

4.12 Noise and Vibration

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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 spreading¹). 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 ● 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 ● 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 ● 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 ● 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 ● 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 ● 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 ● 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 ● Agricultural 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 ● 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.

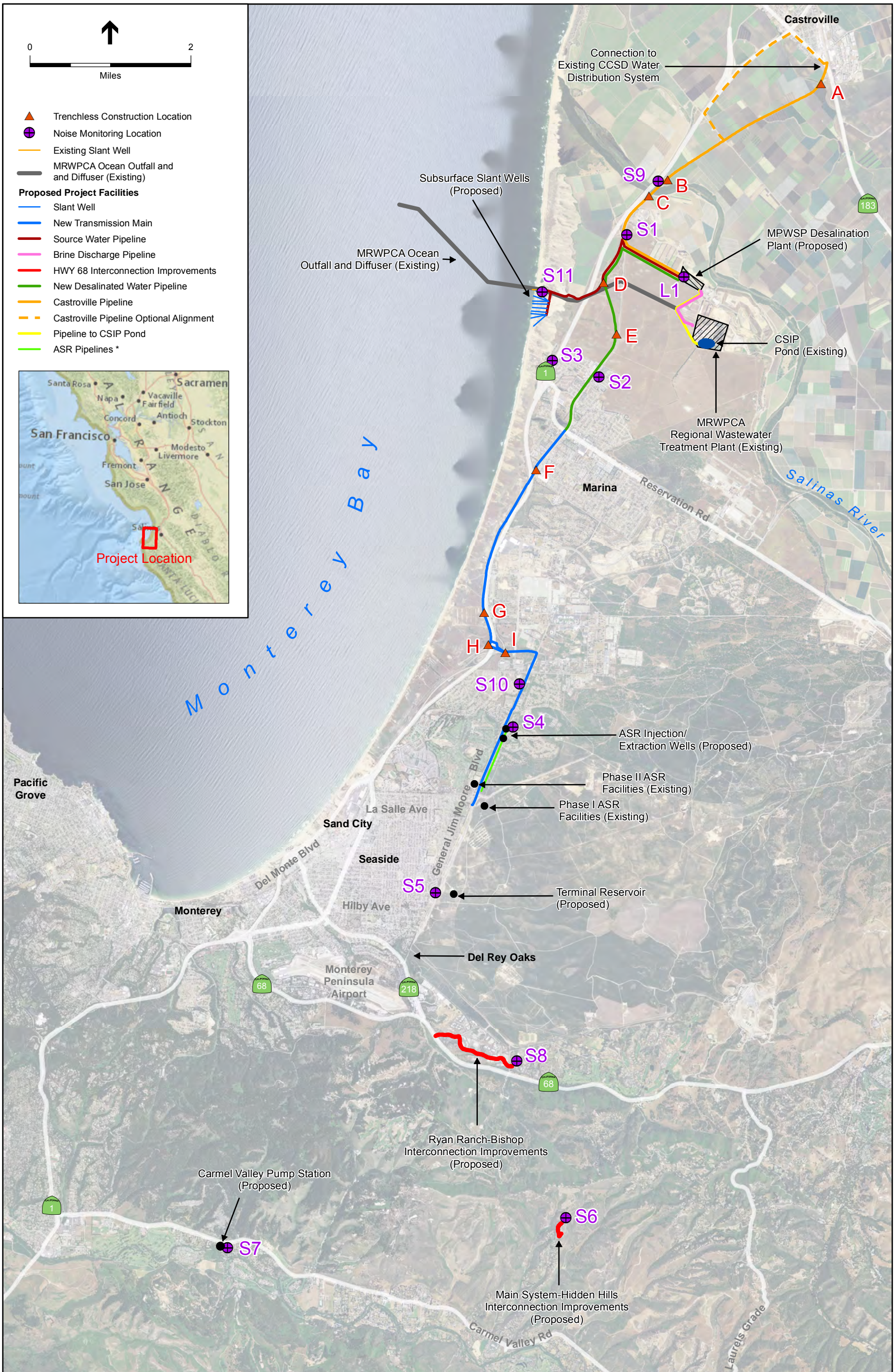
4.12.3.2 State Regulations

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.

205335.01 Monterey Peninsula Water Supply Project
Figure 4.12-1
 Noise Monitoring Locations

SOURCE: ESA, 2016

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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	<table border="1"> <thead> <tr> <th rowspan="2">Duration</th> <th colspan="2">Maximum Allowable Noise</th> </tr> <tr> <th>Day (7:00 a.m. to 10:00 p.m.)</th> <th>Night (10:00 p.m. to 7:00 a.m.)</th> </tr> </thead> <tbody> <tr> <td>Hourly L_{eq} in dB^{a,b}</td> <td>50</td> <td>45</td> </tr> <tr> <td>Maximum Level in dB^{a,b}</td> <td>70</td> <td>65</td> </tr> <tr> <td>Maximum Impulsive Noise in dB^{a,c}</td> <td>65</td> <td>60</td> </tr> </tbody> </table> <p>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.</p> <p>SOURCE: City of Marina, 2006.</p>	Duration	Maximum Allowable Noise		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	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.	<p><u>Consistent:</u> 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.</p> <p>There would be no stationary noise sources associated with operation of the new Desalinated Water Pipeline or the new Transmission Main.</p>
Duration	Maximum Allowable Noise																			
	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																		
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	<p>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.</p>	This ordinance is intended to reduce construction noise levels and limit noisy construction activity to the least sensitive hours of the day.	<p><u>Potentially Inconsistent:</u> 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.</p> <p>Nighttime construction of the subsurface slant wells and the Source Water Pipeline would not occur adjacent to a residential use.</p>														
Fort Ord Dunes State Park	Fort Ord Dunes State Park General Plan and Environmental Impact Report	Physical Resources	New Transmission Main	<p>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:</p> <ul style="list-style-type: none"> • 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.	<p><u>Potentially Inconsistent:</u> 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.</p>														

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 Monterey (inland areas)	Monterey City Code	Chapter 38 – Zoning Ordinance	Ryan Ranch-Bishop Interconnection Improvements	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.	This ordinance is intended to limit noisy construction activity to the least sensitive hours of the day.	<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.																
City of Monterey (inland areas)	Monterey City Code	Chapter 38 – Zoning Ordinance	Ryan Ranch-Bishop Interconnection Improvements	<p>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.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="2">CITY OF MONTEREY – MAXIMUM NOISE STANDARDS^a</th> </tr> <tr> <th>Zone of Property Receiving Noise</th> <th>Maximum Noise Level (dBA)</th> </tr> </thead> <tbody> <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> </tbody> </table> <p>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.</p> <p>SOURCE: City of Monterey, 2008.</p>	CITY OF MONTEREY – MAXIMUM NOISE STANDARDS ^a		Zone of Property Receiving Noise	Maximum Noise Level (dBA)	OS – Open Space District	60	R – Residential Districts	60	PS – Public and Semi-Public District	60	C – Commercial District	65	I – Industrial Districts	70	PD – Planned Development	Study Required	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.	<u>Consistent:</u> There are no stationary noise sources proposed for the Ryan Ranch-Bishop Interconnection Improvements.
CITY OF MONTEREY – MAXIMUM NOISE STANDARDS ^a																						
Zone of Property Receiving Noise	Maximum Noise Level (dBA)																					
OS – Open Space District	60																					
R – Residential Districts	60																					
PS – Public and Semi-Public District	60																					
C – Commercial District	65																					
I – Industrial Districts	70																					
PD – Planned Development	Study Required																					
City of Seaside (coastal zone and inland areas)	Seaside General Plan	Circulation	New Transmission Main, ASR Conveyance Pipeline, ASR Pump-to-Waste Pipeline, ASR Recirculation Pipeline, ASR, 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 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.	<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.																
City of Seaside (coastal zone and inland areas)	Seaside General Plan	Noise	New Transmission Main, ASR Conveyance Pipeline, ASR Pump-to-Waste Pipeline, ASR Recirculation Pipeline, and Terminal Reservoir	<p>Policy N-1.1: Ensure that new development and reuse/revitalization projects can be made compatible with the noise environment and existing development</p> <p><i>Implementation Plan N-1.1.1 Compatible Development:</i> 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.</p> <p>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.</p>	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.	<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.																

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) (cont.)				<p align="center">CITY OF SEASIDE – LAND USE COMPATIBILITY GUIDELINES</p> <table border="1"> <thead> <tr> <th rowspan="2">Land Use Category</th> <th colspan="7">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> </thead> <tbody> <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> </tbody> </table> <p>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.</p>	Land Use Category	Community Noise Equivalent Level (CNEL)							55	60	65	70	75	80	Residential – Single-Family, Multifamily, and Duplex	A	A	B	B	C	U	U	Residential – Mobile homes	A	A	B	C	C	U	U	Transient Lodging – Hotels and Motels	A	A	B	B	C	C	U		
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City of Seaside (coastal zone and inland areas)	Seaside General Plan	Noise	New Transmission Main, ASR Conveyance Pipeline, ASR Pump-to-Waste Pipeline, ASR Recirculation Pipeline, and Terminal Reservoir	Policy N-2.1: Reduce noise impacts associated with motorized vehicles, aircraft and trains.	This qualitative noise ordinance is intended to protect the public from motorized vehicle, aircraft, and train noise.	<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.																																						
City of Seaside (coastal zone and inland areas)	Seaside General Plan	Noise	New Transmission Main, ASR Conveyance Pipeline, ASR Pump-to-Waste Pipeline, ASR Recirculation Pipeline, and Terminal Reservoir	<p>Policy N-3.1: Reduce the impacts of noise-producing land uses, activities, and businesses on noise-sensitive land uses.</p> <p><i>Implementation Plan N-1.3.1: Enforcement of non-transportation noise standards.</i> Enforce the noise limits and construction and operation regulations contained in this Noise Element and in the City's Municipal Code.</p> <p><i>Implementation Plan N-1.3.3: Construction noise limits.</i> 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).</p>	This policy is intended to prevent construction and new or modified stationary noise sources from disrupting adjacent or nearby noise-sensitive land uses.	<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.																																						
City of Seaside (coastal zone and inland areas)	Seaside Municipal Code	Chapter 17.30 - Standards for All Development and Land Uses	New Transmission Main, ASR Conveyance Pipeline, ASR Pump-to-Waste Pipeline, ASR Recirculation Pipeline, and Terminal Reservoir	<p>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.</p> <table border="1"> <thead> <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> </thead> <tbody> <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> </tbody> </table>	Land Use	Noise Standard in Community Noise Equivalent Level (CNEL)		Exterior (dBA)	Interior (dBA)	Residential	65	45	Mixed-Use Residential	70	45	Commercial	70	---	Office	70	50	Industrial	75	55	Public Facilities	70	50	Schools	80	50	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.	<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.												
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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.	<u>Potentially Inconsistent:</u> 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.	<u>Consistent:</u> 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.	<u>Potentially Inconsistent:</u> 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.	<u>Consistent:</u> 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 in 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.

Land Use Category	Community Noise Exposure (L _{dn} or CNEL, dB)					
	55	60	65	70	75	80
Residential – Low Density Single Family, Duplex, Mobile Homes	■	■	■	■	■	■
Residential – Multi-Family	■	■	■	■	■	■
Transient lodging - Motels, Hotels	■	■	■	■	■	■
Industrial, Manufacturing, Utilities, Agriculture	■	■	■	■	■	■

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.	<u>Consistent:</u> 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.	<u>Consistent:</u> 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.	<u>Consistent:</u> 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 <i>Policy S-7.1</i> 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: <ul style="list-style-type: none"> Constructing temporary barriers; or Using quieter equipment than normal. 	This policy is intended to protect noise-sensitive land uses from construction-related noise disruption.	<u>Potentially Inconsistent:</u> 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: <ul style="list-style-type: none"> 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.	<u>Potentially Inconsistent:</u> 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 L_{eq} 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	0.1
Historic buildings and structures ^b	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)	81	4,000	N/A – Outside Study Area	N/A	N/A	N/A
	Bore/Drill Rigs (2)	82					
MPWSP Desalination Plant	Mobile Cranes (2)	81	2,200	N/A – Outside Study Area	N/A	N/A	N/A
	Dozer (1)	82					
	Dump Truck (1)	76					
Pipeline Installation (Open Trench Construction)	Backhoe (1)	78	50 ^e	80.4	Daytime – 75.1 Nighttime – 56.8	88.2 88.0	Speech – YES Sleep – YES ^f
	Compactor (1)	83					
	Mobile Crane (1)	81					
Pipeline Installation (Trenchless Construction)	Bore/Drill Rigs (1)	84	50 ^e	94.3	Daytime – 59.1 Nighttime – 45.8	94.3	Speech – YES Sleep – YES ^f
	Pile Driver (1)	101					
Terminal Reservoir	Backhoe (1)	78	1,600	N/A – Outside Study Area	N/A	N/A	N/A
	Dump Truck (1)	76					
	Mobile Crane (1)	81					
ASR-5 and ASR-6 Wells	Backhoe (1)	78	50	80.8	Daytime – 54.3 Nighttime – 52.0	80.8 80.8	Speech – YES Sleep – YES
	Bore/Drill Rigs (1)	84					
	Compactor	83					
Main System-Hidden Hills Interconnection Improvements	Backhoe (1)	78	50	77.7	Daytime – 44.7	77.7	Speech – YES Sleep – n/a
	Dump Truck (1)	76					
	Mobile Crane (1)	81					
Ryan Ranch-Bishop Interconnection Improvements	Backhoe (1)	78	900	N/A – Outside Study Area	N/A	N/A	N/A
	Dump Truck (1)	76					
	Mobile Crane (1)	81					
Carmel Valley Pump Station	Backhoe (1)	78	50	77.7	Daytime – 61.5	77.9	Speech – YES Sleep – n/a
	Dump Truck (1)	76					
	Mobile Crane (1)	81					

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 wells³ 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.
- ^e Based on peak hour traffic modeling and Caltrans traffic volumes for daytime. Nighttime assumes 5% of peak hour traffic.
- ^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})	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 less 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 L _{max})	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 location S7 (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 Leq)	Attenuated Operational Noise Level at Receptor (dBA Leq)	Resultant Noise Level at Receptor (dBA Leq)	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 significant*).

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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