections would be installed in Nashua Road and the recreational trail along the edge of the cultivated rows and would not convert designated farmland to non-agricultural use.

In summary, only the 2,500-foot segments of the pipelines along the north side of Charles Benson Road would be installed within farmland. Pipelines would be buried at a minimum depth of 4 feet below the ground surface, which would avoid conflicts with typical tillage activities. As a result, agricultural production on land currently used for the cultivation of flowers could resume after pipeline construction has been completed. While the presence of these pipelines would prevent the future cultivation of large woody plants and trees along the pipeline corridors (woody plant types can damage pipelines and interfere with pipeline repairs and maintenance), such plant types are not currently or typically grown in the potentially affected agricultural areas; therefore, this limitation would result in a less-than-significant impact within the 3 or fewer acres of farmland affected, and would not result in the conversion of this farmland to non-agricultural uses.

If selected, the optional alignments for the Source Water Pipeline and new Desalinated Water Pipeline, and the Castroville Pipeline Optional Alignment 2, would be installed within the Charles Benson Road paved roadway and would avoid the Farmland of Statewide Importance located along the north side of Charles Benson Road. Implementation of these optional alignments would have no impact, and would eliminate the impact of the proposed alignments on the 3 acres of farmland described above.

All Other Facilities

None of the other facilities north of Reservation Road would be installed in areas mapped as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. South of Reservation Road, land uses in the project area are predominantly urban and do not include important farmland. Thus, no impact related to the conversion of important farmland to non-agricultural uses would result from implementation of all other proposed facilities. Impacts on agricultural production wells resulting from operation of the slant wells at CEMEX, are discussed in Groundwater, Section 4.4.5.2, Operations Impacts and Mitigation Measures.

Impact Conclusion

Implementation of the Source Water Pipeline, new Desalinated Water Pipeline, and Castroville Pipeline installed in the farmland north of Charles Benson Road would result in a less-than-significant impact related to the permanent conversion of important farmland to non-agricultural uses; farming practices would not be displaced. Alternately, implementation of the optional alignments for the Source Water Pipeline and new Desalinated Water Pipeline, and the Castroville Pipeline Optional Alignment 2 would eliminate the less-than-significant impact (no impact). For all other facilities, no impact would result.

Mitigation Measures

None proposed.

Impact 4.16-3: Conflict with zoning for agricultural uses or with Williamson Act contracts. (*Less than Significant*)

Some of the proposed facilities and pipelines located north of Reservation Road would be constructed on lands under Williamson Act contract and lands zoned for agricultural uses. The proposed project could result in zoning conflicts if it were to introduce incompatible land uses into these areas or cancel or displace Williamson Act land. Land protected by Williamson Act contracts is shown in **Figures 4.16-1** and **4.16-2**. The facilities that would be installed within land zoned for agriculture are shown in **Table 4.16-4**, below. In general, zoning designations do not extend into the road right-of-ways.

TABLE 4.16-4
PROJECT FACILITIES PROPOSED ON LAND ZONED FOR AGRICULTURE

Facility Name	Current Land Use	Location Where Facility Would Be Sited in Agricultural Zoning	Zoning
MPWSP Desalination Plant	Vacant/undeveloped	25-acre upper terrace (proposed development area)	Permanent Grazing – Permanent Grazing
Source Water Pipeline, New Desalinated Water Pipeline, Castroville Pipeline	Vacant/undeveloped and flower cultivation	4,000-foot segment located along the north side of Charles Benson Road between MPWSP Desalination Plant site and Del Monte Boulevard	Permanent Grazing – Permanent Grazing

MPWSP Desalination Plant

Current and recent uses of a property can provide a practical measure of its suitability for agriculture. The 46-acre MPWSP Desalination Plant parcel is zoned for Permanent Grazing but has been idle for five or more years. Section 21.34.050 of the Monterey County Zoning Ordinance allows for public and quasi-public land uses including public utilities on land zoned for Permanent Grazing (Monterey County, 2011). Therefore, the proposed development of the 25-acre upper terrace of the parcel for the MPWSP Desalination Plant site would be allowed with a use permit from Monterey County. The 200-foot buffer between farmland and new development that is required by the Monterey County Municipal Code has been accounted for in the preliminary site plan for the MPWSP Desalination Plant (see **Figure 3-5b** in Chapter 3, Description of the Proposed Project. Therefore, the proposed desalination facilities on the upper terrace would not conflict with the existing zoning for agricultural uses.

The MPWSP Desalination Plant site is not under a Williamson Act contract. The Williamson Act lands located west of the site would not be affected by the proposed desalination facilities.

Source Water Pipeline, New Desalinated Water Pipeline, and Castroville Pipeline

The 4,000-foot-long (0.75-mile) segments of the Source Water Pipeline, new Desalinated Water Pipeline, and Castroville Pipeline that would be installed along the north side of Charles Benson Road, outside of the paved roadway, would be installed in land zoned for Permanent Grazing. However, Section 21.64.160 of the Monterey County Zoning Ordinance allows underground public utilities in all zoning districts, without the necessity of obtaining a use permit. Therefore, no conflict with agricultural zoning would occur.

The following segments of the Source Water Pipeline, new Desalinated Water Pipeline, Castroville Pipeline, and Castroville Pipeline Optional Alignment 1 would be installed in land protected by Williamson Act contracts:

- Approximately 0.10 mile within the CEMEX access road west of Highway 1 (Source Water Pipeline)
- Approximately 0.5 mile along the north side of Charles Benson Road (Source Water Pipeline, new Desalinated Water Pipeline, Castroville Pipeline).
- Approximately 0.5 mile of the section of Castroville Pipeline that would be installed in the dirt agricultural road located north of Monte Road/Nashua Road.

Pipeline installation in Williamson Act lands would not result in the cancellation of Williamson Act contracts nor permanently interfere with the ongoing use of the land for agricultural purposes because the existing uses, none of which include the cultivation of woody plants or trees, could resume once construction of the pertinent pipeline segments has been completed. Therefore, impacts would be less than significant.

As discussed in Section 4.16.4, agricultural land that is adjacent to, but outside of the project area boundary would not be subject to disturbance, therefore the Castroville Pipeline and Castroville Pipeline Optional Alignment 1 routes that run adjacent to land protected by Williamson Act contracts would have no conflict.

Since the Source Water Pipeline Optional Alignment, new Desalinated Water Pipeline Optional Alignment, and Castroville Pipeline Optional Alignment 2 would be installed within the paved roadway of Charles Benson Road, implementation of these optional alignments would have no impact on Williamson Act lands.

All Other Proposed Facilities

None of the other proposed facilities would be located within, or adjacent to, land zoned for agriculture or land protected by Williamson Act contracts. Therefore, no conflict would result.

Impact Conclusion

None of the proposed facilities would conflict with agricultural zoning. The Source Water Pipeline, new Desalinated Water Pipeline, and Castroville Pipeline installed in farmland north of Charles Benson Road would result in a less than significant impact related to conflicts with Williamson Act contracts because existing uses could resume during operations. All other proposed facilities, including all optional pipeline alignments, would have no impact on Williamson Act land.

Mitigation Measures

None proposed.

4.16.6 Cumulative Effects of the Proposed Project

The cumulative scenario and cumulative impacts methodology are described in Section 4.1.7. Table 4.1-2 lists potential cumulative projects.

Impact 4.16-C: Cumulative impacts related to agricultural resources *(Less than significant with Mitigation)*

The scope for cumulative impacts on agricultural resources encompasses the geographic extent of the California Department of Conservation's FMMP maps for Monterey County and local zoning maps for Monterey County. The timeframe during which the MPWSP could contribute to cumulative agricultural resources effects includes the 24-month construction phase. Cumulatively significant impacts on agricultural resources could result if incremental effects of the MPWSP combined with those of one or more additional projects to cause substantial permanent conversion of designated important farmland (e.g., Prime Farmland, Unique Farmland, or Farmland of Statewide Importance) to non-agricultural use, conflict with existing zoning for agricultural uses or with Williamson Act contracts, or otherwise change the existing environment such that farmland is converted to non-agricultural use (see **Table 4.16-3, Summary of Impacts – Agricultural Resources**).

Projects identified in **Table 4.1-2** in Section 4.1 that could affect agricultural lands include the Regional Urban Water Augmentation Project (RUWAP) Recycled Water Project (No. 35) and the Monterey Peninsula Light Rail Project (MPLRP) (No. 38).

Cumulative Construction Impacts

As described in Impact 4.16-1, the proposed project would temporarily disrupt agricultural uses along the north side of Charles Benson Road, and construction activities could result in the loss of topsoil and soil compaction that could reduce agricultural productivity. The RUWAP Recycled Water Project and the MPLRP also would have short-term construction-related effects that could result in the conversion of agricultural land to non-agricultural uses. The RUWAP Recycled Water Project would temporarily affect a 0.75-mile-long (4-acre) band of Farmland of Statewide Importance and Grazing as a result of construction staging and use of heavy equipment during pipeline installation from the pump station. Following construction, this project would return the ground surface to its original condition (Denise Duffy & Associates, 2007) Phase 2 of the MPLRP would result in short-term disturbance of agricultural activities during construction. These projects' impacts could combine to result in a significant cumulative impact.

Each project enlists specific design features (i.e., avoidance) and/or mitigation measures that would reduce construction impacts on agricultural uses. The RUWAP Recycled Water Project proposes to avoid existing row crop production. The short-term construction impacts on agricultural land associated with Phase 2 of the MPLRP would be mitigated through consultation with government agencies and TAMC leaseholders, development of a construction schedule that avoids conflict with the growing season, and construction equipment staging in areas that avoid active agricultural production (TAMC, 2011). As discussed in Section 4.16.5, above, after implementation of **Mitigation Measure 4.16-1 (Minimize Disturbance to Farmland),** installation of the proposed

alignments of the Source Water Pipeline, new Desalinated Water Pipeline, and Castroville Pipeline north of Charles Benson Road would result in a less-than-significant impact related to the loss of topsoil and/or soil compaction potentially resulting in reduced agricultural productivity and conversion of agricultural land. This mitigation measure would minimize the extent of construction disturbance in agricultural areas, require stockpiling and restoration of topsoil and subsoil layers, backfill and restoration of excavated soils to appropriate densities, and maintenance of functioning agricultural drainage systems (Impact 4.16-1). These effects would be temporary and limited to the MPWSP construction period, and residual impacts on agricultural land following implementation of this mitigation measure would be minimal. No conversion of agricultural land is anticipated as a result of this impact after mitigation. Because the residual construction-related impacts on agricultural land would not cause conversion of these lands to non-agricultural use, with mitigation, the proposed project would not have a cumulatively considerable contribution to a significant cumulative impact related to temporary disturbance or other changes in the environment that could result in the conversion of farmland to non-agricultural uses (*less than significant with mitigation*).

Cumulative Impacts During Project Operations

As described in Section 4.16.5.2, above, project operations would not result in the conversion of Prime Farmland, Farmland of Statewide Importance, or Unique Farmland to non-agricultural use (Impact 4.16-2). Therefore, regardless of the impacts of other projects in the cumulative scenario, project operation would not have a cumulatively considerable contribution to a cumulative impact related to farmland conversion (*less than significant*).

The operation of the MPWSP Desalination Plant would permanently occupy 25 acres of land zoned for Permanent Grazing, and a 4,000-foot segment of the Source Water Pipeline, New Desalinated Water Pipeline, and Castroville Pipeline north of Charles Benson Road would be located within land zoned Permanent Grazing (Impact 4.16-3). As previously noted, public utilities and water system facilities are allowed in the Permanent Grazing district with a use permit, and underground utility uses are allowed in all zones. Therefore, the project would not conflict with zoning for agricultural uses, and would not contribute to a cumulative impact related to agricultural zoning. Additionally, several pipeline segments would be installed within lands protected by Williamson Act contracts as described in Impact 4.16-3. However, these uses would not permanently affect the existing agricultural uses in these locations and thus would not conflict with a Williamson Act contract. Therefore, regardless of the impacts of other projects in the cumulative scenario, project operation would not have a cumulatively considerable contribution to a cumulative impact on Williamson Act lands (*less than significant*).

Mitigation Measures

None proposed.

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4.17 Mineral Resources

Sections	Tables
4.17.1 Setting/Affected Environment	4.17-1 Applicable Regional and Local Plans and Policies Relevant to Mineral Resources
4.17.2 Regulatory Framework	4.17-2 Summary of Impacts – Mineral Resources
4.17.3 Evaluation Criteria	
4.17.4 Approach to Analysis	
4.17.5 Direct and Indirect Effects of the Proposed Project	
4.17.6 Cumulative Effects of the Proposed Project	

This section describes existing mineral resources in the vicinity of the Monterey Peninsula Water Supply Project (MPWSP or proposed project) and analyzes the potential effects of construction and operation of the proposed project on these resources. Sand is the largest known and valuable mineral resource in the region, and is the focus of this section. Other minerals such as oil and gas are present in the region, but are not present within the project area.

Comments received on the 2015 Draft EIR requested that construction of the subsurface slant wells and source water pipeline on CEMEX property be accounted for and addressed in a reclamation plan amendment pursuant to the Surface and Mining Reclamation Act; the comment is addressed in Section 4.17.1.2. In addition, comments requested clarity about the impact of maintenance activities associated with the slant wells, which the commenter assumed would be in the active mining area. Since the slant wells would be in the retired portion of the CEMEX property, this comment is moot. A comment also requested information about the suitability and likelihood of future mining in the area of the ASR Wells, and why the ASR Wells would not preclude mining activities in this area; the comment is addressed in Section 4.17.5.1.

4.17.1 Setting/Affected Environment

The study area for evaluation of impacts on mineral resources includes the project area boundary (see Figures 3-3 through 3-16) and the general vicinity of the proposed project, within coastal northern Monterey County. MBNMS resources that would be affected by impacts identified in this section are limited to the seafloor and subsurface materials (e.g., sand, sediments) within MBNMS above the ends of the slant wells; all other impacts related to mineral resources would occur outside of MBNMS boundaries.

4.17.1.1 Mineral Resources

In accordance with California's Surface Mining and Reclamation Act of 1975 (SMARA) (discussed in Section 4.17.2.2, below), the state geologist, through the California Department of Conservation, California Geological Survey (CGS; formerly known as the California Division of Mines and Geology [CDMG]), is responsible for identifying and mapping the non-fuel mineral resources of the state. Economically significant mineral deposits are classified based on the known and inferred mineral resource potential of the land using the California Mineral Land Classification System, which includes the following four mineral resource zones (MRZs).

- ***MRZ-1*:** Areas where adequate information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists for their presence.
- ***MRZ-2:*** Areas where adequate information indicates that significant mineral deposits are present, or where it is judged that a high likelihood exists for their presence.
- ***MRZ-3:*** Areas containing mineral deposits, the significance of which cannot be evaluated.
- ***MRZ-4:*** Areas where available information is inadequate for assignment to any other zone.

The CGS's classification of lands in the Monterey Bay Production–Consumption Region,[1] within which the proposed project is located, focuses on significant sand, gravel, or stone deposits that are suitable as sources of aggregate (CDMG, 1987). Construction-grade aggregate is used in construction to provide bulk and strength to concrete, plasters, and stucco, and is used in road construction and other building applications. The CGS estimates that the Monterey Bay Production–Consumption Region has 323 million tons of permitted aggregate reserves.[2] The estimated 50-year demand for aggregate in the region is 346 million tons (CGS, 2012).

A large portion of the study area is classified as MRZ-2 due to the presence of significant sand and gravel deposits (CDMG, 1987). The MRZ-2 within the study area extends from the Salinas River in the north to Highway 68 in the south, and from the Pacific coast to inland areas east of General Jim Moore Boulevard. Project components that would be located in MRZ-2 include the slant wells, the Source Water Pipeline, the MPWSP Desalination Plant, the Brine Discharge Pipeline, the Pipeline to CSIP Pond, the new Desalinated Water Pipeline, the southern portion of the Castroville Pipeline, the new Transmission Main, the ASR conveyance pipelines, the ASR-5 and ASR-6 Wells, and the Ryan Ranch-Bishop Interconnection Improvements. North of the Salinas River, portions of the proposed and alternate Castroville Pipeline routes are located within MRZ-1 and MRZ-4. The Terminal Reservoir, the Main System–Hidden Hills Interconnection Improvements, and the Carmel Valley Pump Station would not be located within an MRZ (CDMG, 1987).

4.17.1.2 Mining Operations

The only remaining active mining operation in the project area is the CEMEX sand mining facility located on the coast in north Marina, within the Marina Dune Complex (City of Marina, 1982). The Marina General Plan recognizes this facility being located within a designated mineral resource, but does not contain policies protecting or promoting mineral resource extraction at this site (City of Marina, 2006). The northern portion of the Marina Dune Complex is undisturbed but the southern portion has been affected by ongoing sand mining activities at the CEMEX facility, which has been in operation since 1906. Sand deposits at the CEMEX sand mining facility, also known as the Lapis #110 Pit, the Lapis Sand Pit, and the Lapis Plant, include beach sands and eolian dunes (USGS, 2016; RMC Lonestar, 1989).

CEMEX operators use a floating suction dredge to extract beach sand from a dredging pond located in the foredunes on the western portion of the CEMEX facility. Although a beach berm

1 A production-consumption region consists of one or more aggregate-producing districts and the market area they serve.
2 Permitted aggregate reserves are aggregate deposits that have been determined to be acceptable for commercial use, and that exist within properties owned or leased by aggregate-producing companies that have permits authorizing the mining of these aggregate materials.

provides some separation between the dredging pond and Monterey Bay, the pond receives surface flow from the Monterey Bay during incoming tides and storm events and is replenished by sand that washes over the berm (PWA, 2008). The dredging pond is continuously being filled with sand and this sand is dredged by CEMEX facility operators. Mining operators pump the dredged sand through a feedpipe to processing facilities located in the eastern portion of the CEMEX facility. CEMEX also operates several settling ponds located south of the dredging pond and north of the CEMEX access road. As described in Section 3.2.1 of Chapter 3, Description of the Proposed Project, and depicted in **Figure 3-3**, the proposed subsurface slant wells would be located south of the CEMEX access road in the southern portion of the CEMEX property. Active sand mining operations no longer occur in the southern portion of the CEMEX property, and this area is retired and under reclamation (Ron Wilson, personal communication, August 3, 2016). If the proposed project is implemented, CEMEX, as the land owner, would need to amend the Reclamation Plan to include the construction and operation of the slant wells in the retired portion of CEMEX property and the source water pipeline underneath the CEMEX access road.

According to the Lapis Plant Reclamation Plan approved in 1991 and mine inspection reports conducted by the California State Mining and Geology Board, Phase I revegetation and recontouring measures have been carried out along the slopes of the southern portion of the CEMEX property, while Phase II reclamation plans call for revegetation of the northeastern slope once mining operations have ceased (RMC Lonestar, 1989; CSGMB, 2016). At the conclusion of mining operations, the Reclamation Plan proposes that the land would be available for coastal uses allowed by the Marina Coastal Zone Land Use Plan once regrading, recontouring, revegetation, and slope stabilization efforts are complete or underway (RMC Lonestar, 1989).

CEMEX personnel continue to conduct vegetative reclamation activities in the southern portion of the CEMEX property, and CEMEX would continue to be responsible for reclamation activities as long as the property is still owned by CEMEX (Tony Lombardo, personal communication, August 3, 2016; Ron Wilson, personal communication, August 3, 2016). However, under SMARA, CEMEX is required to provide financial assurance that guarantees a funding mechanism for reclamation in case the mine site is abandoned or the operator becomes financially insolvent (CSMGB, 2004). The latest financial assurance was approved by the California State Mining and Geology Board in 2016 (CSMGB, 2016).

Although the Reclamation Plan states that the CEMEX mining site could operate for 50 years or more, from the time the plan was written in 1989 (RMC Lonestar, 1989), the legality of sand mining activities at the CEMEX site is currently under review by state and federal agencies. On March 17, 2016, the California Coastal Commission (CCC) issued a Notice of Intent to Commence a Cease and Desist Order (NOI) to CEMEX property owners. The NOI instructed them to shut down mining operations due to the lack of proper coastal development permits and several other violations of the Coastal Act regarding sensitive dune habitat in the vicinity of the active mining operations and coastal access (Monterey County Weekly, 2016). In addition, on April 21, 2016, the MBNMS Advisory Council sent a letter to the Acting Director of the National Oceanic and Atmospheric Administration Office of National Marine Sanctuaries seeking a resolution that would decrease or cease active mining at the CEMEX property, due to the possible taking of a sanctuary resource and/or possible violation of MBNMS regulations.

4.17.1.3 Oil, Gas, and Geothermal Wells

According to the Department of Conservation, Division of Oil, Gas, and Geothermal Resources (DOGGR), there are three plugged oil or gas wells in the project vicinity. DOGGR shows the status of the three wells, which are located in the cities of Seaside, Sand City, and Del Rey Oak, as "plugged," and the status of the well operators as "inactive" (DOGGR, 2016). These wells are not located within the project area.

4.17.2 Regulatory Framework

This section provides an overview of notable federal, state, and local environmental laws, policies, plans, regulations, and/or guidelines (hereafter referred to generally as "regulatory requirements") relevant to mineral resources, and analyses of the proposed project's conformity with such regulatory requirements, without mitigation.

4.17.2.1 Federal Regulations

There are no federal regulations that pertain to mineral resources that are applicable to the proposed project.

4.17.2.2 State Regulations

Surface Mining and Reclamation Act of 1975

SMARA (CCR, Title 14, Division 2, Chapter 8, Subchapter 1) requires the State Mining and Geology Board (SMGB) to adopt state policies that regulate the operation of surface mines, the reclamation of mined lands, and the conservation of mineral resources. In accordance with SMARA, the State of California established the Mineral Land Classification System to help identify and protect mineral resources in areas that are subject to urban expansion or other irreversible land uses that would preclude mineral extraction. Protected mineral resources include construction materials, industrial and chemical mineral materials, metallic and rare minerals, and non-fluid mineral fuels.

The MPWSP would be consistent with SMARA as the proposed project would not preclude reclamation of mined lands, would not limit mining potential in the Monterey Bay Production – Consumption Region, and would not interfere with existing mining operations.

4.17.2.3 Applicable Regional and Local Land Use Plans, Policies, and Regulations

To evaluate project consistency with applicable regulatory requirements related to land use, **Table 4.17-1** identifies the regional and local land use plans, policies, and regulations pertaining to mineral resources that are relevant to the MPWSP that were adopted for the purpose of avoiding or mitigating an environmental effect, and indicates project consistency with such plans, policies, and regulations. As shown in the table, the proposed project would not conflict with any applicable plan, policy, or regulation.

TABLE 4.17-1
APPLICABLE REGIONAL AND LOCAL PLANS AND POLICIES RELEVANT TO MINERAL RESOURCES

Project Planning Region	Applicable Plan	Plan Element/ Section	Project Component(s)	Specific Plan, Policy, or Ordinance	Relationship to Avoiding or Mitigating a Significant Environmental Impact	Project Consistency with Plan, Policy, or Ordinance
City of Marina (coastal zone)	City of Marina General Plan	Community Design and Development	Subsurface Slant Wells, Source Water Pipeline, new Desalinated Water Pipeline, and new Transmission Main	***Policy 4.124:*** To conserve soil and mineral resources within the Marina Planning Area, the following policies and conditions shall be established: 4. The City recognizes the presence of designated mineral resources west of Highway 1, and shall continue to allow the existing sand-mining operation on RMC Lonestar property [now known as the CEMEX sand mining facility] west of Highway 1 in accordance with the provisions of Marina's local coastal plan (LCP) and the approved Reclamation Plan for that site. In accordance with the Marina LCP, new or expanded sand-mining operations shall be limited to the surf zone and already-disturbed areas, and shall be subject to completion and approval of the prerequisite environmental review, Reclamation Plan, and coastal permit process.	This policy is intended to ensure that new or expanded mining operations are protective of coastal sediments and biological resources.	Consistent: The proposed project does not propose any new or expanded mining operations.
County of Monterey (coastal zone & inland area)	Monterey County Code	Chapter 16.04 - Surface Mining and Reclamation	MPWSP Desalination Plant, Source Water Pipeline, new Desalinated Water Pipeline, Brine Discharge Pipeline, Pipeline to CSIP Pond, Castroville Pipeline, Ryan Ranch-Bishop Interconnection Improvements, Main System-Hidden Hills Interconnection Improvements, and Carmel Valley Pump Station	***Chapter 16.04 - Surface Mining and Reclamation*** recognizes that mineral extraction is essential to the economic well-being of the county and that reclamation of the mined lands is necessary to prevent or minimize adverse effect on the environment and to protect public health and safety. The purpose of Chapter 16.04 is to ensure the continued availability of important mineral resources while regulating surface mining operations as required by SMARA.	This section is intended to provide for continued mining and mined lands reclamation, consistent with public health and safety needs.	Consistent: The proposed project would not substantially limit opportunities to extract mineral resources or preclude reclamation of mined lands within unincorporated areas of Monterey County.
County of Monterey (coastal zone & inland area)	Monterey County Code	Chapter 16.04 - Surface Mining and Reclamation	MPWSP Desalination Plant, Source Water Pipeline, new Desalinated Water Pipeline, Brine Discharge Pipeline, Pipeline to CSIP Pond, Castroville Pipeline, Ryan Ranch-Bishop Interconnection Improvements, Main System-Hidden Hills Interconnection Improvements, and Carmel Valley Pump Station	***Section 16.04.140 - Mineral Resource Protection*** protects mineral resource areas that have been classified by the CDMG or designated by the SMGB, as well as existing surface mining operations that remain in compliance with the provisions of Chapter 16.04, from intrusion by incompatible land uses that may impede or preclude mineral extraction or processing, to the extent possible while remaining consistent with the Monterey County General Plan.	This section is intended to protect lands identified as having high mineral resource potential, as well as existing mining operations from encroachment by incompatible land uses that may preclude mining activities.	Consistent: The proposed project does not propose any land uses that would preclude present or future mining of lands designated as having high mineral resource potential or existing mining operations within unincorporated Monterey County.
County of Monterey (coastal zone & inland area)	Monterey County General Plan	Conservation and Open Space	MPWSP Desalination Plant, Source Water Pipeline, new Desalinated Water Pipeline, Brine Discharge Pipeline, Pipeline to CSIP Pond, Castroville Pipeline, Ryan Ranch-Bishop Interconnection Improvements, Main System-Hidden Hills Interconnection Improvements, and Carmel Valley Pump Station	***Policy OS-2.1:*** Potentially significant mineral deposits and existing mining operations identified through the State Division of Mines and Geology, including idle and reserve properties, shall be protected from on-site and off-site land uses that would be incompatible with mineral extraction activities.	This section is intended to protect lands identified as having high mineral resource potential, as well as existing mining operations from encroachment by incompatible land uses that may preclude mining activities.	Consistent: The proposed project does not propose any land uses that would preclude present or future mining of lands designated as having high mineral resource potential or existing mining operations within unincorporated Monterey County.
County of Monterey (coastal zone & inland area)	Monterey County General Plan	Conservation and Open Space	MPWSP Desalination Plant, Source Water Pipeline, new Desalinated Water Pipeline, Brine Discharge Pipeline, Pipeline to CSIP Pond, Castroville Pipeline, Ryan Ranch-Bishop Interconnection Improvements, Main System-Hidden Hills Interconnection Improvements, and Carmel Valley Pump Station	***Policy OS-2.3:*** Efforts to conserve raw mineral resources through recycling shall be supported.	This policy is intended conserve raw mineral resources.	Consistent: As discussed in Section 4.13, Public Services and Utilities, Monterey County requires that 50 percent of inert solids and 100 percent of non-inert materials be diverted from landfills. The proposed project would also be required to comply with State regulations requiring waste diversion and recycling. Therefore the proposed project would be consistent with this policy.

TABLE 4.17-1 (Continued)
APPLICABLE REGIONAL AND LOCAL PLANS AND POLICIES RELEVANT TO MINERAL RESOURCES

Project Planning Region	Applicable Plan	Plan Element/ Section	Project Component(s)	Specific Plan, Policy, or Ordinance	Relationship to Avoiding or Mitigating a Significant Environmental Impact	Project Consistency with Plan, Policy, or Ordinance
County of Monterey (coastal zone & inland area)	Monterey County General Plan	Conservation and Open Space	MPWSP Desalination Plant, Source Water Pipeline, new Desalinated Water Pipeline, Brine Discharge Pipeline, Pipeline to CSIP Pond, Castroville Pipeline, Ryan Ranch-Bishop Interconnection Improvements, Main System-Hidden Hills Interconnection Improvements, and Carmel Valley Pump Station	***Policy OS-2.5:*** The County shall inventory, assess, and characterize the location and condition of identified pre-SMARA abandoned gold, mercury and coal mines and implement such measures as may be necessary to ensure that such mines do not contribute to a significant risk to public health or safety or non-compliance with water quality standards and criteria.	This policy is intended to ensure that abandoned mines do not create a significant health risk to people or water quality.	Consistent: The proposed project would not be located with an abandoned mine or otherwise contribute to an abandoned mine's public health or safety risk, or violation of water quality standards.
Fort Ord Reuse Authority (Seaside)	Fort Ord Reuse Plan	Conservation	New Transmission Main, ASR Conveyance Pipeline, ASR Pump-to-Waste Pipeline, ASR Recirculation Pipeline, and Terminal Reservoir	***Soils and Geology Policy B-2:*** The City shall protect designated mineral resource protection areas from incompatible land uses.	This section is intended to protect lands identified as having high mineral resource potential from encroachment by incompatible land uses that may preclude mining activities.	Consistent: The project does not propose any land uses that would preclude present or future mining of designated mineral resource protection areas within former Fort Ord lands.
Fort Ord Reuse Authority (Monterey County)	Fort Ord Reuse Plan	Conservation	Ryan Ranch–Bishop Interconnection Improvements	***Soils and Geology Policy B-2:*** The County shall protect designated mineral resource protection areas from incompatible land uses.	This section is intended to protect lands identified as having high mineral resource potential from encroachment by incompatible land uses that may preclude mining activities.	Consistent: The project does not propose any land uses that would preclude present or future mining of designated mineral resource protection areas within former Fort Ord lands.

SOURCE: City of Marina, 2006; FORA, 1997; Monterey County, 2010.

4.17.3 Evaluation Criteria

Implementation of the proposed project would have a significant impact related to mineral resources if it would:

- 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.

4.17.4 Approach to Analysis

This impact analysis evaluates the potential for the proposed project to result in the loss of availability of locally or regionally important mineral resources based on mineral resource maps prepared by the CGS using the California Mineral Land Classification System, and mineral resource maps produced by Monterey County and the City of Marina. Impacts related to the loss of mineral resources would be considered significant if construction activities were to disrupt active mining activities and make known mineral resources unavailable, or if siting of new facilities were to preclude the future recovery of known mineral resources or adversely affect the availability of these resources for future recovery.

All potential impacts related to mineral resources are associated with project construction and/or facility siting; no impacts would result from project operations. Therefore, the evaluation presented below only considers impacts related to construction and facility siting.

4.17.5 Direct and Indirect Effects of the Proposed Project

Table 4.17-2 summarizes the proposed project's impacts and significance determinations related to mineral resources.

TABLE 4.17-2
SUMMARY OF IMPACTS – MINERAL RESOURCES

Impacts	Significance Determinations
Impact 4.17-1: Loss of availability of known mineral resources that are of value to the region or residents of the state, or result in the loss of a locally-recognized important mineral resource recovery site.	LS
Impact 4.17-C: Cumulative impacts related to mineral resources.	LS

NOTES:
LS = Less than Significant impact, no mitigation proposed

4.17.5.1 Construction and Facility Siting Impacts

Impact 4.17-1: Loss of availability of known mineral resources or locally important mineral resource recovery sites. ***(Less than Significant)***

All proposed project components north of Highway 68 and south of the Salinas River would be located in areas designated as MRZ-2 – that is, areas where adequate information indicates that significant mineral deposits (in this case, sand for use as aggregate) are either present or are likely to be present. The CEMEX sand mining facility is within the MRZ-2 designation. There are no locally important mineral resource sites delineated on a local general plan, specific plan, or other land use plan in the study area.

Subsurface Slant Wells and Source Water Pipeline

The subsurface slant wells for the Seawater Intake System are proposed within the southern portion of the CEMEX property, in an area that is no longer mined and has been restored by CEMEX consistent with the Reclamation Plan; the proposed Source Water Pipeline would be aligned beneath the existing CEMEX access road. Construction equipment, materials, and trucks would access the existing CEMEX access road via Lapis Road. Increased truck traffic on the CEMEX access road from project-related construction vehicles and the temporary reduction in the width of the access road during installation of the Source Water Pipeline could delay the movement of vehicles through the CEMEX facility. Although mining operations could experience minor disruptions during project construction, mining operations would continue throughout project construction. Therefore, project implementation would not result in the temporary loss of known mineral resources and construction-related impacts would be less than significant.

This analysis assumes the current methods of sand extraction could continue during project construction and possibly during future operations for an undetermined, yet possibly limited, amount of time, due to the actions taken by the CCC and the MBNMS, as discussed in Section 4.17.1.2, Mining Operations. Upon completion of project construction, the CEMEX access road would be restored to its existing condition and purpose. The Source Water Pipeline would be buried beneath the access road and would not interfere with the movement of mining vehicles or other sand mining activities. Since CEMEX is currently only mining sand from the dredging pond in the northern portion of the property, the siting of the subsurface slant wells in the southern portion of the CEMEX property would not interfere with sand mining activities or adversely affect the availability of mineral resources for future recovery. As noted in **Table 3-1** in Section 3.2 Project Components, slant well sites 2 through 6 would include a concrete pad ranging in size from 5,250 and 6,025 square feet. These structures could preclude mineral resource extraction but since sand mining is being discouraged by regulatory entities, this particular area is no longer being mined and is now under a reclamation plan. Therefore, it is unlikely that future sand mining would be permitted in the southern portion of the CEMEX property, and this impact would be less than significant.

The seafloor and subsurface mineral materials (e.g., sand, sediments) that overlie the ends of the subsurface slant wells within MBNMS would provide filtration for the ocean water taken in by

the subsurface slant wells. The proposed project's use of this environmental service provided by the seafloor and subsurface mineral materials would not 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. No mineral resource consumption or extraction would occur related to the operation of the subsurface slant wells, and therefore, no impact would occur.

MPWSP Desalination Plant

There is no active mining in the proposed MPWSP Desalination Plant project area. However, the 46-acre Desalination Plant site is located in an area designated as MRZ-2. Constructing the MPWSP Desalination Plant on 25 acres of this site could limit the future recovery of mineral resources beneath the plant footprint. The MPWSP Desalination Plant site was previously used for agriculture but is currently fallow. Parcels designated as important farmland by the California Department of Conservation surround the proposed site (CDC, 2015) and mineral extraction would be an incompatible land use, thereby limiting the mining potential of the adjacent and subject parcel. Further, even if implementation of the proposed project were to preclude future recovery of mineral resources at the MPWSP Desalination Plant site, this impact would not be significant due to the small size of the site relative to the overall size of the mineral resource zone. The MRZ-2 area within the study area is roughly 7,000 acres, therefore the MPWSP Desalination Plant footprint would preclude approximately 0.36 percent of future mineral recovery potential. Implementation of the MPWSP Desalination Plant would have a less-than-significant impact on mineral resources.

All Other Pipelines North of Reservation Road

Construction of portions of the Source Water Pipeline, the new Desalinated Water Pipeline, and the Castroville Pipeline would occur either within or adjacent to the Charles Benson Road rights-of-way and within the Monterey Peninsula Recreational Trail and/or the Transportation Agency for Monterey County (TAMC) rights-of-way. Construction of the Brine Discharge Pipeline and Pipeline to the CSIP Pond would generally occur within existing road rights-of-way but certain pipeline segments could be installed adjacent to the road shoulder in undeveloped portions of the MRZ-2 area. Installing these pipelines within or adjacent to existing road rights-of-way would minimize disturbance to nearby MRZ-2 land and future mining operations. Because the proposed pipelines would have a limited footprint and would not be constructed across any active mining areas, they would not result in a significant reduction in the availability of mineral resources (primarily sand dunes). Therefore, the construction and operation of the proposed conveyance facilities would have a less-than-significant impact on mineral resources.

Pipelines and Other Conveyance Facilities South of Reservation Road

The impacts on mineral resources associated with project components located south of Reservation Road would be similar to those of the conveyance facilities located north of Reservation Road. Because these facilities would generally be constructed within road rights-of-way and would have limited footprints, the potential impact on mineral resources would be less than significant.

ASR-5 and ASR-6 Wells

The proposed ASR-5 and ASR-6 Wells would be constructed along the east side of General Jim Moore Boulevard in Seaside, entirely on federally-owned land within the former Fort Ord military base. No active mining sites are known to exist within the former Fort Ord. The wells would not include a concrete pad so the impact on mineral resources would be less than significant. Regardless, the wells would be built in the Fitch Park Military Housing area within 50-feet of existing homes, and the land uses in the vicinity of these facilities are predominantly residential, recreational (e.g., Bayonet and Black Horse Golf Courses), and public/quasi-public (e.g., Seaside Middle School); mineral extraction would be incompatible.

Impact Conclusion

The proposed project 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.

Mitigation Measures

None proposed.

4.17.6 Cumulative Effects of the Proposed Project

The cumulative scenario and cumulative impacts methodology are described in Section 4.1.7. Table 4.1-2 lists potential cumulative projects.

Impact 4.17-C: Cumulative impacts related to mineral resources. (*Less than Significant*)

As described in Section 4.17.5, above, the MPWSP would have a less-than-significant impact on mineral resources. The geographic extent of potential cumulative mineral resources impacts includes the sites of proposed MPWSP components and areas in coastal Northern Monterey County that are mapped by the California Department of Conservation as MRZ-2, meaning the area contains or is thought to contain significant mineral deposits, particularly sand and gravel. The MPWSP and most of the cumulative projects identified in **Table 4.1-2** are located in an area mapped as MRZ-2. The timeframe during which the MPWSP could contribute to mineral resources effects includes the 24-month construction phase.

The MPWSP seawater intake facilities that are proposed at CEMEX would be set back from active mining areas and would not preclude sand mining activities. None of the cumulative projects identified in **Table 4.1-2** would be constructed within, or would otherwise disrupt, the CEMEX active mining area. Therefore, operation of the cumulative projects would not affect CEMEX mining operations.

However, development of the MPWSP and many of the projects in **Table 4.1-2** would preclude the use of other lands within the MRZ-2 designation for sand, gravel, and stone mining for the

duration of these cumulative projects' lifetimes. A large portion of the MRZ-2 area in the project vicinity is already developed, and development of certain components of the MPWSP and cumulative projects within that zone would further limit the amount of land available for potential future mining operations within the MRZ-2. The only project planned in an undeveloped portion of the MRZ-2 area is the Collection at Monterey Bay Resort (No. 56). This approved 340-room coastal resort is planned on a 26.46-acre site located west of Highway 1 and north of Tioga Avenue in Sand City. The construction and operation of the resort would contribute to the loss of availability of a known mineral resource, but not a locally important mineral resource recovery site since CEMEX is the only active mining operation in coastal Northern Monterey County. However, Sand City's General Plan specifically states that "Sand City has adopted a policy of not allowing the reestablishment of any mining within the city limits" (City of Sand City, 2002). Therefore, the General Plan precludes the mineral resource extraction from the area where the Collection at Monterey Bay Resort will be constructed and operated. As a result, the resort would not change the availability of this site for mining compared to existing conditions.

Since all cumulative projects in MRZ-2, including MPWSP, are on developed lands, on areas adjacent to important farmland which limits mining potential (the Desalination Plant component of the MPWSP), or on lands where mining is prohibited (the Collection at Monterey Bay Resort), the combined effects of cumulative projects in MRZ-2 would not have a significant cumulative impact on the availability of mineral resources relative to the total amount of known mineral resources available. As a result, MPWSP implementation would not have a cumulatively considerable contribution to a significant cumulative impact on mineral resources *(less than significant)*.

Mitigation Measures

None proposed.

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4.18 Energy Conservation

Sections	Tables
4.18.1 Setting/Affected Environment	4.18-1 PG&E's 2015 Electric Power Mix Delivered to Customers
4.18.2 Regulatory Framework	4.18-2 Applicable Regional and Local Plans and Policies Relevant to Energy Conservation
4.18.3 Evaluation Criteria	4.18-3 Summary of Impacts – Energy Conservation
4.18.4 Approach to Analysis	
4.18.5 Direct and Indirect Effects of the Proposed Project	
4.18.6 Cumulative Effects of the Proposed Project	

This section presents the impacts of the proposed project related to energy use and conservation. Existing energy supply sources and energy use in Monterey County and California as a whole are discussed. Regulatory requirements pertaining to energy use and conservation are described. Mitigation measures are prescribed to avoid or reduce the inefficient, wasteful, and unnecessary energy consumption associated with project implementation.

CEQA § 21100(b) requires evaluation of the potential energy impacts of a proposed project, and consideration of mitigation measures that would avoid or reduce the wasteful, inefficient, and unnecessary consumption of energy associated with the project. Appendix F of the CEQA Guidelines provides three goals for energy conservation:

- Decrease overall per capita energy consumption;
- Decrease reliance on natural gas and oil; and
- Increase reliance on renewable energy sources.

In addition, Appendix F of the CEQA Guidelines indicates that EIRs may include consideration of the following six energy conservation-related environmental impact types:

1. The project's energy requirements and its energy use efficiencies by amount and fuel type for each stage of the project including construction, operation, maintenance and/or removal. If appropriate, the energy intensiveness of materials may be discussed.
2. The effects of the project on local and regional energy supplies and on requirements for additional capacity.
3. The effects of the project on peak and base period demands for electricity and other forms of energy.
4. The degree to which the project complies with existing energy standards.
5. The effects of the project on energy resources.
6. The project's projected transportation energy use requirements and its overall use of efficient transportation alternatives.

With regard to NEPA, the Council on Environmental Quality (CEQ) regulations 40 CFR 1502.16(e) require analysis of "energy requirements and conservation potential of various alternatives and mitigation measures."

This section does not address the potential air pollutant or greenhouse gas emissions associated with various forms of energy consumption. See Sections 4.10, Air Quality, and 4.11, Greenhouse Gas Emissions, for such discussions.

4.18.1 Setting/Affected Environment

The study area for the analysis of energy conservation impacts is state-wide in terms of energy supplies, and site specific in terms of the energy consumption. There are no MBNMS resources that would be affected by impacts identified in this section; all impacts related to energy conservation would occur outside of MBNMS boundaries. Therefore MBNMS resources are not described in the environmental setting/affected environment.

4.18.1.1 California's Energy Supplies

With a relatively mild Mediterranean climate and strict energy efficiency and conservation requirements, California's per capita energy consumption ranked 48th in the nation, indicating a low per capita use of energy; the state's low use of energy was due in part to this mild climate and its energy efficiency programs (USEIA, 2016a). Nevertheless, with a population of 38.7 million people, California is the second largest energy-consuming state in the U.S. (USEIA, 2016b).

Electricity

The production of electricity requires the consumption or conversion of energy resources such as water, wind, oil, gas, coal, solar, geothermal, and nuclear sources. Of the electricity generated in California in 2015, 44.0 percent was generated by natural gas-fired power plants, 6.0 percent by coal-fired power plants, 5.4 percent from large hydroelectric dams, 9.2 percent from nuclear power plants, and 21.9 percent from renewable sources including solar and wind power (CEC, 2016a). The remaining balance (13.5 percent) came from unspecified sources (CEC, 2016a).

Natural Gas

Most of the natural gas consumed in California is extracted from on- and off-shore sites from the producing regions of the southwest (42 percent), the Rocky Mountains (23 percent), and Canada (22 percent), while the remainder is produced in California (12 percent) (CEC, 2016c). Although contractually California can receive natural gas from any producing region in North America, due to the current natural gas pipeline configurations, California can only import physical supplies from the three producing regions referenced above.

In 2012, California consumed 2,313 billion cubic feet of natural gas per day (CEC, 2016c). Of this, the majority (45 percent) was used for California's electricity market. The other end users of natural gas were the residential (21 percent), industrial (25 percent), and commercial (9 percent) sectors. Transportation, storage, and transmission losses accounted for the remaining natural gas consumption (CEC, 2016c).

Gasoline

Gasoline is by far the largest transportation fuel by volume used in California. Nearly all of the gasoline used in California is obtained through the retail market. In 2012, approximately 14.5 billion gallons of gasoline were sold in California's retail market (CEC, 2016f).

Diesel

Diesel fuel is the second largest transportation fuel by volume used in California behind gasoline. It is estimated that approximately 44 percent of total diesel sales in California are associated with retail sales. In 2012, more than three billion gallons of diesel were sold in California's retail market (CEC, 2016e). According to the U.S. Department of Energy's Energy Information Administration, nearly all semi-trucks, delivery vehicles, buses, trains, ships, boats and barges, farm, construction, and military vehicles and equipment have diesel engines.

4.18.1.2 Local Energy Systems

Electricity

Electricity is generated and distributed via a network of high voltage transmission lines commonly referred to as the power grid. Pacific Gas and Electric Company (PG&E) provides electrical power to approximately 16 million people throughout a 70,000 square mile service area in Northern and Central California, including Monterey County (PG&E, 2016b). PG&E's service area extends from Eureka to Bakersfield (north to south), and from the Sierra Nevada to the Pacific Ocean (east to west). PG&E produces and purchases energy from a mix of conventional and renewable generating sources. **Table 4.18-1** shows the electric power mix that PG&E delivered to its customers in California in 2015.

TABLE 4.18-1
PG&E'S 2015 ELECTRIC POWER MIX DELIVERED TO CUSTOMERS

Power Source	Percentage of Total
Nuclear	23%
Natural Gas	25%
Large Hydroelectric	6%
Coal	<1%
Other[a]	<1%
Unspecified Sources[b]	17%
Eligible Renewables	30%

NOTES:
[a] "Other" includes diesel oil and petroleum coke (a waste byproduct of oil refining).
[b] "Unspecified Sources" refers to electricity purchased from the grid that is not traceable to specific generation sources by any auditable contract trail.

SOURCE: PG&E, 2016a.

Of the electricity delivered by PG&E to its customers in 2015, 25 percent was generated by natural gas-fired power plants, 6 percent came from large hydroelectric dams, and 23 percent came from nuclear power plants. The remaining in-state electrical power generation (47 percent)

was supplied by renewable sources (30 percent) and other unspecified sources (17 percent) (PG&E, 2016a).

The most recent year for electrical energy consumption data (2015) by county shows that the amount of electrical energy consumed within Monterey County totaled 2,666 million kilowatt-hours, which represents about 2.6 percent of PG&E's total electricity consumed in 2015 (CEC, 2016b).

Natural Gas

Natural gas service is provided in the project area by PG&E, which serves approximately 16 million customers through 6,750 miles of gas transmission lines. PG&E's natural gas is delivered via high-pressure pipelines to its load centers with compressors used to maintain transmission pressure. The gas is then received at either an underground storage facility or redistributed through another series of smaller distribution pipelines. The most recent year of natural gas consumption data (2015) by county shows that the amount of natural gas consumed within Monterey County totaled 102.46 million therms of natural gas, which represents about 2.3 percent of PG&E's total natural gas consumed in 2015 (CEC, 2016b).

Gasoline and Diesel Fuel

In 2012, all retail sales of diesel fuel in Monterey County were 30 million gallons (CEC, 2016e), suggesting that the total diesel sales in the county were approximately 68 million gallons given that approximately 44 percent of total diesel sales in California are associated with retail sales. The total 2012 sales of gasoline in the county were 147 million gallons (CEC, 2016f).

4.18.2 Regulatory Framework

This section summarizes federal, state, and local environmental laws, policies, plans, regulations, and/or guidelines (hereafter referred to generally as "regulatory requirements") pertaining to energy efficiency and conservation and indicates the project's consistency with those regulatory requirements. The consistency findings are for the project as proposed, without mitigation. In cases where the proposed project would be potentially inconsistent with the applicable regulatory requirement, the reader is referred to a specific impact discussion in Section 4.18.5, Direct and Indirect Effects of the Proposed Project, where the potential inconsistency is addressed further.

4.18.2.1 Federal Regulations

Energy Policy and Conservation Act

The Energy Policy and Conservation Act of 1975 was established in response to the oil crisis of 1973, which increased oil prices due to a shortage of reserves. The Act required that all vehicles sold in the U.S. meet certain fuel economy goals. Since 1990, the fuel economy standard for new passenger cars has been 27.5 miles per gallon. Since 1996, the fuel economy standard for new light trucks (gross vehicle weight of 8,500 pounds or less) has been 20.7 miles per gallon. Heavy-duty vehicles (i.e., vehicles and trucks over 8,500 pounds gross vehicle weight) are not subject to

fuel economy standards. The project would be consistent with the Act because all passenger cars and light trucks that would be used directly or indirectly associated with the project would be required to comply with the applicable fuel economy standards.

Energy Policy Act of 2005

The Energy Policy Act of 2005 seeks to reduce reliance on non-renewable energy resources and provide incentives to reduce current demand on these resources. For example, under the Act, consumers and businesses can obtain federal tax credits for fuel-efficient appliances and products, including buying hybrid vehicles, building energy-efficient buildings, and improving the energy efficiency of commercial buildings. Additionally, tax credits are available for the installation of qualified fuel cells, stationary microturbine power plants, and solar power equipment. It is unknown whether or not CalAm will attempt to obtain any federal tax credits associated with the project under the Energy Policy Act of 2005.

4.18.2.2 State Regulations

California Coastal Act

The California Coastal Act (Public Resources Code Section 30000 et seq.) was enacted by the State Legislature in 1976 to provide long-term protection of the State's 1,100-mile coastline for the benefit of current and future generations. The Coastal Act provides for the long-term management of lands within California's coastal zone boundary, as established by the Legislature and defined in Coastal Act (Section 30103). The width of the coastal zone varies across the State, extending inland a couple hundred feet in some locations to 5 miles in others, and offshore out to 3 miles. A map of the coastal zone in the project vicinity is shown in **Figure 4.8-1**.

The Coastal Act includes specific policies for management of natural resources and public access within the coastal zone (see Division 20 of the Public Resources Code). Of primary relevance to energy conservation is a Coastal Act policy concerning minimizing adverse impacts by requiring new development to minimize energy consumption and vehicle miles traveled. A preliminary assessment of project consistency with these priorities is provided below. Final determinations regarding project consistency are reserved for the Coastal Commission.

With respect to minimizing energy consumption and vehicle miles traveled, MPWSP construction will be consistent with Coastal Act policies. The proposed project would be required to comply with State and local regulations regarding energy efficiency and would be designed to maximize energy efficiency and minimize energy consumption. With respect to vehicle miles travelled, the proposed project would result in both short-term and long-term increases in traffic on regional and local roadways. However these increases would be reduced with the implementation of mitigation.

State of California Integrated Energy Policy

In 2002, the Legislature passed Senate Bill 1389, which required the California Energy Commission (CEC) to develop an integrated energy plan every 2 years for electricity, natural gas, and transportation fuels, for the California Energy Policy Report. The plan calls for the state to assist in

the transformation of the transportation system to improve air quality, reduce congestion, and increase the efficient use of fuel supplies with the least environmental and energy costs. To further this policy, the plan identifies a number of strategies, including assistance to public agencies and fleet operators in implementing incentive programs for Zero Emission Vehicles and their infrastructure needs, and encouragement of urban designs that reduce vehicle miles traveled and accommodate pedestrian and bicycle access.

The CEC adopted the 2013 Integrated Energy Policy Report on February 20, 2014. The 2013 Integrated Energy Policy Report provides the results of the CEC's assessment of a variety of issues, including: ensuring that the state has sufficient, reliable, and safe energy infrastructure to meet current and future energy demands; monitoring publicly-owned utilities' progress toward achieving 10-year energy efficiency targets; defining and including zero-net-energy goals in state building standards; overcoming challenges to increased use of geothermal heat pump/ground loop technologies and procurement of biomethane; using demand response to meet California's energy needs and integrate renewable technologies; removing barriers to bioenergy development; planning for California's electricity infrastructure needs given potential retirement of power plants and the closure of the San Onofre Nuclear Generating Station; estimating new generation costs for utility-scale renewable and fossil-fueled generation; planning for new or upgraded transmission infrastructure; monitoring utilities' progress in implementing past recommendations related to nuclear power plants; tracking natural gas market trends; implementing the Alternative and Renewable Fuel and Vehicle Technology Program; addressing the vulnerability of California's energy supply and demand infrastructure to the effects of climate change; and planning for potential electricity system needs in 2030 (CEC, 2013a). Although the integrated energy plan is not directly applicable to the project given that the project would not include utility-scale energy generation or transmission infrastructure, it is applicable to the operations of PG&E, which is the public utility that would provide the required electricity for the project. Given that PG&E is required to comply with the applicable provisions of the integrated energy plan, electricity obtained for the project would be generated in a manner consistent with the spirit of the integrated energy plan.

Title 24 Building Energy Efficiency Standards (California Energy Code)

The California Building Standards Commission first established Energy Efficiency Standards for California in 1978, in response to a legislative mandate to reduce California's energy consumption. The standards, which are contained in the California Code of Regulations, Title 24, Part 6 (also known as the California Energy Code) are updated periodically by the CEC to allow consideration and possible incorporation of new energy efficiency technologies and methods. The standards regulate energy consumed in nonresidential buildings for heating, cooling, ventilation, water heating, and lighting (CEC, 2013b). Title 24 is implemented through the local planning and permit process and therefore project components requiring building permits would be required to comply with Title 24. Title 24 is updated approximately every 3 years. The newest version was adopted in January 2016, and continues to improve upon the standards for new construction of, and additions and alterations to, residential and nonresidential buildings (CEC, 2016f and 2016g). All heating, cooling, ventilation, water heating, and lighting systems in buildings developed as

part of the project would be required to incorporate the applicable standards of Title 24. The project would be required to be consistent with Title 24 Building Energy Efficiency Standards.

California Green Building Standards Code (Cal Green)

On January 1, 2014, the California Building Standards Commission adopted the California Green Building Standards Code (Part 11 of the Title 24 Building Standards Code) for all new construction statewide (CBSC, 2014). The code sets targets for energy efficiency, water consumption, dual plumbing systems for potable and recyclable water, diversion of construction waste from landfills, and use of environmentally sensitive materials in construction and design, including eco-friendly flooring, carpeting, paint, coatings, thermal insulation, and acoustical wall and ceiling panels. The code identifies non-residential mandatory measures regarding site selection, building design, building siting and development to protect, restore, and enhance the environmental quality of the site and respect the integrity of adjacent properties. The proposed project would be required to incorporate the applicable provisions of the California Green Building Standards Code and would therefore be consistent with this set of regulations.

4.18.2.3 Applicable Regional and Local Land Use Plans, Policies, and Regulations

Table 4.18-2 presents the state, regional, and local land use plans, policies, and regulations pertaining to energy conservation that are relevant to the MPWSP and that were adopted for the purpose of avoiding or mitigating an environmental effect. **Table 4.18-2** also indicates project consistency with such plans, policies, and regulations. The analysis concludes that the proposed project would not conflict with the applicable plans, policies, or regulations, and no further discussion is provided.

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TABLE 4.18-2
APPLICABLE REGIONAL AND LOCAL PLANS AND POLICIES RELEVANT TO ENERGY CONSERVATION

Project Planning Region	Applicable Planning Document	Plan Element/ Section	Project Component(s)	Specific Plan, Policy, or Ordinance	Relationship to Avoiding or Mitigating a Significant Environmental Impact	Project Consistency with Plan, Policy, or Ordinance
County of Monterey and Cities of Marina and Seaside	California Code of Regulations, Title 24, Part 6	Building Energy Efficiency Standards	Subsurface slant wells, MPWSP Desalination Plant, and Carmel Valley Pump Station	Monterey County and the cities of Marina and Seaside have incorporated the California Building Energy Efficiency Standards Code by reference into their municipal codes.	This section of the California Building Code requires compliance with Title 24 through the building permit process.	Consistent: Energy efficiency elements would be incorporated into building support systems, electrical and treatment equipment, and process design associated with the MPWSP Desalination Plant. Building support systems would comply with Title 24 Building Energy Efficiency Standards. The proposed action would be required to comply with State and local regulations regarding energy efficiency and would be designed to maximize energy efficiency and minimize energy consumption. The proposed subsurface slant wells reduce energy demand when compared to open water intakes by providing an initial level of treatment through the beach sand. In addition, the proposed project would incorporate various energy efficient design elements into building support systems, electrical and treatment equipment, and process design that would reduce operational energy demand.
County of Monterey (coastal zone and inland areas)	Monterey County Code	Chapter 18.12 – Green Building Standards Code	MPWSP Desalination Plant, Source Water Pipeline, new Desalinated Water Pipeline, Brine Discharge Pipeline, Pipeline to CSIP Pond, Castroville Pipeline, Ryan Ranch-Bishop Interconnection Improvements, Main System-Hidden Hills Interconnection Improvements, and Carmel Valley Pump Station	***Section 18.12*** adopts the 2010 California Green Building Standards Code by reference and includes incentives for new construction to incorporate green building practices.	The 2010 California Green Building Standards are designed to reduce energy consumption.	Consistent: The proposed action would be required to comply with State and local regulations regarding energy efficiency.
County of Monterey (coastal zone and inland areas)	Monterey County General Plan	Conservation and Open Space		***Policy OS-9.1:*** The use of solar, wind and other renewable resources for agriculture, residential, commercial, industrial, and public building applications shall be encouraged.	The intent of this policy is to promote efficient energy use.	Consistent: Although the proposed project does not include the use of renewable energy resources, it does include numerous technological design features to reduce operational energy demand and maximize energy efficiency, including the incorporation of various energy efficient design elements into building support systems, electrical and treatment equipment, and process design.

SOURCE: County of Monterey, 2010.

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4.18.3 Evaluation Criteria

Based on Appendix F of the CEQA Guidelines, implementation of the proposed project would have a significant impact related to energy conservation if it would:

- Use large amounts of fuel or energy in an unnecessary, wasteful, or inefficient manner;
- Constrain local or regional energy supplies, require additional capacity, or affect peak and base periods of electrical demand;
- 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; or
- Conflict with existing energy standards, including standards for energy conservation.

Based on the nature of the proposed project, the following significance criteria are not addressed further in the EIR/EIS:

Conflict with energy standards, including standards for energy conservation. The local government jurisdictions that encompass the project area, including Monterey County and the Cities of Marina, Seaside, Sand City, and Pacific Grove, have incorporated the California Building Standards Code by reference into their municipal codes. As described in Section 4.18.2.2, above, Part 6 of the California Building Standards Code contains the California Energy Code (CCR Title 24, Part 6). The local government building permit application review process would ensure that the proposed project is compliant with all applicable state and local energy conservation standards. In addition, as reflected in Section 4.18.2.3, the plan, policy, and regulation consistency analysis conducted for the project concluded that the proposed project would not conflict with the applicable plans, policies, or regulations. Therefore, no impact related to compliance with applicable energy and energy conservation standards would result, and this criterion is not discussed further in this section.

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. The proposed project would not require or result in the construction of new or expanded electrical generation and/or transmission facilities. As discussed in Chapter 3, Description of the Proposed Project, new underground and aboveground powerlines would be constructed only to connect the proposed facilities to the existing local PG&E power grid.

4.18.4 Approach to Analysis

This analysis is based, in part, on basic assumptions regarding construction-related diesel and gasoline consumption for the proposed project, CalAm's proposed energy efficiency design elements for the MPWSP Desalination Plant (CDM Smith, 2014), and estimates of the operational electricity requirements of the proposed project (CalAm, 2016). The analysis focuses on the anticipated energy demand and energy efficiency of the proposed project as a whole, including during construction, operation, maintenance, and decommissioning of the proposed facilities. This analysis assumes all electrical power needed for project operations would be

provided by the local PG&E electrical power grid. The energy efficiency measures that would be incorporated into MPWSP Desalination Plant design, as well as an alternative energy source that is being pursued by CalAm to support project operations, are summarized below.

4.18.4.1 Fuel Consumption

Off-road equipment inventories and construction and maintenance activity assumptions were used by the CPUC's consultant (Environmental Science Associates [ESA]) to estimate fuel amounts that would consumed by off-road equipment during construction and maintenance of the project. Fuel consumption factors for off-road equipment were derived from equipment inventory data using the California Air Resources Board's off-road emissions inventory database. Fuel use that would be associated with commuting workers and truck hauling during construction and operation of the project were also estimated using trip data projected for the project (see **Appendix G1** for all fuel consumption factors and assumptions).

4.18.4.2 Energy Efficient Design Elements for Desalination Plant

As discussed in Chapter 3, Description of the Proposed Project, the proposed project would use reverse osmosis (RO) technology to remove salts and other minerals from seawater. During the RO process pretreated source water is forced at very high pressures through RO membranes. Generating the necessary high pressure can require a large amount of energy. However, the MPWSP Desalination Plant would incorporate various technological advancements to reduce the operational energy demand as much as possible. These advances include the use of the latest generation of RO membranes that utilize the lowest operating pressure requirements (Pacific Institute, 2013). In addition, the RO system would incorporate an energy recovery system that utilizes pressure exchange technologies to recover energy from the high-pressure waste stream and reduce overall pumping power requirements (and energy consumption) for the RO modules (CDM Smith, 2014).

Energy efficiency elements would also be incorporated into building support systems, electrical and treatment equipment, and process design associated with the MPWSP Desalination Plant. Building support systems would comply with Title 24 Building Energy Efficiency Standards. These standards include the use of motion detectors for lighting, energy-efficient fluorescent lamps for interior lighting, and high pressure sodium vapor lamps for exterior lighting. Heating, ventilation, and insulation systems would be designed to use waste heat from motors and electric equipment to heat certain areas of the treatment and process buildings and reduce the overall energy use of the plant. Piping system materials and sizing would be designed to limit pressure losses and reduce pumping and energy requirements. Electrical and treatment equipment would include variable frequency drives to reduce the operating speed of pumps to match the pump discharge pressure requirements and reduce energy usage (CDM Smith, 2014).

4.18.4.3 Landfill-Gas-to-Energy Option

Information regarding the potential use of methane gas as an alternative energy source is provided here for informational purposes only; this EIR/EIS conservatively assumes that all operational power requirements would be met via the existing PG&E power grid.

Although not evaluated in this EIR/EIS, CalAm is actively pursuing a renewable energy source option with Monterey Regional Waste Management District (MRWMD) that would allow CalAm to meet a portion of the MPWSP Desalination Plant operational energy requirements with methane gas from the existing MRWMD landfill-gas-to-energy (LFGTE) facility located adjacent to the MPWSP Desalination Plant site. The MRWMD LFGTE facility produces 5.07 Megawatts (MW) of continuous electricity that is sold to PG&E. MRWMD plans to increase the electric generation capacity of the LFGTE facility by 3.2 MW in two stages; the first phase of improvements would increase the capacity by 1.6 MW, followed by an additional 1.6-MW increase in six to eight years. Once the expansion is complete, the total generation capacity of the LFGTE facility would be 8.27 MW (ESI, 2014).

If this renewable energy source option is implemented, about half of the MPWSP Desalination Plant operational energy requirements could be met with methane gas from the LFGTE facility; the remainder would come from the local PG&E grid. Overhead powerlines, electrical transformers, metering devices, and switchgear would be needed to connect the MRWMD LFGTE facility with the MPWSP Desalination Plant. Implementation of this option and the construction of the associated interconnection improvements would require separate environmental review and are not evaluated in this EIR/EIS.

4.18.5 Direct and Indirect Effects of the Proposed Project

Table 4.18-3 provides a summary of the proposed project's impacts associated with energy conservation.

TABLE 4.18-3
SUMMARY OF IMPACTS – ENERGY CONSERVATION

Impacts	Significance Determinations
Impact 4.18-1: Use large amounts of fuel and energy in an unnecessary, wasteful, or inefficient manner during construction and decommissioning.	LSM
Impact 4.18-2: Use large amounts of fuel and energy in an unnecessary, wasteful, or inefficient manner during operations and maintenance.	LS
Impact 4.18-3: Constrain local or regional energy supplies, require additional capacity, or affect peak and base periods of electrical demand during operations.	LS
Impact 4.18-C: Cumulative impacts related to energy conservation.	LSM

NOTES:
LSM = Less than Significant impact with Mitigation
LS = Less than Significant

4.18.5.1 Construction Impacts

Impact 4.18-1: Use large amounts of fuel and energy in an unnecessary, wasteful, or inefficient manner during construction and decommissioning. *(Less than Significant with Mitigation*)

All Project Components

Construction of the proposed project would require the use of fuels (primarily gasoline and diesel) for operation of construction equipment (e.g., dozers, excavators, and trenchers), construction vehicles (e.g., dump and delivery trucks), and construction worker vehicles. Direct energy use would also include the use of electricity required to power construction equipment (e.g., welding machines and electric power tools). In addition, project construction would result in indirect energy use associated with the extraction, manufacturing, and transportation of raw materials to make construction materials. Indirect energy use typically represents about three-quarters of the total construction energy consumed, while direct energy use represents about one-quarter (Hannon et al., 1978).

Although the precise amount of construction-related direct energy consumption that would occur under the proposed project is unknown, it is estimated that off-road construction equipment would operate for a total of approximately 139,932 hours and would consume a total of approximately 398,041 gallons of diesel fuel at an average rate of 2.8 gallons per hour. With regard to vehicle use during construction, workers' personal vehicles would make 171,125 trips and consume approximately 82,669 gallons of gasoline (assuming an average fuel economy of 20.7 miles per gallon) and heavy haul trucks would make 90,216 trips and consume approximately 811,944 gallons of diesel fuel (assuming an average consumption rate of 7.0 miles per gallon) (see **Appendix G1** for all assumptions and fuel use factors). When averaged over the two-year construction period, annual fuel use for off-road construction equipment would be approximately 199,021 gallons of diesel fuel per year, construction workers' personal vehicles would consume approximately 41,334 gallons of gasoline per year, and heavy haul trucks would consume approximately 405,972 gallons of diesel fuel per year. The total average annual fuel use during the two-year construction period would be approximately 41,334 gallons per year of gasoline and approximately 604,993 gallons per year of diesel fuel.

These annual average fuel use amounts are equivalent to less than one percent of the total amounts of gasoline and diesel fuel sold in Monterey County in 2012 (see Section 4.18.1.2, *Local Energy Systems*). With regard to decommissioning of the project, amounts of direct energy consumption that would occur at the end of the useful life of the project (in approximately 40 years) related to decommissioning is unknown; however, it is anticipated that the amounts would be similar to those required for construction, discussed above.

The amount of electricity and indirect energy consumption that would be associated with construction of the project is unknown and cannot be estimated as it would be too speculative given existing data; however, the amounts would not be expected to be substantial.

While the overall transportation energy use requirements would not be significant relative to the overall sales of transportation fuels in the county, construction and decommissioning activities

could result in wasteful or inefficient use of energy if construction and decommissioning equipment is not well maintained, if equipment is left to idle when not in use, or if haul trips are not planned efficiently. For all project components, the potential for construction and decommissioning to use large amounts of fuel or energy in a wasteful or inefficient manner is considered a significant impact. However, with implementation of **Mitigation Measures 4.18-1 (Construction Equipment Efficiency Plan)** and **4.10-1b (Idling Restrictions)**, which would ensure construction activities are conducted in a fuel-efficient manner and minimize idling times for construction equipment and vehicles, the impact would be reduced to a less-than-significant level.

Mitigation Measures

Mitigation Measure 4.18-1 applies to all project components.

> **Mitigation Measure 4.18-1: Construction Equipment Efficiency Plan.**
>
> CalAm shall contract a qualified professional (i.e., construction planner/energy efficiency expert) to prepare a Construction Equipment Efficiency Plan that identifies the specific measures that CalAm (and its construction contractors) will implement as part of project construction and decommissioning to increase the efficient use of construction equipment to the maximum extent feasible. Such measures shall include, but not necessarily be limited to: procedures to ensure that all construction equipment is properly tuned and maintained at all times; a commitment to utilize existing electricity sources where feasible rather than portable diesel-powered generators; and identification of procedures (including the routing of haul trips) that will be followed to ensure that all materials and debris hauling is conducted in a fuel-efficient manner. The plan shall be submitted to CPUC and the Sanctuary for review and approval at least 30 days prior to the beginning of construction activities and at least 30 days prior to the beginning of decommissioning activities.

Mitigation Measure 4.10-1b applies to all project components.

> **Mitigation Measure 4.10-1b: Idling Restrictions.**
>
> (See Impact 4.10-1 in Section 4.10, Air Quality, for description.)

4.18.5.2 Operational and Facility Siting Impacts

Impact 4.18-2: Use large amounts of fuel and energy in an unnecessary, wasteful, or inefficient manner during operations and maintenance. (*Less than Significant*)

All Project Components

Operation of the proposed project would result in the consumption of electricity to operate the subsurface slant wells, MPWSP Desalination Plant (e.g., reverse osmosis [RO] modules, pumps, lighting, process controls, heating, ventilation, and air conditioning [HVAC] systems), and other proposed facilities (e.g., Carmel Valley Pump Station).

In general, desalination plants require large amounts of electricity to operate and, as a result, operation of the MPWSP would result in the long-term consumption of substantial amounts of

electricity, including electricity produced from non-renewable resources. CalAm's current electrical power demand associated with its existing water production facilities (primarily Carmel River and Seaside Groundwater Basin production wells) is approximately 11,466 megawatt hours (MWh) per year, which represents the baseline electrical demand for the proposed project. CalAm's operational electrical power demand for water production under the proposed project (including water produced from the MPWSP Desalination Plant, Seaside Groundwater Basin production wells, ASR system, and the Carmel River, as well as conveyance of that water) is estimated to be approximately 63,164 MWh per year (CalAm, 2016). Therefore, the net increase in annual electrical power demand for water production would be approximately 51,698 MWh per year, which would equal approximately 1.94 percent of the total electrical demand in Monterey County and approximately 0.05 percent of total electricity distributed by PG&E.

In addition to electricity use, consumption of fuel would be required for CalAm staff commute trips to and from the MPWSP Desalination Plant and vehicle trips associated with routine maintenance and operations. The MPWSP Desalination Plant would be operated by approximately 30 CalAm employees, resulting in approximately 60 commuter vehicle trips per day. Approximately six truck trips would occur five days a week for the delivery of materials to the MPWSP Desalination Plant. These vehicle trips would consume an estimated 10,580 gallons of gasoline and 14,040 gallons of diesel fuel annually and would contribute to the energy demand required to support operation of the proposed project. In addition to vehicle use, maintenance of the slant wells would require the use of off-road equipment every five years. When averaged over the five-year period, the equipment required for this maintenance would consume approximately 1,469 gallons of diesel fuel annually (see **Appendix G1** for fuel use assumptions). Overall, the amount of gasoline and diesel required to fuel the vehicles and equipment during operation and maintenance of the project would be relatively small (approximately 10,580 gallons annually and 15,509 gallons annually, respectively. These vehicle trips and equipment use would be necessary to support operation and maintenance of the proposed project and would be equivalent to approximately 0.01 percent of the total amounts of gasoline and 0.02 percent total diesel fuel sold in Monterey County in 2012 (see Section 4.18.1.2, *Local Energy Systems*). The overall transportation energy use requirements during operation and maintenance would not be significant relative to the overall sales of transportation fuels in the county.

Operation of the proposed project would not result in unnecessary consumption of energy. Operation would use fossil fuels and electricity to develop potable water supplies and convey the water to CalAm's Monterey District service area. The MPWSP is needed to replace CalAm's existing supplies that have been constrained by legal decisions affecting diversions from the Carmel River and pumping from the Seaside Groundwater Basin (see Chapter 2, Water Demand, Supplies, Water Rights, and the Existing Water System, for additional information regarding the legal decisions). While the proposed project would require a large amount of electricity each year to operate, it is necessary to provide drinking water to area residents to protect human health and safety. Further, the proposed project would not consume energy wastefully or inefficiently. As summarized above, and described in Chapter 3, Description of the Proposed Project, Section 3.4.5, Power Demand, the design and construction of the MPWSP Desalination Plant would incorporate various energy-efficient design elements into building support systems, electrical and treatment equipment, and process design that would reduce operational energy demand.

Although the proposed MPWSP Desalination Plant would be designed to use energy as efficiently as possible using the most recent technological advancements available, implementation of the proposed project would result in a substantial increase in electrical power demand. However, the use of energy for operation of the MPWSP Desalination Plant is necessary because it would provide a reliable supply of water to meet existing demand for the Monterey District. Therefore, electricity consumed as a result of project operations would not be unnecessary, wasteful, or inefficient and the impact related to the use of fuel and energy during project operations would be less than significant.

Mitigation Measures

None proposed.

Impact 4.18-3: Constrain local or regional energy supplies, require additional capacity, or affect peak and base periods of electrical demand during operations. (*Less than Significant*)

As discussed above, implementation of the proposed project would increase CalAm's total electrical demand by approximately 51,698 MWh per year, which would represent approximately 1.94 percent of the County's electricity usage in 2015 (2,660,173 MWh) and approximately 0.05 percent of electricity distributed by PG&E in 2015 (2,660,173 MWh) (CalAm, 2016; CEC, 2016b).

The proposed project's impact on local and regional energy supplies depends on several factors; however, the primary energy source of concern associated with project operation is electrical power provided by PG&E. Based on PG&E's preliminary review of the proposed project's maximum electrical demand, PG&E has indicated that it has adequate capacity and infrastructure to support the proposed project (PG&E, 2016c). Therefore, implementation of the proposed project could be accommodated by the existing local and regional energy supplies and the impact would be less than significant. Further, implementation of Mitigation Measure 4.11-1 described in Section 4.11, Greenhouse Gas Emissions, would improve the energy efficiency of the proposed project if feasible.

Mitigation Measures

Mitigation Measure 4.11-1 is relevant to energy conservation because it would reduce energy consumption; however, it is not required in order to reduce Impact 4.18-3 to a less-than-significant level. As described above, Impact 4.18-3 is less than significant even without implementation of this measure.

Mitigation Measure 4.11-1 applies to the project as a whole.

Mitigation Measure 4.11-1: GHG Emissions Reduction Plan.

(See Impact 4.11-1 in Section 4.11, Greenhouse Gas Emissions, for description.)

4.18.6 Cumulative Effects of the Proposed Project

The cumulative scenario and cumulative impacts methodology are described in Section 4.1.7. Table 4.1-2 lists potential cumulative projects.

Impact 4.18-C: Cumulative impacts related to energy conservation. (*Less than Significant with Mitigation*)

As described in Section 4.18.3, the proposed project would have no impact related to conflicting with energy standards or the construction or expansion of new electrical generation and/or transmission facilities. Therefore, it would not contribute to cumulative impacts related to these topics.

Cumulative impacts associated with energy and energy conservation are considered in the context of both local and regional energy supply and demand. As described in Section 4.18.5.1, above, project construction could use large amounts of fuel or energy in a wasteful or inefficient manner, which in the context of local and regional energy supplies, in combination with the energy demands of the projects described in Table 4.1-2 in Section 4.1, could result in a significant cumulative impact. **Mitigation Measures 4.18-1 (Construction Equipment Efficiency Plan)** and **4.10-1b (Idling Restrictions)** would be implemented to ensure construction activities would be conducted in a fuel-efficient manner. Idling times would be limited for construction equipment and vehicles to ensure that energy waste and inefficiency would be minimized. Energy used during construction would primarily be in the form of gasoline and diesel fuel. Even if project construction was to occur simultaneously with other cumulative projects, the cumulative use of energy resources during construction would be consistent with normal construction practices and would comply with efficiency- and conservation-related policies intended to address cumulative energy consumption statewide. Therefore, after mitigation, project construction would not have a cumulatively considerable contribution to a significant cumulative impact on the supply and/or availability of these fuel sources during construction (*less than significant with mitigation*).

During project operation, various energy conservation measures would be implemented (see Section 4.18.4) as part of the proposed project to reduce energy waste, ensuring that operational impacts associated with energy use would not be unnecessary, wasteful, or inefficient. Although project operation would result in long-term consumption of substantial amounts of electricity, PG&E, who would be the electrical supplier, has indicated that it has adequate capacity and infrastructure to support the proposed project (PG&E, 2016c). As discussed above under Impact 4.18-3, the anticipated increase in electricity consumption for the proposed project would represent approximately 2 percent of Monterey County's annual usage, and an even smaller percentage of PG&E's overall service area usage (0.05 percent). It should be noted that PG&E purchases wholesale electric energy and capacity from generators and suppliers and periodically conducts solicitations / requests for offers (RFO) for additional supplies of conventional and renewable electricity. Therefore, in the event that many other cumulative projects listed in **Table 4.1-2** that would be high demand electricity users, such as the Monterey Bay Regional Water Project (DeepWater Desal, No. 34), request electrical service from PG&E, additional wholesale electric energy may need to be purchased by PG&E. In addition, some reinforcement

of the existing distribution system may also be required, but this would not substantially constrain local or regional energy supplies. Therefore, the proposed project would not have a cumulatively considerable contribution to a significant cumulative impact associated with the unnecessary, wasteful, or inefficient use of energy, or with energy supply, either at a local or regional level, during operation (*less than significant*).

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4.19 Population and Housing

Sections	Figures	Tables
4.19.1 Setting/Affected Environment 4.19.2 Regulatory Framework 4.19.3 Evaluation Criteria 4.19.4 Approach to Analysis 4.19.5 Direct and Indirect Effects of the Proposed Project 4.19.6 Cumulative Effects of the Proposed Project	4.19-1 County to County Commuting Estimates: Monterey County 4.19-2 County to County Commuting Estimates: San Benito County 4.19-3 County to County Commuting Estimates: Santa Cruz County	4.19-1 Population, Housing, and Labor Force in Potentially-Affected Jurisdictions 4.19-2 Summary of Impacts – Population and Housing

This section describes the existing population and housing characteristics and trends in the vicinity of the Monterey Peninsula Water Supply Project (MPWSP or proposed project) and analyzes the potential for implementation of the proposed project to result in direct and/or indirect impacts on population and housing, including the potential for the project to result in the need for additional workforce to support project construction and operations. The potential for the provision of water supply from the MPWSP to indirectly induce growth is addressed in Section 6.3, Growth Inducement.

4.19.1 Setting/Affected Environment

The study area for the evaluation of effects related to population and housing displacement is Monterey County and in particular CalAm's Monterey District service area, which would be the area affected directly by potential population and housing effects of the proposed project. There are no MBNMS resources that would be affected by impacts identified in this section; all impacts related to population and housing would occur outside of MBNMS boundaries. Therefore MBNMS resources are not described in the environmental setting/affected environment.

The proposed project lies within the cities of Marina, Seaside, and Monterey, and in unincorporated Monterey County, including the unincorporated community of Castroville. Except for the incorporated cities, however, population and housing data are not readily available for subcounty areas. Therefore the analysis includes data for Monterey County as a whole. The study area for the evaluation of the direct growth inducing effects of the proposed project is the three-county Monterey Bay region consisting of Monterey, San Benito, and Santa Cruz counties. This is the region within which workers could be expected to commute between jobs and residences, and in particular, is the area within which construction workers would be expected to commute from their residences to temporary job sites elsewhere in the region.

4.19.1.1 Population, Housing and Labor Force

In January 2015, Monterey County was home to approximately 432,637 residents and had approximately 139,177 housing units. Between 1990 and 2015, the total population of Monterey County increased by about 22 percent, and the total number of housing units increased by about

15 percent (California Department of Finance, 2007; 2016). **Table 4.19-1** shows 2010 census data for population and housing, estimates of population and housing in 2015, and estimates of the 2010 and 2015 labor force[1] in the Monterey County jurisdictions that could be affected by implementation of the proposed project.

TABLE 4.19-1
POPULATION, HOUSING, AND LABOR FORCE IN POTENTIALLY AFFECTED JURISDICTIONS

	Population		Housing Units		Labor Force[c]	
Jurisdiction	**2010[a]**	**2015[b]**	**2010[a]**	**2015[b]**	**2010[c]**	**2015[c] EDD[b]**
Carmel-by-the-Sea	3,722	3,824	3,417	3,417	1,700	1,800
Del Rey Oaks	1,624	1,655	741	741	900	1,000
Monterey (city)	27,810	28,576	13,584	13,637	15,200	15,700
Pacific Grove	15,041	15,251	8,169	8,184	8,700	9,000
Sand City	334	376	145	176	200	200
Seaside	33,025	34,025	10,872	10,913	18,100	18,400
Unincorporated Area[d]	17,847	18,603	5,930	5,985	9,280	9,520
Total for Monterey District Service Area	***99,403***	***102,310***	***42,858***	***43,858***	***54,080***	***55,620***
Marina	19,718	20,496	7,200	7,334	11,300	12,000
Castroville[e]	6,481	See note e	1,539	See note e	3,200	3,200
Monterey County (Total)	415,057	432,637	137,910	139,177	215,800	221,400
San Benito County (Total)	55,269	56,445	17,870	18,262	27,900	29,800
Santa Cruz County (Total)	262,382	273,594	104,476	105,221	141,700	144,200

NOTES:
a Population and housing data for 2010 are from the U.S. Census Bureau's decennial census.
b Population and housing data for 2015 are estimates prepared by the California Department of Finance.
c Labor force data for 2010 and 2015 are estimates prepared by the California Employment Development Department; labor force refers to people who live in the area who are employed or looking for work, regardless of where they actually work.
d An estimated 4.3 percent of the countywide population inhabits the unincorporated portions of CalAm's Monterey District (ESA, 2014). As a result, the housing units and labor force for the unincorporated portion of the Monterey District were estimated as 4.3 percent of the county total.
e Since Castroville is unincorporated, data shown are for Castroville Census Designated Place (CDP). The California Department of Finance does not provide estimates for disaggregated unincorporated areas and to date estimates for 2015 are not available from the U.S. Census Bureau's Community Survey (ACS). The ACS estimates that in 2014 Castroville CDP had a population of 6,226 and had 1,550 housing units.

SOURCE: California Department of Finance, 2016; California Employment Development Department, 2013, 2016a, 2016b, 2016c, 2016d, 206e; U.S. Census Bureau, 2016a, 2016b.

4.19.1.2 Employment

The California Employment Development Department estimates that approximately 187,400 people worked in Monterey County in 2015, an increase of 5,400 jobs since 2014 and the county's peak annual average employment level to date (California Economic Development Department 2016c). This estimate measures workers by place of work and includes full-time and part-time wage and salary employment; it does not include self-employed people, unpaid family

[1] Labor force refers to people living in the jurisdiction who are employed or looking for work, regardless of where they actually work.

workers, or private household employees[2] (California Economic Development Department 2016f). Total employment in Monterey County grew steadily from 1995 to 2000, leveled off between 2001 and 2008, when there were minor fluctuations of job gains and losses, and dropped substantially in 2009, reflecting the effects of the recession that began in late 2007-early 2008.[3] From 2008 to 2009 Monterey County lost more than 6,000 jobs, a 4 percent decline – from 174,100 jobs in 2008 to 168,000 in 2009. Employment as a whole in the county began to recover in 2010 and by 2013 the number of countywide jobs had slightly exceeded the previous peak in 2008. About 19,400 jobs were added in Monterey County from 2010 through 2015 (California Economic Development Department, 2016c). Approximately 16,000 people worked in San Benito County in 2015. This was slightly fewer than the 16,100 people working in the county in 2014 but 500 more than the number working in the county in 2013. While 1,700 jobs have been added in the county since 2010, the number of people working in the county in 2015 is still 1,900 fewer than at the county's employment peak, in 2007, when 17,900 people worked in the county (California Employment Development Department, 2016d). Approximately 106,500 people worked in Santa Cruz County in 2015, 2,800 more than in 2014. Since 2010, almost 9,000 jobs have been added in Santa Cruz County, although 2015 employment is still slightly less than the county's peak employment to date, in 2001, when 106,700 people worked in the county (California Economic Development Department 2016e).

Construction employment generally followed the same trend but the construction industry experienced more pronounced changes over this period compared to overall employment. Construction jobs grew at a faster rate between 1995 and 2001 compared to jobs overall and there was a much sharper decline in construction jobs from 2008 to 2009. The county lost about 1,500 construction jobs in 2009, a 25 percent decrease from 2008; in addition, the construction industry began experiencing declines in employment earlier, in 2007, and the effects of the recession in this sector lasted longer compared to overall county employment. From 2006 through 2011 the county lost 3,400 construction jobs, a decrease of almost 50 percent over this six-year period. Construction employment began to increase slowly starting in 2012, and 1,300 jobs were added between 2012 and 2015. Nevertheless, there were 2,100 fewer construction jobs in the county in 2015 than in 2006 (5,100 people working in construction jobs in Monterey County in 2015 compared to 7,200 in 2006). In the three-county region that includes neighboring Santa Cruz and San Benito Counties as well as Monterey County, 7,600 construction jobs were lost between 2006 and 2011. As in Monterey County, construction employment in the three-county region began to recover in 2012, and 2,400 construction jobs were added between 2012 and 2015. In 2015 there were 9,800 people working in construction jobs in the three-county region, 5,200 fewer than in 2006 (California Employment Development Department, 2016c; 2016d; 2016e).

[2] The estimates of employment by place of work count part-time and full-time jobs equally. People who hold more than one job may be counted more than once.

[3] In Monterey County the effects of the recession on jobs overall were not reflected in job numbers (i.e., by fewer annual average jobs compared to the year before) until 2009.

4.19.2 Regulatory Framework

There are no federal, state, or local regulations governing population and housing that apply to the proposed project.

4.19.3 Evaluation Criteria

Implementation of the proposed project would have a significant direct or indirect impact related to population and housing if it would:

- Induce substantial population growth in an area, directly (for example, by proposing new homes and businesses);
- Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere; or
- Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere.

Based on the location and nature of the proposed project, the following criteria are not considered in the impact analyses in Sections 4.19.5.1 and 4.19.5.2 for the reasons described below:

> ***Displace substantial numbers of housing units, necessitating construction of replacement housing.*** The proposed project would augment the existing water supply and construct new water supply infrastructure. Most facilities would be underground and the proposed desalination plant would be located on a currently vacant parcel. The proposed project would not displace any housing and would not necessitate construction of replacement housing. Therefore, the criterion related to housing displacement does not apply and is not addressed further in this section.
>
> ***Displace substantial numbers of people, necessitating construction of replacement housing.*** The proposed project would augment the existing water supply and construct new water supply infrastructure; it would not displace any people, including any workers, and would not necessitate construction of replacement housing elsewhere. Therefore, this impact criterion does not apply and is not addressed further in this section.

The impacts of growth that could be indirectly induced by the MPWSP are addressed in Section 6.3, Growth Inducement.

4.19.4 Approach to Analysis

In addition to CEQA requirements for addressing population and housing effects, CEQ Regulations contain a key provision that should be noted: “economic or social effects are not intended by themselves to require preparation of an environmental impact statement" (40 CFR 1508.14). However, when an EIS is prepared "and economic or social and natural or physical environmental effects are interrelated, then the environmental impact statement will discuss all of these effects on the human environment" (40 CFR 1508.14).

The evaluation of potential population and housing effects must consider employment associated with the concurrent construction of multiple project components; therefore, the analysis considers MPWSP construction as a whole, and similarly considers MPWSP operations as a whole rather than by component. The analysis compares the number of project-related jobs to current and recent employment levels in the three-county Monterey Bay region, which includes Monterey County, San Benito County, and Santa Cruz County, as a means to assess whether demand for project employment would likely be met primarily by the local and regional labor pool, or attract substantial numbers of workers from outside the region.

The evaluation of cumulative impacts considers the effects of cumulative projects in Monterey, San Benito, and Santa Cruz Counties. The analysis of cumulative population and housing impacts is based on growth projections contained in the general plans or related background documents of the three counties.

4.19.5 Direct and Indirect Effects of the Proposed Project

TABLE 4.19-2
SUMMARY OF IMPACTS – POPULATION AND HOUSING

Impacts	Significance Determinations
Impact 4.19-1: Induce substantial population growth directly during project construction.	LS
Impact 4.19-2: Induce substantial population growth directly during project operations.	LS
Impact 4.19-C: Cumulative impacts related to population and housing.	LS

NOTE:
LS = Less than Significant impact, no mitigation proposed

4.19.5.1 Construction Impacts

Impact 4.19-1: Induce substantial population growth directly during project construction. (*Less than Significant*)

During the approximately 24-month construction period up to 345 construction workers would be employed concurrently, according to planned construction phasing. The duration of construction for individual project components would vary substantially, however – from 2 months for the Pipeline to CSIP Pond to 24 months for the MPWSP Desalination Plant. Consequently, the number of construction workers needed would vary, from 90 to 345, over the 24-month construction period. Concurrent construction of project components is expected to require from 300 to 345 workers during the peak four months of construction (i.e., when the most components would be under construction concurrently). For another 11 months, 230 to 280 workers would be needed, and 90 to 100 workers would be needed during the final nine months of construction, primarily for completion of the desalination plant. Construction employment during the peak period (i.e., 345 jobs) represents 7 percent of the construction jobs in Monterey County in 2015 and 4 percent of the construction jobs in the three-county region comprising Monterey, Santa

Cruz, and San Benito Counties in 2015. The 90 to 280 jobs provided during the rest of the construction period represent 2 percent to 6 percent, respectively, of Monterey County construction jobs in 2015 and 1 percent to 3 percent, respectively, of construction employment in the three-county region.

Given that MPWSP construction jobs would represent a minor percentage of the current local and regional construction employment levels, MPWSP construction is not expected to create employment opportunities substantially greater than would normally be available to construction workers in the area. In addition, the substantial number of construction jobs lost in the county and region during the recession suggests the availability of workers not reflected in current job data. Therefore, construction workers needed for MPWSP construction are expected to be drawn from the local and regional labor pool. It is expected that construction workers who do not live in the vicinity of the MPWSP would commute from elsewhere in county or three-county region rather than relocate from more distant cities and towns. Consequently, construction of the MPWSP would not induce population growth by attracting a substantial number of workers from outside the region to relocate to the area, and therefore would not create demand for additional housing or other facilities and services associated with growth.

The proposed project does not involve any housing construction and would not induce growth directly by constructing housing that would attract people to the area. Therefore, construction of the proposed project would not directly induce a substantial increase in the local population and the direct growth-inducing impact of the proposed project would be less than significant.

Mitigation Measures

None proposed.

4.19.5.2 Operational and Facility Siting Impacts

Impact 4.19-2: Induce substantial population growth directly during project operations. (*Less than Significant*)

The geographic scope for the analysis of impacts during project operations is the three-county region consisting of Monterey, San Benito, and Santa Cruz Counties. The analysis assumes that workers needed to staff project operations could be drawn from within this region. Although it is more likely that workers would be drawn from areas of northern Monterey County, western San Benito County, and southern Santa Cruz County than from the more distant areas of the counties, data are not readily available for sub-county regions; therefore, the geographic scope incudes the entire three counties.

During MPWSP operations, approximately 25 to 30 facility operators and support personnel would operate the MPWSP Desalination Plant. All other proposed facilities (i.e., the seawater intake system, ASR-5 and ASR-6 Wells, Terminal Reservoir, and Carmel Valley Pump Station)

would be operated remotely using Supervisory Control and Data Acquisition systems, with periodic visits by existing CalAm personnel for operations review and maintenance. It is likely that existing plant operators would be retrained to operate the desalination facility, or operators would be drawn from the existing labor pool in Monterey County and potentially Santa Cruz and San Benito Counties, and would not attract workers from outside the region. However, conservatively assuming that the regional labor force could not meet the operational workforce requirements, up to 30 new employees relocating to the area would represent a 0.01 percent increase in workers residing in Monterey County (i.e., 0.01 percent of the labor force) in 2015. This incremental increase would not constitute substantial population growth in the region. Similarly, compared to the projected rate of growth of the county's labor force, an increase of 30 new employees would be minor. The county's labor force is projected to increase by 5,600 workers between 2010 and 2015; 30 new employees would represent 0.5 percent of this projected increase. The proposed project would not involve construction of new homes that would directly induce population growth, or, with the exception of the MPWSP Desalination Plant (addressed above), new places of employment in the area.

Therefore, operation of the proposed project would not directly induce a substantial increase in the local population as it would not require a substantial increase in the local workforce to support project operations, and the direct growth-inducing impact of the proposed project would be less than significant.

Mitigation Measures

None proposed.

4.19.6 Cumulative Effects of the Proposed Project

Impact 4.19-C: Cumulative impacts related to population and housing. (*Less than Significant*)

As discussed above in Section 4.19.5, the proposed project would have no impact related to the displacement of substantial numbers of housing units or people. Therefore, the project would not cause or contribute to a cumulative impact associated with the displacement of housing units or people that would necessitate the construction of replacement housing. The cumulative analysis focuses on the project's contribution to direct cumulative growth effects resulting from construction and operational labor force needs.

Cumulative Impacts During Project Construction

The geographic scope for the analysis of direct cumulative growth inducement impacts during project construction is the three-county region consisting of Monterey, San Benito, and Santa Cruz Counties. This analysis takes a projections based approach, utilizing projections contained in the counties' general plans and related background and environmental review documents. Because Santa Cruz County's general plan was adopted in 1994 and includes projections to 2005,

this analysis includes projections contained in its 2015 Housing Element and in the Sustainable Santa Cruz County Plan, which the county adopted in 2014.

- The Monterey County General Plan EIR utilizes Association of Monterey Bay Area Governments' (AMBAG's) 2004 regional forecast, which projects that Monterey County's population will grow from 432,600 in 2005 to 602,700 in 2030, and projects that the number of housing units in the county will increase from about 140,175 units in 2006 to 187,000 units by 2030 (Monterey County Resource Management Agency, 2010).
- The San Benito County General Plan Background Report cites AMBAG's 2008 regional forecast, which projects that San Benito County's population will grow from 62,400 in 2010 to nearly 95,000 by 2035. Jobs in the county are projected to increase from 17,400 in 2010 to 21,700 by 2035, and about 13,500 housing units are projected to be added over the same period (San Benito County, 2010).
- The 1994 Santa Cruz County General Plan EIR states that the county had a population of 229,734 in 1990 and 93,700 jobs (not counting self-employed workers), which was projected to increase to 130,700 jobs in 2005. Including self-employed workers, the number of jobs was projected to increase from 104,900 jobs in 1990 to 146,400 in 2005 (Santa Cruz County, 1993). The County's 2015 General Plan Housing Element cites AMBAG's 2014 forecasts, which projects the county population will grow by about 11 percent between 2010 and 2035. The Housing Element indicates that according to AMBAG's Regional Housing Need Allocation, a total of 3,044 new housing units need to be added in the county between 2014 and 2023 (Santa Cruz County, 2016). The County's Sustainable Santa Cruz County Plan, adopted in 2014, also cites AMBAG projections, which indicate that county's population is projected to increase from 262,382 in 2010 to 308,582 in 2035. The number of housing units in the County is projected to increase from 104,476 in 2010 to 120,196 in 2035, and over this same period, 6,150 jobs were expected to be added (Santa Cruz County, 2014).
- The analyses of the cumulative population and housing impacts in the Monterey County and San Benito County General Plan EIRs conclude that because general plans are intended to accommodate future growth, they would have a significant unavoidable growth inducing impact. The 1993 EIR for the Santa Cruz County General Plan concludes that the growth inducing impact of the alternatives evaluated would be less than significant. The 2015 initial study and negative declaration prepared for the 2015 Santa Cruz County Housing Element states that the housing element update is a policy document with an objective of accommodating projected population growth within existing development areas; that the growth inducing impact of the housing element would be less than significant; and that the housing element would have no potentially significant cumulative effects.

The cumulative analysis is based on projected buildout identified in the general plans of the three counties. Although we do not know the timing of the many individual projects that would be constructed under buildout of the counties' general plans, it would be over many years – over the period explicitly covered by the general plans or, frequently, longer. As discussed under Impact 4.19-1, MPWSP construction could generate up to 345 concurrent construction jobs during the four-month peak construction period and from 90 to 280 jobs during the other 20 months of construction.

Construction jobs are temporary, and construction workers in a region typically commute from their residences to temporary construction jobs elsewhere in the region, rather than relocating to

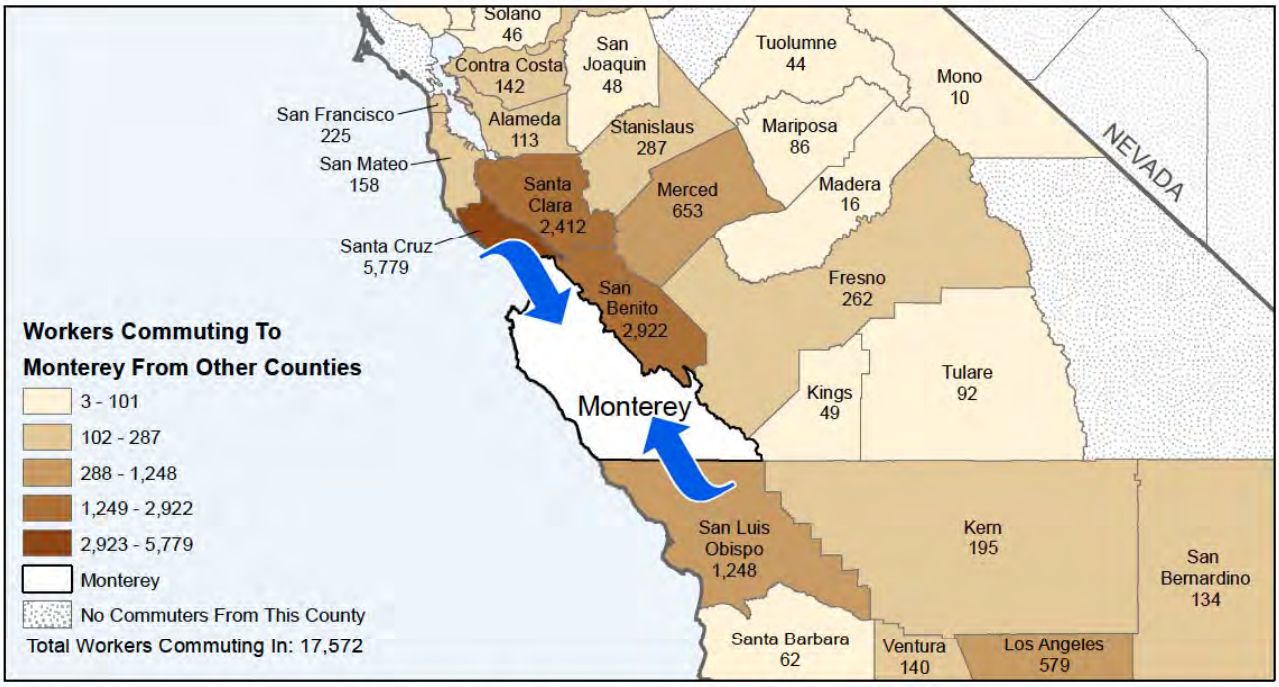
the vicinity of the job site. To illustrate out-of-county commuting that occurs for all jobs in the region, **Figures 4.19-1**, **4.19-2**, and **4.19-3** show estimates of county-to-county commuting flows for Monterey, San Benito, and Santa Cruz Counties. Based on the U.S. Census Bureau's American Community Survey estimates for years 2006 to 2010, the figures show that a substantial number of residents in the region commute to jobs in other counties. As discussed above in Section 4.19.1.2, about 3,400 construction jobs were lost in Monterey County between 2006 and 2011 and construction employment has not returned to pre-recession levels. In 2015, there were still 2,100 fewer construction jobs in the county than in 2006. Nor has construction employment in neighboring San Benito and Santa Cruz Counties recovered to pre-recession levels. These employment numbers reflect the availability of construction workers that are not reflected in current construction job numbers. Since the recession, some of these workers may be working in less desirable jobs and would return to construction work if jobs were available.

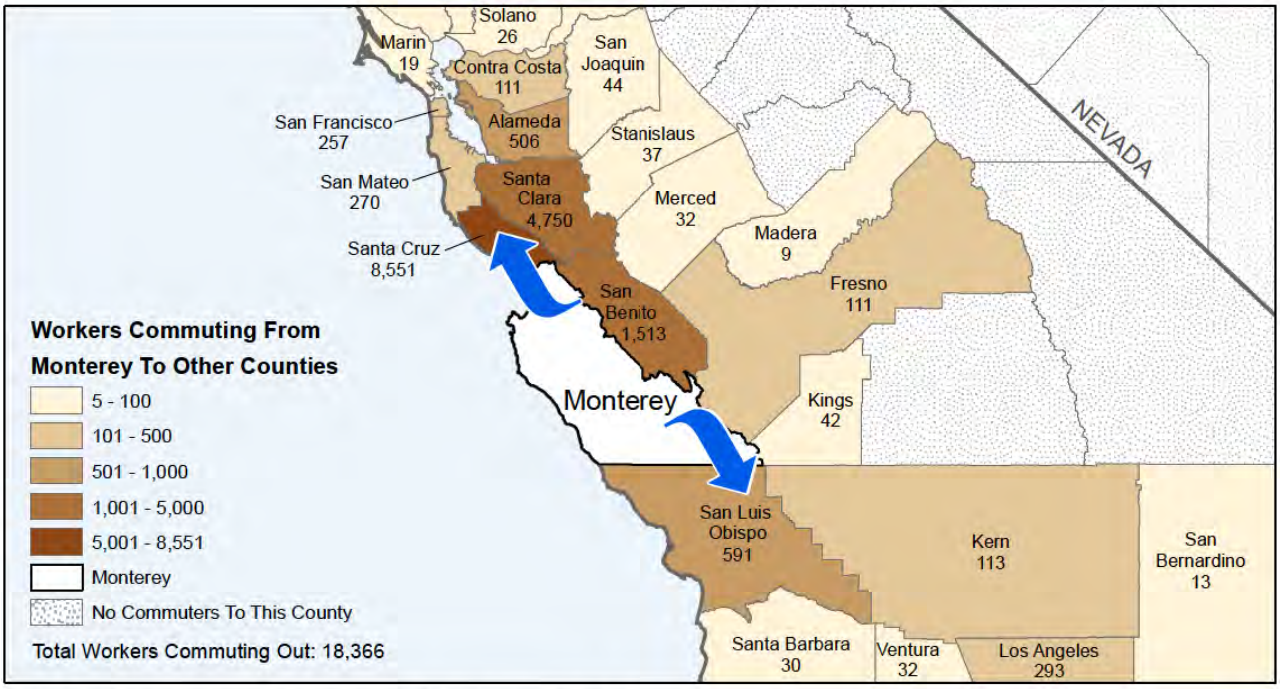
Because of the limited duration of construction jobs and the size of the regional construction workforce, the construction workforce in Monterey, San Benito, and Santa Cruz Counties is expected to accommodate demand of the cumulative projects for construction labor. It thus appears that there would be no significant cumulative impact on population and housing from construction of cumulative projects. Even if cumulative construction projects were to lead to population and housing effects by attracting some workers to move to the area from outside the region, such moves, and associated effects, would likely be temporary. In any event, the contribution of the MPWSP would not be cumulatively considerable because of the relatively small number of construction workers required and the short duration of the construction period. Therefore, the cumulative impact of MPWSP construction would not be cumulatively considerable and would be *less than significant*.

Cumulative Impacts during Project Operations

The geographic scope for the analysis of direct cumulative growth inducement impacts during project operations is the three-county region consisting of Monterey, San Benito, and Santa Cruz Counties. The analysis assumes that workers needed to staff project operations could be drawn from within this region. Although it is more likely that workers would be drawn from areas of northern Monterey County, western San Benito County, and southern Santa Cruz County than from the more distant areas of the counties, data are not readily available for sub-county regions; therefore, the geographic scope includes the entire three counties.

This analysis takes a projections based approach using projections contained in the counties' general plans and related background and environmental review documents, and, for Santa Cruz County, the Sustainable Santa Cruz County Plan, which the county adopted in 2014. Refer to the summary of projections included in the plans under the discussion of construction impacts, above. The cumulative analysis is based on projected buildout identified in the general plans of the three counties. Although we do not know the timing of the many individual non-residential projects that would commence operations under buildout of the counties' general plans, it would occur over many years. The timeframe during which MPWSP operations could contribute to a cumulative population and housing impact would be the approximately 40-year operations phase.





Total Workers That Live And Work in Monterey: 158,479

Data Source:
Special Report of 2006 to 2010 County-to-County Commuting Flows,
American Community Survey, U.S. Census Bureau,
report released January 2013

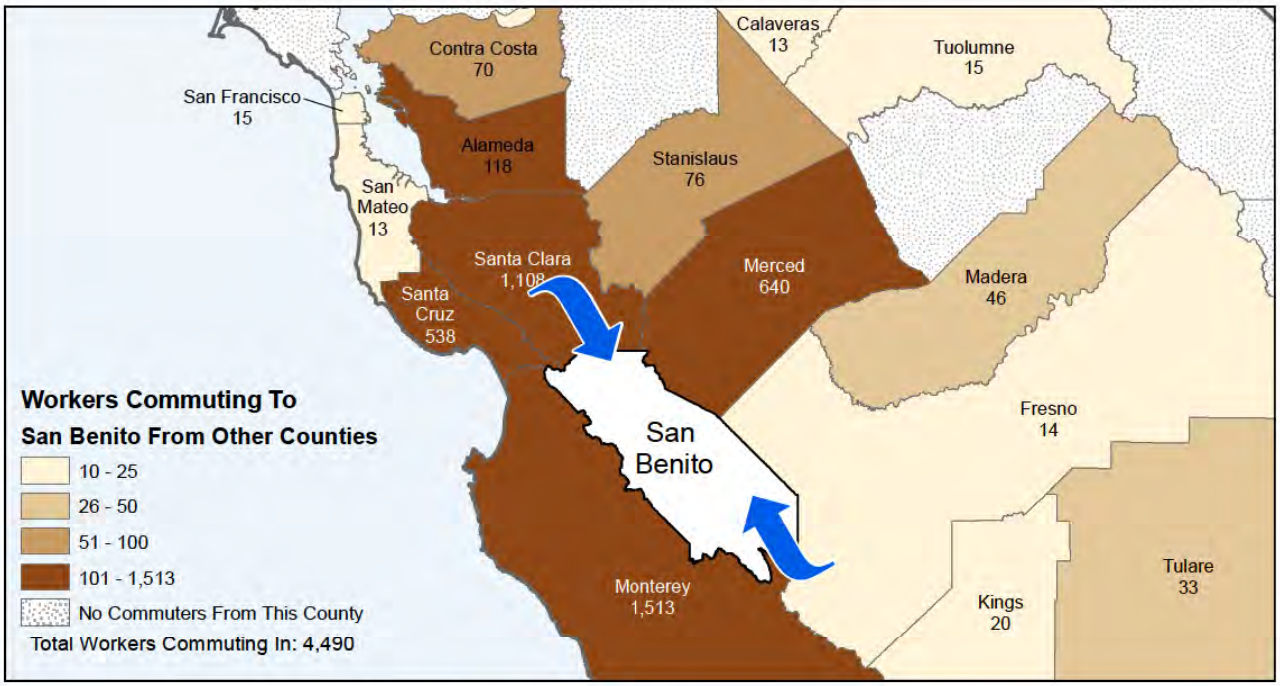
Cartography by:
Labor Market Information Division
California Employment Development Department
March 2015

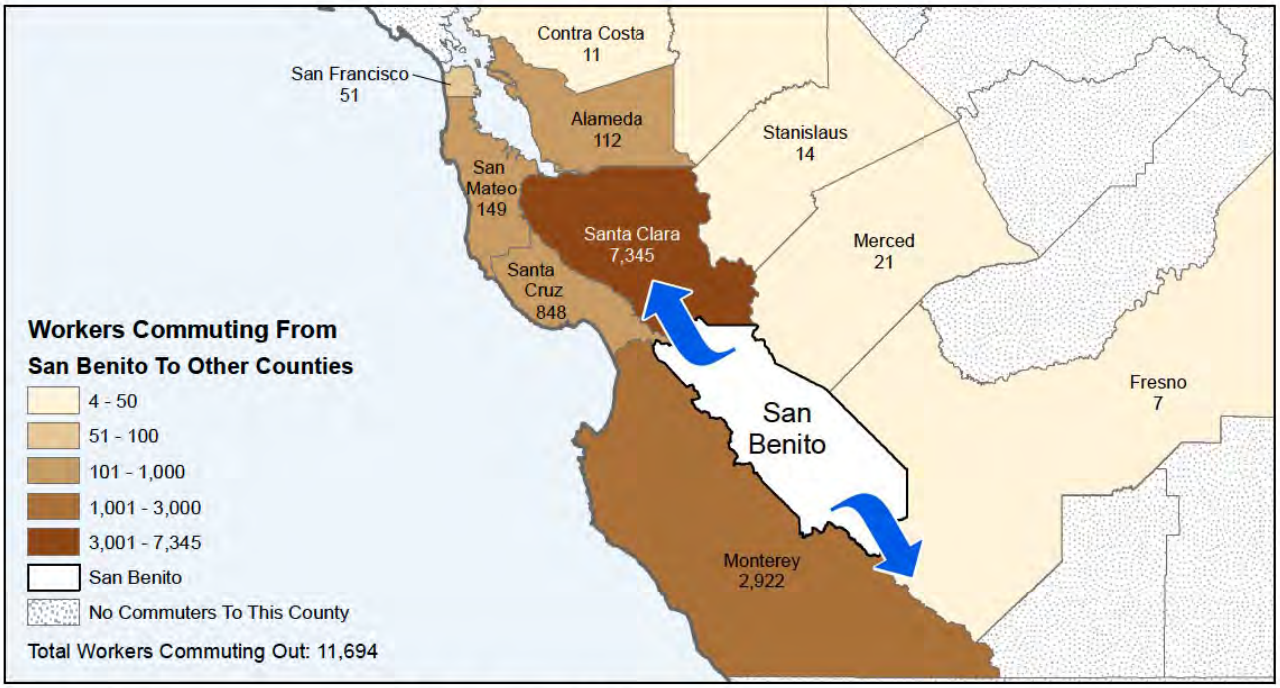
SOURCE: California Employment Development Department, 2015

205335.01 Monterey Peninsula Water Supply Project

Figure 4.19-1

County to County Commuting Estimates:
Monterey County





Total Workers That Live And Work in San Benito: 12,213

Data Source:
Special Report of 2006 to 2010 County-to-County Commuting Flows,
American Community Survey, U.S. Census Bureau,
report released January 2013

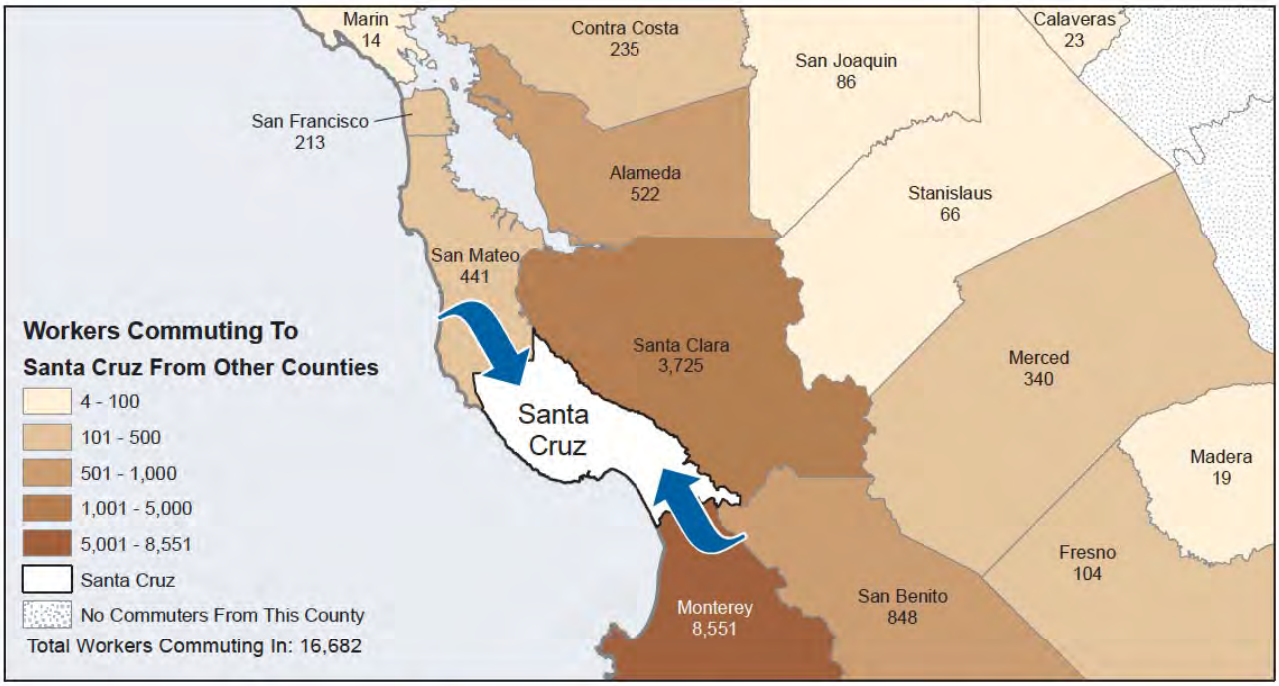
Cartography by:
Labor Market Information Division
California Employment Development Department
February 2015

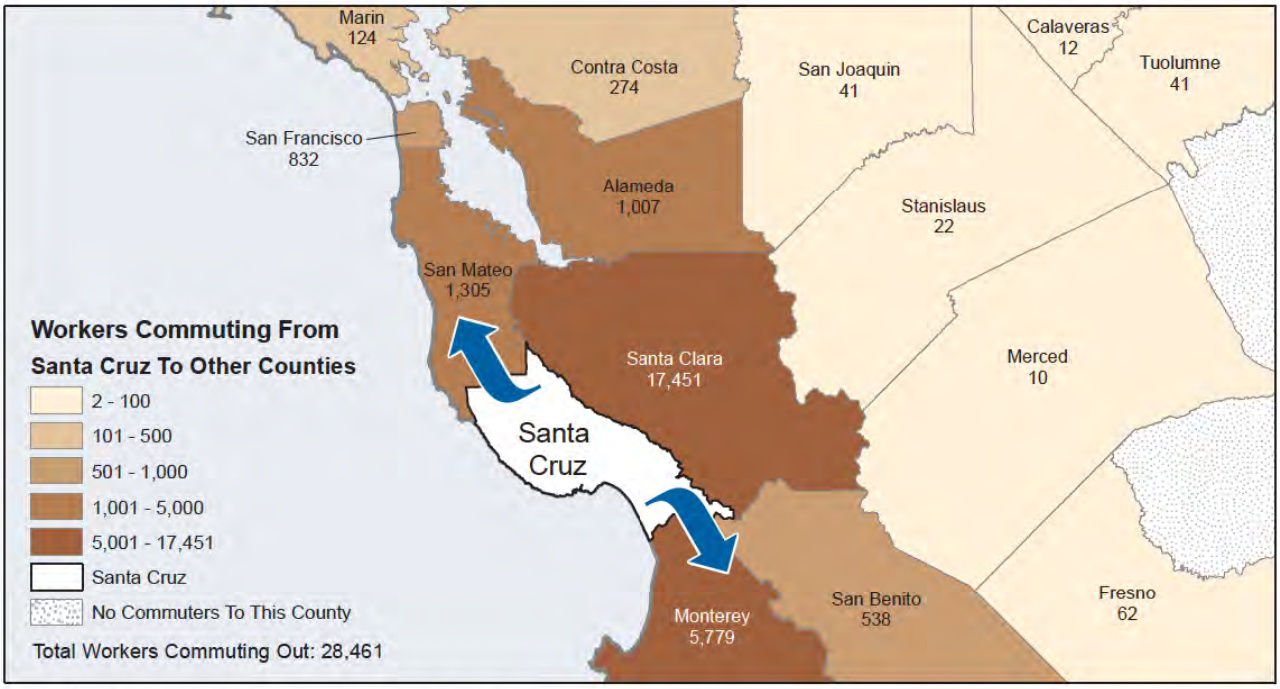
SOURCE: California Employment Development Department, 2015

205335.01 Monterey Peninsula Water Supply Project

Figure 4.19-2

County to County Commuting Estimates:
San Benito County





Total Workers That Live And Work in Santa Cruz: 93,245

Data Source:
Special Report of 2006 to 2010 County-to-County Commuting Flows,
American Community Survey, U.S. Census Bureau,
report released January 2013

Cartography by:
Labor Market Information Division
California Employment Development Department
February 2015

SOURCE: California Employment Development Department, 2015

205335.01 Monterey Peninsula Water Supply Project

Figure 4.19-3

County to County Commuting Estimates:
Santa Cruz County

According to the California Economic Development Department, in 2015, Monterey County had a labor force of 221,400 workers and an unemployment rate of 8.1 percent (i.e., there were 203,500 employed and 17,900 unemployed workers in the county). San Benito County had a labor force of 29,800 and an unemployment rate of 7.6 percent in 2015 (27,500 employed and 2,300 unemployed workers in the county), and Santa Cruz County had a labor force of 144,200 and an unemployment rate of 7.5 percent (133,400 employed and 10,800 unemployed workers in the county). The unemployment rates in Monterey, Santa Cruz and San Benito Counties are higher than the 2015 statewide average for California (5.3 percent) and higher than recent estimates by the Federal Reserve Board of a long-term normal rate of unemployment (which ranged from 4.6 to 5 percent) (Federal Reserve Board, 2016).[4] The three counties' relatively high unemployment rates suggest that a substantial number of jobs could be accommodated by the regional labor pool.

In addition, the three counties' general plans and related planning documents project employment and population growth over the period that the MPWSP would be in operation, as summarized above under Cumulative Impacts during Project Construction. The general plans are designed to accommodate anticipated job growth and housing for new workers. AMBAG's current growth forecast, adopted in 2014, projects that more than 40,000 jobs will be added in Monterey County alone between 2010 and 2035 (AMBAG, 2014).

Given the size of the regional work force, current unemployment rates in Monterey, San Benito, and Santa Cruz counties, and the size of the currently unemployed workforce, labor demand associated with the cumulative projects is expected to be accommodated by workers in the region. To the extent that new workers would move to the area from outside the region in response to employment opportunities provided by non-residential development in the three counties, there is no evidence to suggest that any such in-migration would be inconsistent with job growth projected and planned to occur under the three counties' general plans, and housing is also planned to accommodate such new workers. The California Regional Housing Need Allocation program specifically requires jurisdictions to accommodate their fair share of anticipated housing needs. A key purpose of General Plan housing elements is to demonstrate that jurisdictions have the capacity to accommodate anticipated housing needs.

Because the population and housing that could be induced by operation of cumulative projects is expected to be consistent with growth anticipated in the counties' general plan documents, the cumulative impact during project operations would be less than significant. As discussed above in Impact 4.19-2, the MPWSP's operational workforce demands would be nominal: 25 to 30 people. Even in the unlikely event that the population and housing induced by operation of cumulative projects was significant, in no event would the proposed project make a cumulatively considerable contribution to any such effect (*less than significant*).

[4] The estimates were provided by participants of the Federal Open Market Committee in the committee's June 2016 Summary of Economic Projections. Some level of unemployment is expected even with a healthy, dynamic economy, as workers switch jobs, new workers enter the labor market, and other workers leave it (Federal Reserve Board, 2016).

The potential for the MPWSP to indirectly support growth by providing additional water supply is addressed in Section 6.3, Growth Inducement.

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4.20 Socioeconomics and Environmental Justice

Sections	Tables
4.20.1 Setting/Affected Environment	4.20-1 Labor Force and Unemployment for Potentially Affected Jurisdictions (2015 Annual Average)
4.20.2 Regulatory Framework	4.20-2 Projected Employment Growth for Potentially Affected Jurisdictions (2010 – 2035)
4.20.3 Evaluation Criteria	4.20-3 Minority Populations of Potentially Affected Geographies (2010-2014)
4.20.4 Approach to Analysis	4.20-4 Income Characteristics for Potentially Affected Geographies (2010-2014)
4.20.5 Direct and Indirect Effects of the Proposed Project	4.20-5 Summary of Impacts – Socioeconomics and Environmental Justice
4.20.6 Cumulative Effects of the Proposed Project	4.20-6 Maximum Daily Construction Emissions Scenarios in Study Area Communities

This section evaluates the potential socioeconomic effects of the proposed project, including direct and indirect effects on economic activities, employment, tourism, research, and education. Environmental justice topics addressed include disproportionately high and adverse impacts on minority and low-income populations. This section analyzes the distributional patterns of minority and low-income populations on a regional basis and characterizes the distribution of such populations as they relate to the proposed project. Please note that other related topics, including population and housing, are addressed in Section 4.19, and growth inducement is addressed in Section 6.3.

Under NEPA (42 United States Code [USC] § 4321 et seq.), a federal lead agency must consider social and economic effects if they are related to a proposed project's natural or physical effects. The *CEQ Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act* (40 Code of Federal Regulations [CFR] Parts 1500-1508) defines "effects" to include economic and social factors, whether direct, indirect, or cumulative in nature (40 CFR 1508.8). Consequently, federal agencies must analyze a proposed project's economic and social impacts resulting from any natural or physical effects on the environment. Furthermore, Executive Order (EO) 12898 (59 FR 7629; Feb. 16, 1994), *Federal Actions to Address Environmental Justice in Minority and Low Income Populations*, requires federal agencies to identify and address disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority populations and low-income populations.

As described in Section 4.20.2.2, below, a CEQA Lead Agency may use information about the economic or social impacts of a project to determine the significance of physical changes caused by the project, but the economic or social effects of a project are not treated as significant effects on the environment. Additionally, CEQA does not use the term "environmental justice" or require the evaluation of impacts on minority or low-income communities in the way required by EO 12898. The Office of the California Attorney General (OAG) has clarified that environmental justice concerns are relevant to the analysis of a project under CEQA, but has recommended that lead agencies address environmental justice by evaluating whether a project's impacts would affect a community whose residents are particularly sensitive to the impact (i.e., sensitive

receptors) and whether a project would have significant effects on communities when considered together with any environmental burdens those communities already are bearing, or may bear from probable future projects (i.e., cumulative impacts) (OAG, 2012).

The impacts of this proposed project on sensitive receptors are analyzed where appropriate (e.g., in Section 4.10, Air Quality, and in Section 4.7, Hazards and Hazardous Materials). The proposed project's impacts considered together with existing or foreseeable environmental burdens experienced by nearby communities are analyzed throughout Chapter 4 in the Cumulative Effects subsection of each resource section. Further, the OAG indicates that a lead agency must be clear and transparent in its Statement of Overriding Considerations about the balances it has struck in approving a project, such as whether the benefits of the project will be enjoyed widely, but the environmental burdens of a project will be felt particularly by the neighboring communities (OAG, 2012). The information presented in this section will inform such a statement if and when the proposed project is approved in the event that a significant unavoidable impact is identified under CEQA. Significance determinations in this section, however, do not apply to the CEQA analysis. Rather, the conclusions in this section are relevant only to the NEPA analysis of the proposed project.

4.20.1 Setting/Affected Environment

The proposed project would be located along the northern coast of Monterey County (see **Figure 3-2** in Chapter 3) and would provide water supplies for CalAm's Monterey District service area (Monterey District), which includes the cities of Carmel-by-the-Sea, Del Rey Oaks, Monterey, Pacific Grove, Sand City, and Seaside. The Monterey District also extends into unincorporated areas of northern Monterey County (the Carmel Highlands, Pebble Beach, Carmel Valley, and the Del Monte Forest) and the Monterey Regional Airport. Although the cities of Castroville and Marina are outside of the Monterey District, these cities could be affected by construction activities. Therefore, the study area includes these cities as well as the county and the analysis below presents demographics for all of the aforementioned cities.

4.20.1.1 Socioeconomics

Employment

Key employment data include the number of employable residents (i.e., the available labor force) and the number of job opportunities (i.e., employment) within a community. Indicators of economic health of the study area include both jobs and the unemployment rate. **Table 4.20-1** shows labor force and unemployment data for the potentially affected jurisdictions and **Table 4.20-2** shows projected employment growth for these areas in terms of number of jobs into the future.

As shown in **Table 4.20-1**, Monterey County's current unemployment rate is 2.7 percentage points higher than the statewide unemployment rate. The overall unemployment rate within the Monterey District is about one percentage point lower than the countywide rate, though unemployment rates within individual jurisdictions vary widely. The jurisdiction with the highest unemployment rate is Sand City, which has an unemployment rate more than double that of Monterey County.

TABLE 4.20-1
LABOR FORCE AND UNEMPLOYMENT FOR POTENTIALLY AFFECTED JURISDICTIONS (2015 ANNUAL AVERAGE)

Jurisdiction	Labor Force[a]	Unemployment Rate[b]
Carmel-by-the-Sea	1,800	3.6%
Del Rey Oaks	1,000	6.0%
Monterey	15,700	5.8%
Pacific Grove	9,000	5.1%
Sand City	200	16.1%
Seaside	18,400	8.3%
Unincorporated Area[c]	9,520	8.1%[c]
Total for Monterey District[d]	***55,620***	***6.9%***
Marina	12,000	6.1%
Castroville CDP	3,200	13.4%
Monterey County	221,400	8.1%
State of California	19,100,900	5.4%

NOTES:
[a] EDD provides rounded labor force numbers, but calculates the unemployment rate before rounding.
[b] Not seasonally adjusted.
[c] An estimated 4.3 percent of the countywide population resides in the unincorporated portions of the Monterey District service area. Because EDD reports local data only at the City or Census Designated Place (CDP) level, the labor force for the unincorporated portion of the Monterey District was estimated as 4.3 percent of the county total. The unemployment rate in the unincorporated portions of the Monterey District is assumed to be equivalent to the Monterey County rate.
[d] Monterey District numbers are estimated based on the aggregate of EDD data for incorporated cities and estimates of unincorporated area data (see note c).

SOURCE: EDD, 2016

As shown in **Table 4.20-2**, 2010 employment data indicate that approximately 182,000 jobs were located in Monterey County. The largest proportion of these jobs was in the city of Monterey (approximately 15 percent). Seaside and Pacific Grove are also major employment centers in the Monterey District.

Between 2010 and 2035, AMBAG projects a countywide increase in employment of 22 percent. Substantial job growth is projected in all cities within the Monterey District service area. The long-term employment forecasts show more robust future growth. Note that the economic fluctuations experienced during the recession are typical of any economy, and the economic forecasting approaches employed by AMBAG account for such cyclical conditions.

Regionally Important Economic Sectors

The Monterey County Board of Supervisors has adopted four economic “pillars” as potential opportunities for the County Economic Opportunity Committee to facilitate economic and employment growth: agriculture, tourism, education, and research (Monterey County, 2016a).

TABLE 4.20-2
PROJECTED EMPLOYMENT GROWTH FOR POTENTIALLY AFFECTED JURISDICTIONS (2010 – 2035)

Jurisdiction	Number of Jobs					% Growth (2010 – 2035)
	2010	2020	2025	2030	2035	
Carmel-by-the-Sea	2,282	2,645	2,716	2,793	2,875	26.0%
Del Rey Oaks	414	640	602	592	573	38.4%
Monterey	26,934	31,249	32,512	33,597	34,828	29.3%
Pacific Grove	8,792	10,161	10,499	10,827	11,194	27.3%
Sand City	1,561	1,839	1,873	1,908	2,500	60.2%
Seaside	7,790	8,828	9,092	9,344	9,628	23.6%
Unincorporated Area[b]	7,826	8,857	9,082	9,309	9,552	22.1%[c]
Total for Monterey District	***55,599***	***64,219***	***66,376***	***68,370***	***71,150***	***28.0%***
Marina	4,951	5,727	6,191	7,242	8,305	67.7%
Monterey County	182,000	205,977	211,218	216,486	222,137	22.1%

NOTES:

[a] AMBAG does not provide data or estimates for unincorporated Castroville, and no other recent source of the estimated number of jobs in Castroville was identified. The 2007 Castroville Community Plan estimated that Castroville had 1,550 industrial jobs and anticipated that this number would double by 2027, a 3.3 percent annual growth rate. This document did not identify numbers of jobs or anticipated growth rates for other industries (Monterey County Housing and Redevelopment Office, 2007).

[b] An estimated 4.3 percent of the countywide population inhabits the unincorporated portions of the Monterey District service area. As a result, projected employment growth for the unincorporated portion of the Monterey District was estimated as 4.3 percent of the county total.

[c] The rate of current and future employment in the unincorporated portions of the Monterey District service area is assumed to be comparable to the Monterey County rate.

SOURCE: AMBAG, 2014

Agriculture

The agriculture industry as a whole includes crop and animal production, forestry, fishing, and hunting. In 2015, the Monterey County Agricultural Commissioner reported that crop and animal production provided 23.7 percent of all jobs in the County and contributed 18.5 percent of the County's direct economic output and $8.1 billion in total economic output (Monterey County Agricultural Commissioner, 2015). Crop and animal production, the largest portion of the agriculture industry is discussed in Section 4.16, Agricultural Resources, and forestry is discussed and dismissed as a topic of relevance to the proposed project in Section 4.1.2.1.

Commercial fishing represents a substantially smaller portion of the agriculture industry, in 2012 providing about 450 full- and part-time jobs in Monterey County (0.2 percent of total County employment) and contributing $55.9 million in total economic output (0.7 percent of the agricultural sector as a whole) (Office of National Marine Sanctuaries, 2014). No specific information on hunting as part of the agriculture sector is provided by Monterey County; however, like forestry, hunting is not expected to be a topic of concern for the proposed project, and is not discussed further in this section.

Tourism and Hospitality

Tourism and hospitality is one of the major industries in Monterey County, contributing over $2 billion per year in economic output and employing about 13 percent of workers in the County (Dean Runyan Associates, 2015; Monterey County, 2010). Recreational opportunities in Monterey County attract visitors. There are a variety of recreational resources throughout Monterey County—from federal preserves to state beaches and small neighborhood parks. These resources include Monterey Bay National Marine Sanctuary, along with designated parks, trails, and open spaces that provide for a diversity of active and passive recreational opportunities. Public access to the area's unique natural resources is an important component of recreation in Monterey County. The Monterey Bay shoreline hosts one of the most significant and rare dune landforms on the west coast. Public access to beaches, dunes, and hiking trails is available from numerous locations along the coast. There are also several designated bikeways throughout the project area that serve as both recreational facilities and alternative transportation routes. Recreational resources are addressed in Section 4.8, Land Use, Land Use Planning, and Recreation.

Education

Fourteen percent of the overall labor force in Monterey County works in education (Monterey County, 2010). Monterey Bay marine science institutions represent a large portion of the overall economy, supporting 2,343 jobs as of 2016 (Monterey County, 2016b). Examples of educational institutions that are located within or have programs in Monterey County include California State University Monterey Bay, Monterey Peninsula College, Hartnell College, Hopkins Marine Station (Stanford University), Marine Advanced Technology Education Center, Moss Landing Marine Laboratories, and the University of California Santa Cruz.

Research

The Monterey Bay is home to numerous marine and environmental science experts and institutions concentrated in this region due in part to the unique ecosystem of the Bay (Monterey County, 2016c). Most of the educational institutions and programs listed above are focused on or provide research opportunities specific to the region's ecology. MBNMS, in particular, collaborates with over 30 research institutions and is a leader in marine science. MBNMS addresses resource management needs for information, and oversees SIMoN, the Sanctuary Integrated Monitoring Network. In addition to MBNMS' research program, there are numerous research activities conducted by a variety of agencies and organizations such as Monterey Bay Aquarium Research Institute and Hopkins Marine Station. As of 2016, Monterey Bay marine science institutions employ over 2,000 scientists and staff and have a combined annual budget of $337 million (note that some of this employment and economic impact overlaps with the education sector described above) (Monterey County, 2016d).

4.20.1.2 Environmental Justice

The U.S. Environmental Protection Agency (USEPA) defines environmental justice as "the fair treatment and meaningful involvement of all people regardless of race, color, sex, national origin, or income with respect to the development, implementation and enforcement of environmental

laws, regulations, and policies." The purpose of the environmental justice analysis is to determine whether the environmental and human health-related impacts of the proposed project and alternatives would disproportionately affect minority and low-income populations. This environmental justice section provides a discussion of environmental justice in accordance with EO 12898 and related CEQ guidance.

Minority Populations

According to the federal CEQ guidance for environmental justice analyses, "Minority populations should be identified where either: (a) the minority population of the affected area exceeds 50 percent; or (b) the minority population percentage of the affected area is meaningfully greater than the majority population percentage in the general population or other appropriate unit of geographic analysis. … A minority population also exists if there is more than one minority group present and the minority percentage, as calculated by aggregating all minority persons, meets one of the above-stated thresholds" (CEQ, 1997). As explained in the following paragraphs, only the first threshold (greater than 50 percent) is relevant in determining whether the affected communities have minority populations because Monterey County has a minority population greater than 50 percent, and any minority population "meaningfully greater" than (in this case considered to be 1.5 times that of) the Monterey District's 38.6 percent also would be greater than 50 percent.

Table 4.20-3 presents the minority population for potentially affected areas of Monterey County. Consistent with the CEQ guidance cited in the previous paragraph, the minority population for a community consists of the aggregate of all non-white individuals as well as all Hispanic or Latino individuals (i.e., of both white and non-white racial origin).

Seaside, Marina, and Castroville have minority populations of more than 50 percent. Additionally, an analysis of minority population by census tract identified one census tract in Sand City (Census Tract 140) that has a minority population of 64.7 percent. These communities are therefore considered communities of concern for the environmental justice analysis.

Low-Income Populations

This analysis uses two methods for identifying communities of concern related to income levels, based on two sets of guidelines: CEQ guidance and California Regional Water Management Guidelines. Both of these methods are addressed below.

The CEQ environmental justice guidance states that "…low-income populations in an affected area should be identified with the annual statistical poverty thresholds from the Bureau of the Census' Current Population Reports, Series P-60 on Income and Poverty" (CEQ, 1997, p. 25). USEPA guidance (1998) recommends the use of Census data on poverty income as one indicator, as well as other available data. Unlike the CEQ guidance on minority populations, none of the environmental justice guidance documents contain a quantitative definition of what proportion of low-income individuals defines a low-income population. The annual statistical poverty thresholds are based on family income. A threshold of 50 percent of individuals in families with

TABLE 4.20-3
MINORITY POPULATIONS OF POTENTIALLY AFFECTED GEOGRAPHIES (2010-2014)

Geography	Total Population	Minority Population[a]	Minority Population Percentage
Monterey District[b]			
Carmel-by-the-Sea	3,807	735	19.3%
Del Rey Oaks	1,727	478	27.7%
Monterey (city)	28,053	8,936	31.9%
Pacific Grove	15,365	3,572	23.3%
Sand City	355	156	43.9%
Seaside	33,729	23,197	68.8%
Del Monte Forest CDP	6,439	1,542	23.9%
Balance of District[c]	16,862	2,474	14.7%
Total for Monterey District	***106,337***	***41,090***	***38.6%***
Other Geographies			
Castroville CDP	6,226	5,984	96.1%
Marina	20,198	12,602	62.4%
Monterey County	424,927	289,164	68.1%
State of California	38,066,920	23,161,319	60.8%

NOTES
[a] Includes all individuals other than non-Hispanic white. These values were calculated by subtracting the non-Hispanic white-only population from the total population for each jurisdiction/geography.
[b] Not all cities in this list are located entirely within the Monterey District.
[c] In the absence of more precise information, the balance of the Monterey District population is approximated by the populations of Census Tracts 107.02, 116.02, 116.04, 117, and 134. It is noted that these tracts include areas outside of the Monterey District.

SOURCE: U.S. Census Bureau, 2014c.

incomes below the poverty threshold (similar to the 50 percent threshold used to identify a minority population) would be an overly restrictive threshold for identifying a low-income population due to the nature of the poverty thresholds, which are not adjusted for regional costs of living, and are below levels commonly considered low-income in many areas of California.[1] For the purposes of this environmental justice analysis, the method of identifying low-income populations within the study area must account for regional costs of living. Therefore, this analysis uses a comparative approach and identifies a low-income population if the proportion of people with family incomes below the poverty threshold is meaningfully greater than that within the general population; in other words, if the percentage of such people in any of the communities considered is 1.5 times (or more than) that of the general population. Both Monterey County and the Monterey District are considered in the context of the general population.

[1] Poverty thresholds vary according to a household's size and composition. The census poverty threshold for a two-parent household with two children was $24,008 in 2014 (U.S. Census Bureau, 2014e). By comparison, CalAm's Low-Income Ratepayer Assistance program defines the low-income threshold for a four-person household as $48,500 (CalAm, 2015a). Only 110 of about 8,000 census tracts (just over 1 percent) in California had 50 percent or more individuals in families with incomes below the poverty threshold (U.S. Census Bureau, 2014f).

Table 4.20-4 indicates that approximately 17.2 percent of people in Monterey County and 11.5 percent of people in the Monterey District had incomes below the federal poverty threshold. Therefore, based on the definition described above, a community with 17.3 percent (1.5 times 11.5 percent) or greater of people in families with incomes below the federal poverty threshold are identified as low-income populations for the purposes of this analysis. The Monterey District is used for this purpose because it provides a lower, and therefore more inclusive, threshold for defining a community as low-income. Using the county's percentage for this purpose would exclude all of the communities from consideration as low-income communities of concern, and therefore would not provide a meaningful basis for comparing impacts on low-income communities and non-low-income communities. As shown in **Table 4.20-4**, Sand City, Seaside, and the Castroville CDP had greater than 17.3 percent of families with incomes below the poverty threshold.

TABLE 4.20-4
INCOME CHARACTERISTICS FOR POTENTIALLY AFFECTED GEOGRAPHIES (2010-2014)

Geography	Median Household Income[a]	Individuals with Family Income Below Poverty Threshold
Monterey District[a]		
Carmel-by-the-Sea	$62,460	7.9%
Del Rey Oaks	$101,250	6.2%
Monterey (city)	$64,772	9.9%
Pacific Grove	$70,230	7.8%
Sand City	$34,659	25.6%
Seaside	$52,538	18.8%
Del Monte Forest CDP	$102,396	8.1%
Balance of District[b]	$106,826	5.5%
Average for Monterey District [c]	***$74,391***	***11.5%***
Other Geographies		
Castroville CDP	$50,000	21.5%
Marina	$53,828	16.7%
Monterey County	$58,582	17.2%
State of California	$61,489	16.4%

NOTES:
a Not all cities in this list are located entirely within the Monterey District.
b In the absence of more precise information, the balance of the Monterey District population is approximated by the populations of Census Tracts 107.02, 116.02, 116.04, 117, and 134. It is noted that these tracts include areas outside of the Monterey District.
c Income characteristics of Monterey District service area are assumed to be the average of communities found within this area (weighted average of individuals with incomes below poverty).

SOURCE: U.S. Census Bureau, 2014d.

Additionally, California's Integrated Regional Water Management[2] guidelines provide criteria for identifying "disadvantaged communities" during water resources planning efforts. Under the

[2] Integrated Regional Water Management is a collaborative effort to manage all aspects of water resources in a region. Integrated Regional Water Management crosses jurisdictional, watershed, and political boundaries; involves multiple agencies, stakeholders, individuals, and groups; and attempts to address the issues and differing perspectives of all the entities involved through mutually beneficial solutions.

California Water Code, a disadvantaged community is defined as one with an annual median household income that is less than 80 percent of the statewide median household income (California Water Code, Section 79505.5[a]).

As shown in **Table 4.20-4**, the State of California's median household income as reported by the 2010-2014 American Community Survey was $61,489. Therefore, communities with a median income of less than $49,191 would be considered disadvantaged communities.

Among the geographies in Table 4.20-4 only Sand City had a median income of less than $49,191, making it a disadvantaged community in accordance with the California Water Code definition. Additionally, an analysis of income level by census tract identified one census tract in the city of Monterey (downtown; Census Tract 127) that meets the state income criteria for disadvantaged communities.

For this environmental justice analysis, Sand City, Seaside, Castroville CDP, and the downtown Monterey census tract are considered to represent low-income communities of concern.

4.20.2 Regulatory Framework

4.20.2.1 Federal Regulations

Executive Order 12898: Environmental Justice

As mentioned in the introduction to this section, EO 12898 (59 FR 7629; Feb. 16, 1994), *Federal Actions to Address Environmental Justice in Minority and Low Income Populations,* directs federal agencies to identify and address disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority populations and low-income populations.

Specifically, EO 12898 requires that:

> Each Federal agency shall conduct its programs, policies, and activities that substantially affect human health or the environment, in a manner that ensures that such programs, policies, and activities do not have the effect of excluding persons (including populations) from participation in, denying persons (including populations) the benefits of, or subjecting persons (including populations) to discrimination under such programs, policies, and activities, because of their race, color, or national origin.

Council for Environmental Quality Environmental Justice Guidance

The CEQ coordinates federal environmental efforts and works closely with agencies and other White House offices in the development of environmental policies and initiatives. The Presidential Memorandum accompanying EO 12898 stipulates that "each Federal Agency shall analyze the environmental effects, including health, economic and social effects, of federal actions, including effects on minority communities and low-income communities, when such analysis is required by NEPA." Accordingly, the CEQ has developed guidance to assist federal agencies with their NEPA procedures so that environmental justice concerns are effectively

identified and addressed. The CEQ's *Environmental Justice Guidance under the National Environmental Policy Act* advises agencies to consider the composition of the affected area; determine whether minority populations, low-income populations, or Indian tribes are present in the area affected by the proposed project; and, if such populations exist, determine whether there may be disproportionately high and adverse environmental effects on these populations (CEQ, 1997).

Executive Order 13045: Protection of Children from Environmental Health Risks and Safety Risks

EO 13045 (62 FR 19885; Apr. 23, 1997) stipulates that to the extent permitted by law and consistent with the agency's mission, each federal agency shall prioritize the identification and assessment of environmental health risks and safety risks that may disproportionately affect children; and shall ensure that its policies, programs, activities, and standards address disproportionate risks to children that result from environmental health risks or safety risks. As EO 13045 notes:

> A growing body of scientific knowledge demonstrates that children may suffer disproportionately from environmental health risks and safety risks. These risks arise because: children's neurological, immunological, digestive, and other bodily systems are still developing; children eat more food, drink more fluids, and breathe more air in proportion to their body weight than adults; children's size and weight may diminish their protection from standard safety features; and children's behavior patterns may make them more susceptible to accidents because they are less able to protect themselves (§1-101).

This EIR/EIS assesses environmental health and safety risks that may disproportionately affect children in Sections 4.7, Hazards and Hazardous Materials, and 4.10, Air Quality. Regarding whether the proposed project would emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school, see Impact 4.7-4 in Section 4.7. Schools are considered sensitive receptors for hazardous materials because children are more susceptible than adults to the effects of hazardous materials. See Table 4.7-2 in Section 4.7.1.5 for a list of schools within 0.25 mile of project components.

Regarding the proposed project's potential to have adverse health risks that may disproportionately affect children, see Impacts 4.10-1 and 4.10-4 addressing criteria pollutant emissions during construction and operation, respectively, and Impacts 4.10-2 and 4.10-5 addressing exposure of sensitive receptors to substantial pollutant concentrations during construction and operation, respectively. For the purposes of air quality and public health assessments, sensitive receptors are generally defined as land uses with population concentrations that would be particularly susceptible to disturbance from air pollutants associated with MPWSP's construction and/or operation and include children. Sensitive receptor land uses generally include schools, day care centers, hospitals, and residential areas. The analysis of the impact on sensitive receptors relied on the definition of cancer risk, which assumes a six-month exposure for sensitive receptors near the pump station site, with three months of exposure in the third trimester of pregnancy and three months in the 0- to 2-year category. For the ASR-5 and ASR-6 Wells, a 1-year DPM exposure period was used, with three months of exposure in the

third trimester of pregnancy and nine months in the 0- to 2-year age category. Therefore, the evaluation of cancer risk takes the health of children into account.

Because Sections 4.7 and 4.10 provide assessments of environmental health and safety risks that may disproportionately affect children, this topic is not addressed further in this section.

4.20.2.2 State Regulations

California Government Code

While there is no legal requirement to address environmental justice issues under CEQA, the State of California—following the adoption of EO 12898—passed a series of environmental justice regulations. California Government Code Section 65040.12 defines environmental justice as the "fair treatment of people of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies."

Legislative and executive actions related to environmental justice in California have been largely procedural, including but not limited to the formation of environmental justice advisory committees and the assignment of coordinating roles and responsibilities to the Governor's Office of Planning and Research and the California Environmental Protection Agency.

California Environmental Quality Act

Per CEQA guidelines Section 15131, "Economic or social information may be included in an EIR or may be presented in whatever form the agency desires." The section continues:

a) Economic or social effects of a project shall not be treated as significant effects on the environment. An EIR may trace a chain of cause and effect from a proposed decision on a project through anticipated economic or social changes resulting from the project to physical changes caused in turn by the economic or social changes. The intermediate economic or social changes need not be analyzed in any detail greater than necessary to trace the chain of cause and effect. The focus of the analysis shall be on the physical changes.

b) Economic or social effects of a project may be used to determine the significance of physical changes caused by the project. […] Where an EIR uses economic or social effects to determine that a physical change is significant, the EIR shall explain the reason for determining that the effect is significant.

c) Economic, social, and particularly housing factors shall be considered by public agencies together with technological and environmental factors in deciding whether changes in a project are feasible to reduce or avoid the significant effects on the environment identified in the EIR. […]

Senate Bill No. 936, Chapter 482

Under existing law, the CPUC has regulatory authority over public utilities, including water corporations. Existing law authorizes the CPUC to fix just and reasonable rates and charges. The existing Monterey Peninsula Water Management District Law establishes the MPWMD and provides for its powers and purposes.

SB 936 authorizes the CPUC to issue financing orders to facilitate the recovery, financing, or refinancing of water supply costs, defined to mean reasonable and necessary costs incurred or expected to be incurred by a qualifying water utility. This bill authorizes the MPWMD to issue water rate relief bonds if the CPUC finds that the bonds will provide savings to water customers on the Monterey Peninsula. Savings from these bonds would result from the lower interest rates that would apply to this financing compared to market-rate financing.

4.20.2.3 Local Regulations

Settlement Agreement on MPWSP Desalination Plan Return Water

On June 14, 2016, a settlement agreement was reached between Cal Am and several parties to the proceeding before the CPUC. Under this agreement, CCSD will purchase water at a discounted cost pursuant to Item 4, Payment Provisions:

> (a) CCSD shall pay a rate intended to represent its avoided cost to produce groundwater to meet customer demand, currently estimated to be $110 per acre-foot, which will be the rate as of the beginning of the Delivery Term, for Return Water made available for delivery to meet the Annual Return Water Obligation. CCSD plans to continue operation of its existing wells so they may be available in emergency circumstances. This continuing operation will enable CCSD to provide future updates to the avoided cost of pumping to CalAm upon CalAm's reasonable request, but not more than once per year.

4.20.3 Evaluation Criteria

Implementation of the proposed project would have a significant impact related to socioeconomics and environmental justice if it would:

- Substantially reduce the rate of employment or the total income or business activity in Monterey County; or
- Change any social, economic, physical, environmental, or health conditions so as to result in a disproportionately high and adverse effect on minority or low-income populations.

Significance determinations in this section apply to the NEPA analysis only.

As described above, OAG indicates that a CEQA lead agency must be clear and transparent in its Statement of Overriding Considerations about the balances it has struck in approving a project, such as whether the benefits of the project will be enjoyed widely, but the environmental burdens of a project will be felt particularly by the neighboring communities (OAG, 2012). The information presented in this section will inform such a statement if and when the proposed project is approved.

4.20.4 Approach to Analysis

4.20.4.1 Socioeconomics

The CEQ's regulations for implementing the procedural provisions of the NEPA (40 CFR Parts 1500-1508; reprinted in CEQ, 2005) provide standards for addressing social and economic impacts in preparing an environmental impact statement. Consistent with these regulations, this analysis examines potential impacts with respect to employment and local economic conditions. Generally, effects that result in greater employment or income, or that otherwise improve the quality of life for the local population, are considered beneficial socioeconomic impacts. This analysis considers the short-term socioeconomic effects that could occur in the project area during the MPWSP's construction period, and the long-term effects that could occur in the Monterey District service area associated with the MPWSP's future operations and debt repayment.

4.20.4.2 Environmental Justice

The USEPA guidance states that the analysis of environmental justice should determine if the affected area of minority population and/or low-income population is subject to "disproportionately high and adverse human health or environmental effects" from the proposed project. The guidance suggests that a comparative analysis be performed of potential impacts on the affected population and a reference population to determine the type of high and adverse impacts and the extent of disproportionality (USEPA, 1988).

For purposes of this analysis, the potential for disproportionately high and adverse impacts on minority and low-income populations was assessed applying USEPA's Guidance for Incorporating Environmental Justice Concerns in USEPA's NEPA Compliance Analysis.

4.20.5 Direct and Indirect Effects of the Proposed Project

TABLE 4.20-5
SUMMARY OF IMPACTS – SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE

Impacts	Significance Determinations
Impact 4.20-1: Reductions in the rate of employment, total income, or business activity in Monterey County.	LSM
Impact 4.20-2: Disproportionately high and adverse effects on low-income or minority populations.	LS
Impact 4.20-C: Cumulative impacts related to socioeconomics and environmental justice.	LSM

NOTES:
LS = Less than Significant impact, no mitigation proposed
LSM = Less than Significant with implementation of mitigation

4.20.5.1 Socioeconomics

Impact 4.20-1: Reductions in the rate of employment, total income, or business activity in Monterey County. (*Less than significant with mitigation*)

Project Construction

MPWSP construction activities and spending would result in temporary new local employment opportunities and increased spending on construction materials, equipment, and services. The extent to which the construction spending would benefit Monterey County's economy would depend on the proportion of employment, goods, and services procured from local residents and businesses. The greater the proportion of construction labor, materials, and equipment sourced from the project area, the greater the local benefits of the increased economic activity. Conversely, if most of the labor and materials were imported from outside of Monterey County, then project-related construction spending would have a relatively minor benefit on the regional economy.

CalAm's construction spending would represent a net gain to the Monterey County economy. In addition, State Revolving Fund debt and public financing would represent a net gain to the economy in the short term. Therefore, the proposed project would result in a direct, minor, beneficial economic impact on the Monterey County economy.

In addition to the direct effects identified above, secondary economic effects could also result from subsequent "re-spending" by construction companies and materials suppliers that occurs when these companies spend their earnings from the projects at other businesses (i.e., a multiplier effect), and re-spending by employees of those companies. This re-spending would also affect local businesses. The magnitude of the MPWSP construction's indirect economic benefits would depend on the proportion of the labor, materials, and services sourced from the local economy. If a large proportion of the materials and equipment is highly specialized (and must be obtained from suppliers outside of Monterey County), then the construction spending would primarily benefit other economies. The magnitude of the induced economic benefits from construction would depend on the extent to which the workers and businesses in Monterey County that perform the construction activities in turn spend their earnings at other local businesses. As acknowledged in Section 4.19, Population and Housing, some construction workers are expected to commute to the project area from outside of Monterey County. Accordingly, the employment and re-spending benefits related to those workers primarily would be experienced in their home counties.

A formal input-output analysis to estimate the indirect and induced economic impacts was not performed. However, given the relatively specialized nature of the desalination technology and other related water conveyance facilities, it is expected that a relatively small proportion of the highly technical project components would be sourced from within Monterey County. Common materials, such as pipes, grading materials, and excavation equipment, would primarily be sourced from the regional area of Monterey County. As described in Section 4.19, Population and Housing, furthermore, the majority of construction labor would be drawn from the local and regional labor pool. During the construction period up to 370 construction workers would be employed. The

indirect and induced economic benefits for Monterey County would be relatively minor, but would represent an indirect beneficial economic impact on the Monterey County economy.

Construction of the proposed project would not have adverse effects on the tourism, research, and education industries in Monterey County. While shifts in spending would potentially affect the retail and hospitality industries, visitors to Monterey County would not be deterred from visiting because construction would be temporary in nature, and impacts would be less than significant. Access for tourists to businesses like retail and dining as well as recreational opportunities may be temporarily impacted by pipeline construction, which would temporarily affect access to streets, parking spaces, and trails. Although pipeline construction would proceed at a rate of 150 to 250 feet per day, the total duration of disturbance at any one location would generally be 1 to 2 weeks. This could result in a significant impact on some individual businesses in the affected locations. However, implementation of **Mitigation Measure 4.9-1 (Traffic Control and Safety Assurance Plan)**, would reduce this potential impact by requiring implementation of circulation and detour plans to minimize impacts on local streets, implementing a public information program to provide advance notice to businesses, residents, and visitors, and restoring roads and streets to normal operation by covering trenches with steel plates outside of normal work hours or when work is not in progress. This measure would reduce this impact to less than significant.

No offshore construction is proposed and construction of the project components would not interfere with any research activities being conducted along the coast. MBNMS oversees the operation of numerous monitoring activities with the sanctuary, but no monitoring was identified as occurring close enough to project construction for these activities to be affected (SIMoN, 2016). As described in Section 4.13, Public Services and Utilities, no impact on educational facilities would occur.

Operational and Facility Siting Impacts

The total capital cost to build proposed project components is estimated to be $337.9 million. These costs would be covered by CalAm equity, State Revolving Fund debt, surcharge on water users, and financing through water rate relief bonds as described under Senate Bill 936 in Section 4.20.2.2. Implementation of the MPWSP would double the current water rates for ratepayers within CalAm's Monterey District (Truong, 2016). This increase would be phased in over a period of several years. While the savings achieved by the water rate relief bonds in-lieu of market-rate financing would reduce the overall costs to ratepayers compared to other financing mechanisms, such a utility cost increase could represent an adverse economic impact on the spending power of some ratepayers in Monterey District. Although these consumers could spend less at Monterey County businesses as a result of the increased water rates, such an incremental reduction in spending would not be large enough to constitute a significant adverse effect on overall employment or business activity in Monterey County. The potential impact of this proposed rate increase on low-income individuals and communities is analyzed under Impact 4.20-2 (environmental justice).

Operation of the proposed project would not affect access to tourism, education and research industries. Tourism relies on the recreation, retail and travel sectors, and would not be impacted by the proposed project. Access to research environments would not change as a result of the

project. Instead, the project would support the long-term economic stability of these industries in Monterey County. It would improve water conveyance infrastructure and water supply in the CalAm Monterey District. This would increase reliability of water supply for all economic sectors in Monterey County. Overall, impacts of operation would be less than significant.

4.20.5.2 Environmental Justice

Impact 4.20-2: Disproportionately high and adverse effects on low-income or minority populations. (*Less than significant*)

Project Construction

Low-income and minority populations are defined in Section 4.20.1.4 and include all or portions of Sand City, Seaside, Castroville, Monterey (downtown), and Marina. To determine whether there were any proposed project environmental impacts that could disproportionately affect these communities of concern, all of the individual resource issue area analyses in Sections 4.2 through 4.19 of this EIR/EIS were evaluated. In reviewing each of these sections, this environmental justice analysis considers potential impacts and mitigation measures and whether a "disproportionately high and adverse" (CEQ, 1997) impact would result for the minority or low-income populations identified. Only Section 4.10, Air Quality, described impacts that could result in a disproportionately high and adverse impact on minority and/or low-income populations.

Health effects resulting from decreased air quality, specifically on minority or low-income populations, are location-based and dependent on the varying components of the proposed project. **Table 4.20-6** provides the estimated maximum daily construction emissions of ROG, NOx, CO, PM_{10}, and $PM_{2.5}$ that would potentially result from MPWSP components that would be located closest to the communities of concern. These components are displayed on **Figure 3-2** and listed in **Table 4.10-5**, Estimated Maximum Daily Construction Emissions.

As shown in Table 4.20-6, none of the maximum daily emissions scenarios near each of these communities would exceed the MBUAPCD significance thresholds (described in detail in Section 4.10). However, of the communities with identified low-income and minority populations, Seaside and Marina would experience emissions more than twice as high as those that would occur in Del Rey Oaks and the unincorporated Ryan Ranch area. If these emissions near minority and low-income populations resulted in an adverse effect, this would have the potential to be a disproportionately high and adverse impact compared to the impact on non-minority or low-income populations.

Table 4.10-1, Ambient Air Quality Monitoring Summary (2011–2015), shows that existing pollutant concentrations have been relatively low compared to existing standards. Although **Table 4.10-5** shows that total project construction emissions would exceed applicable regulatory thresholds, those total emissions would be distributed across the various project components located in different parts of the project area, as illustrated by Table 4.20-6, and would not be concentrated in one location at any time. The site-specific emissions that would result from construction in any given location would be well below project-specific thresholds and would not substantially

TABLE 4.20-6
MAXIMUM DAILY CONSTRUCTION EMISSIONS SCENARIOS IN STUDY AREA COMMUNITIES (pounds/day)

Location	Nearby Project Components in Maximum Daily Emissions Scenario	Estimated Maximum Daily Emissions				
		ROG	NOx	CO	PM_{10}	$PM_{2.5}$
Minority and Low-Income Communities						
Monterey, Sand City	None	--	--	--	--	--
Seaside	Terminal Reservoir ASR Pipelines ASR Injection/Extraction Wells	6.32	87.40	46.82	3.28	2.66
Castroville	Castroville Pipeline	2.39	27.59	17.61	1.19	1.06
Marina	Subsurface Slant Wells Source Water Pipeline New Desalinated Water Pipeline	8.80	113.20	61.84	4.59	3.93
Other Communities in Study Area						
Carmel-by-the-Sea, Pacific Grove	None	--	--	--	--	--
Del Rey Oaks/ Unincorporated County	Ryan Ranch-Bishop Interconnection Improvements	2.34	26.99	17.21	1.18	1.04
MBUAPCD Significance Thresholds		**137**	**137**	**550**	**82**	**55**

SOURCE: See Appendix G; MBUAPCD, 2016.

contribute to localized concentrations of criteria pollutants such that localized exceedances of standards would occur. Construction emissions would be temporary in nature and would not raise ambient air pollutant concentrations over time. Although several of the identified minority and low-income communities would experience higher emissions than would other communities (due to the amount of construction contributing to the estimate of maximum daily emissions near each community), emissions from construction would not result in substantial adverse health effects because they would be temporary and would not exceed applicable thresholds. Therefore, because construction of project components would not result in substantial adverse effects, the project would not result in a disproportionately high and adverse impact on minority and/or low-income communities, and the impact would be less than significant. Additionally, implementation of **Mitigation Measures 4.10-1a** through **4.10-1d** would reduce project construction emissions further.

Operational and Facility Siting Impacts

As is the case with construction, air quality is the only issue area that could result in a disproportionately high and adverse impact on minority and/or low-income communities. However, as described in Impact 4.10-4, combined operational emissions of the MPWSP Desalination Plant, Carmel Valley Pump Station, and the slant wells would not exceed any of the thresholds derived from applicable air quality plans; therefore, operational emissions would not be expected to adversely affect the communities' health.

As discussed above, development and operation of the proposed project would result in higher water rates for most ratepayers within CalAm's Monterey District, which includes the identified

low-income populations in Sand City, Seaside, and downtown Monterey. Such increases could have an adverse impact on low-income populations, and because low-income ratepayers may be less able to absorb price increases compared to non-low-income ratepayers, this adverse impact could be disproportionately high, and thus significant. However, under CalAm's Help to Others (H_2O) program, low-income water customers within the CalAm service area can apply to receive water rates that are discounted by approximately 20 percent for the meter rate and for the first two tiers of residential quantity rates (CalAm, 2015a, b, 2016a). This program is expected to continue and would help offset impacts on low-income ratepayers from future water rate increases resulting from implementation of the proposed project. Further, CalAm provides assistance through payment arrangements to customers who cannot pay bills by the due date, as well as water conservation assistance including: "water wise" house calls for homeowners and renters to identify water conservation opportunities, free water-saving devices (e.g., showerheads, faucet aerators), landscape water audits and budgets, and rebates for purchasing and installing water-saving devices (CalAm 2016a, b, c). These customer assistance programs are consistent with USEPA's recommendation to water and wastewater utilities to provide such programs to address the economic needs of low-income customers (USEPA, 2016). These programs would reduce the burden of increased prices on low-income households in the Monterey District to the extent practicable. CPUC jurisdiction over CalAm's water rates includes oversight by the Office of Ratepayer Advocates, whose statutory mission pursuant to California Public Utilities Code Section 309.5 is to obtain the lowest possible rate for service consistent with reliable and safe service levels, and to consider primarily the interests of residential and small commercial customers. For these reasons, this impact is would be less than significant.

The Castroville Community Services District (CCSD), which serves Castroville, a disadvantaged community and identified low-income community outside of CalAm's Monterey District, currently relies on about 780 acre-feet per year of SVGB groundwater to meet Castroville's water demands, and increasingly has experienced water supply challenges due to water quality degradation primarily from increased salinity. As described in Section 4.20.2.3, above, the settlement agreement would allow CalAm to deliver desalinated water to CCSD at a rate equal to the avoided cost of pumping the same amount of water. Therefore, CCSD would benefit from the proposed project because it would receive higher-quality water for the same price that pumping degraded water otherwise would cost. This would be a minor beneficial effect for a disadvantaged community.

4.20.6 Cumulative Effects of the Proposed Project

The cumulative scenario and cumulative impacts methodology are described in Section 4.1.7. Table 4.1-2 lists potential cumulative projects.

Impact 4.20-C: Cumulative impacts related to socioeconomics and/or environmental justice. (*Less than significant with mitigation)*

Socioeconomics

The geographic scope for the cumulative impact analysis of socioeconomics encompasses Monterey County.

As described in Impact 4.20-1, project construction would economically benefit the communities in the project area. No communities in the vicinity of the project area would experience negative socioeconomic impacts resulting from construction. Access for consumers to some businesses may be temporarily affected. Potential disruptions would last a maximum of 2 weeks at any given location, and none of the linear projects in Table 4.1-2 that could have similarly disruptive construction effects would overlap in time and location with proposed project construction. Therefore, no cumulative impact is anticipated, and the impact of the proposed project alone would be as described above, less than significant with mitigation.

Construction projects listed in Table 4.1-2 and MPWSP construction activities and spending would result in temporary new local employment opportunities and increased spending on construction materials, equipment, and services. Consequently, the proposed project and other projects in the cumulative scenario would have a net positive economic and employment effect on the communities benefitting from proposed project construction. As acknowledged in Section 4.19, Population and Housing, some construction workers are expected to commute to the project area from outside of Monterey County. Accordingly, the employment and re-spending benefits related to those workers primarily would be experienced in their home counties, and would combine with cumulative impacts affecting those counties. The proposed project would have a beneficial contribution to such cumulative impacts outside the geographic scope for this analysis.

Environmental Justice

The geographic scope for the cumulative impact analysis of environmental justice includes the minority and low-income communities identified in Section 4.20.1.2: Seaside, Marina, Castroville, and Sand City, and one census tract in downtown Monterey.

Project construction would occur in Seaside, Marina, and Castroville. Although localized project emissions in these communities would not exceed significance thresholds, four other projects have the potential to be under construction near proposed project components in these communities at the same time. As described in Table 4.1-2, these are the remaining retail and housing components of The Dunes on Monterey Bay in Marina (No. 7), the Marina Downtown Vitalization Specific Plan (No. 10), Marina Station (No. 12), and the Main Gate Specific Plan in Seaside (No. 18). The construction schedules for these projects are unknown, but if construction of these projects were to overlap with the construction of the proposed project, the cumulative localized emissions could be increased compared to the proposed project alone. Although cumulative impacts could be significant if other projects resulted in emissions that exceeded significance thresholds, the proposed project's localized emissions as shown in Table 4.20-6 would not be significant. Therefore, for the same reasons described in the air quality analysis in Section 4.10.6, the proposed project's contribution to cumulative impacts at these locations would not be significant. With regard to operational effects, as discussed in Impact 4.10-6, such emissions would be negligible. (*Less than significant*)

Implementation of the MPWSP would result in a long-term increase in water rates for ratepayers within CalAm's Monterey District that would be phased in over a period of several years. However, CalAm is proposing in their current General Rate Case (A.16-07-002) to increase rates

by 15 percent for its Monterey District. The implementation of the MPWSP would double the current water rates for ratepayers within CalAm's Monterey District (Truong, 2016). Although the Monterey Pipeline and Pump Station are identified as a separate project in the cumulative scenario (No. 60 in Table 4.1-2), this estimate of doubling the rates is based on CalAm's Amended Application, which assumed the cost of these facilities to be included (ESA, 2016). Therefore, no additional increase would occur as a result of implementation of the Monterey Pipeline and Pump Station project. Additionally, it is assumed that the GWR Project (No. 59) is not relevant to the cumulative scenario for the proposed project. No other projects in Table 4.1-2 would result in additional rate increases because they would be carried out and funded by organizations other than CalAm. The cumulative impact in the Monterey District from the MPWSP and general rate case proceeding is an increase in rates of approximately 115 percent. This could be have a disproportionate impact on low-income ratepayers, but for the same reasons described for the proposed project in Section 4.20.5.2, this impact is considered to be less than significant. Additionally, no other projects are expected to affect water supply to or prices paid by the CCSD, so a cumulative analysis is not relevant to the project's benefits to CCSD.

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