3.12 Noise

This section evaluates the potential noise impacts that could result from the construction and/or operation of the proposed PWIMP.

3.12.1 Introduction

This evaluation of noise was completed using information collected from the City's existing Oxnard General Plan 2030 and the City's May 2017 *CEQA Guidelines* were also reviewed. Key Terms and concepts include the following:

- **Ambient Noise.** The total noise associated with a given environment and usually comprising sounds from many sources, both near and far.
- **Attenuation.** Reduction in the level of sound resulting from absorption by the topography, the atmosphere, distance, barriers, and other factors.
- **A-weighted decibel (dBA).** A unit of measurement for noise having a logarithmic scale and measured using the A-weighted sensory network on a noise-measuring device. An increase or decrease of 10 decibels (dB) corresponds to a tenfold increase or decrease in sound energy. A doubling or halving of sound energy corresponds to a 3-dBA increase or decrease.
- **Community Noise Equivalent Level (CNEL).** Used to characterize average sound levels over a 24-hour period, with weighting factors included for evening and nighttime sound levels. Leq values (equivalent sound levels measured over a 1-hour period - see below) for the evening period (7:00 p.m. to 10:00 p.m.) are increased by 5 dB, while Leq values for the nighttime period (10:00 p.m. to 7:00 a.m.) are increased by 10 dB. For a given set of sound measurements, the CNEL value will usually be about 1 dB higher than the Ldn value (average sound exposure over a 24- hour period – see below). In practice, CNEL and Ldn are often used interchangeably.
- **Day-Night Average Sound Level (Ldn).** Ldn refers to average sound exposure over a 24-hour period. Ldn values are calculated from hourly Leq values, with the Leq values for the nighttime period (10:00 p.m. to 7:00 a.m.) increased by 10 dB to reflect the greater disturbance potential from nighttime noises.
- **Equivalent Sound Level (Leq).** The level of a steady-state sound that, in a stated time period and at a stated location, has the same sound energy as the time-varying sound (approximately equal to the average sound level). The equivalent sound level measured over a 1-hour period is called the hourly Leq or Leq (h).
- **Lmax and Lmin.** The maximum and minimum sound levels, respectively, measured during the measurement period with a sound meter. When a sound meter is set to the "slow" response setting, as is typical for most community noise measurements, the Lmax and Lmin values are the maximum and minimum levels measured over a 1-second period.
- **Percentile-Exceeded Sound Level (Lx).** The sound level exceeded during a given

percentage of a measurement period. Examples include L10, L50, and L90. L10 is the A-weighted sound level that is exceeded 10% of the measurement period, and so on. L50 is the median sound level measured during the measurement period. L90, the sound level exceeded 90% of the time, excludes high localized sound levels produced by nearby sources such as single car passages or bird chirps. L90 is often used to represent the background sound level. L50 is also used to provide a less conservative assessment of the background sound level.

- **Sensitive Receptors.** Sensitive receptors are defined to include residential areas, hospitals, convalescent homes and facilities, schools, and other similar land uses.

3.12.2 Regulatory Context

Noise issues are subject to various Federal, State and local regulations. This section begins with a brief introduction to the characteristics of sound and follows with a brief overview of key regulations.

Characteristics of Sound. Sound is mechanical energy transmitted by pressure waves in a compressible medium such as air. Noise can be defined as unwanted sound. Sound is characterized by various parameters that include the rate of oscillation of sound waves (frequency), the speed of propagation, and the pressure level or energy content (amplitude) of a particular sound. The sound pressure level has become the most common descriptor used to characterize the loudness of an ambient sound level. The decibel or dB scale is used to quantify sound intensity. Because sound pressure can vary by over one trillion times within the range of human hearing, a logarithmic loudness scale (i.e., dB scale) is used to keep sound intensity numbers at a convenient and manageable level.

Since the human ear is not equally sensitive to all frequencies within the entire spectrum, noise measurements are weighted more heavily within those frequencies of maximum human sensitivity in a process called "A- weighting" written as dBA. The human ear can detect changes in sound levels of approximately 3 dBA under normal conditions. Changes of 1- to 3-dBA are typically noticeable under controlled conditions, while changes of less than 1- dBA are only discernable under controlled, extremely quiet conditions. A change of 5-dBA is typically noticeable to the general public in an outdoor environment.

Environment noise fluctuates over time. While some noise fluctuations are minor, others can be substantial. Some noise levels occur in regular patterns, others are random. Some noise levels fluctuate rapidly, others slowly. Some noise levels vary widely, others are relatively constant. Various noise descriptors have been developed to describe time-varying noise levels, and are listed above under the "Key Terms" section.

Calculating Attenuation. Noise may be generated from a point source, such as a piece of construction equipment, or from a line source, such as a road containing moving vehicles. Because of spreading losses, noise attenuates (decreases) with distance. The typical atmospheric attenuation rate for point source noise is 6-dBA per doubling of the distance as predicted by the equation:

dBA Reduction = 20 Log [measured distance] (Lower bracket to include both reference distance quantities)

Noise from a line source will also attenuate with distance, but the rate of attenuation is a function of both distance and the type of terrain over which the noise passes. Hard sites, such as developed areas with paving, attenuate noise at a rate of 3-dBA per doubling of the distance as predicted by the following equation:

$$\text{dBA Reduction} = 10 \text{ Log } [\text{measured distance}] \text{ (reference distance)}$$

Soft sites, such as undeveloped areas, open space, and vegetated areas attenuate line-source noise at a rate of 4.5 dBA per doubling of the distance, as predicted by the following equation:

$$\text{Attenuated dBA} = 15 \text{ Log } [\text{measured distance}] \text{ reference distance}$$

True hard sites are fairly rare, particularly in rural areas. Accordingly, soft site attenuation is typically assumed for planning level analyses in rural areas.

Objects such as walls, topography, and buildings which block the line-of-sight between a source and a receptor will attenuate the noise source. If a receptor is located behind the object, but has a view of the source, the wall will do little to attenuate the noise. Additionally, a receptor located on the same side of the object as the noise source may experience an increase in the perceived noise level as the object may reflect noise back to the receptor, possibly increasing the noise.

Noise Contours. The interpretation of noise contours is a generalization, not an exact science. The measurements by sophisticated instruments are affected by many variables in a particular area. However, these individual effects are generalized so that noise contours describe the impact that can generally be expected. Noise contour lines themselves are not specific boundaries of noise tolerance. A contour line denoting a 65-dBA limit, for example, does not imply that residents on one side of the line are seriously affected, while on the other side of the line tolerable conditions exist. Rather, the area between 75- dBA and 65-dBA indicates that residents within this vicinity may experience a high level of noise and potential interference with daily functions.

Effects of Noise. High noise levels can interfere with a broad range of human activities in a way, which degrades public health and welfare. Such activities may include:

- Speech communication in conversation and teaching;
- Telephone communication;
- Listening to television and radio;
- Listening to music;
- Concentration during mental and physical activities;
- Relaxation; and
- Sleep.

Interference with listening situations can be determined in terms of the level of the environmental noise and its characteristics. The amount of interference in non-listening situations is often dependent upon factors other than the physical characteristics of the noise. These may include attitude toward the source of an identifiable noise, familiarity with the noise, characteristics of the exposed individual, and the intrusiveness of the noise.

Hearing loss, total or partial, and either permanent or temporary, is a well-established effect of noise on human health. The primary measure of hearing loss is the hearing threshold level - the level of a tone that can just be detected by an individual. As a person is exposed to increased noise levels, that person may experience a shift in the threshold at which sound can be detected. Exposure to very high noise levels for lengthy periods of time can generate threshold shifts, which can be temporary or permanent. In general, A-weighted sound levels must exceed 60-80 decibels before a person will experience temporary threshold shifts. The greater the intensity level above 60-80 decibels and the longer the exposure, the greater length of the temporary threshold shift.

3.12.2.1 Federal Regulations

The following federal regulations apply to noise.

Federal Highway Administration (FHWA). The Federal Highway Administration (FHWA) has developed noise abatement criteria that are used for federally funded roadway projects or projects that require Federal review. These criteria are discussed in detail in Title 23 Part 772 of the Federal Code of Regulations (23CFR772). The second phase allows the designation of areas within a production-consumption (P-C) region that contain significant deposits of Portland cement concrete (PCC)-grade aggregate (valued for its versatility and its importance in construction) that may be needed to meet the region's future demand (California Department of Conservation, 1986).

Environmental Protection Agency (EPA). The EPA has identified the relationship between noise levels and human response. The EPA has determined that over a 24-hour period, an Leq of 70- dBA will result in some hearing loss. Interference with activity and annoyance will not occur if exterior levels are maintained at an Leq of 55-dBA and interior levels at or below 45 dBA. Although these levels are relevant for planning and design and useful for informational purposes, they are not land use planning criteria because they do not consider economic cost, technical feasibility, or other needs of the community.

The EPA has set 55-dBA Ldn as the basic goal for residential environments. However, other Federal agencies, in consideration of their own program requirements and goals, as well as the difficulty of actually achieving a goal of 55- dBA Ldn, have generally agreed on the 65-dBA Ldn level as being appropriate for residential uses. At 65-dBA Ldn activity interference is kept to a minimum, and annoyance levels are still low. It is also a level that can realistically be achieved.

Department of Housing and Urban Development (HUD). HUD was established in response to the Urban Development Act of 1965 (Public Law 90-448) and was tasked by the Housing and Urban Development Act of 1965 (Public Law 89-117) "to determine feasible methods of reducing the economic loss and hardships suffered by homeowners as a result of the depreciation in the value of their properties following the construction of airports in the vicinity of their homes."

HUD first issued formal requirements related specifically to noise in 1971 (HUD Circular 1390.2). These requirements contained standards for exterior noise levels along with policies for approving HUD-supported or assisted housing projects in high noise areas. In general, these requirements established the following three zones:

- 65-dBA Ldn or less - an acceptable zone where all projects could be approved.
- Exceeding 65-dBA Ldn but not exceeding 75-dBA Ldn - a normally unacceptable zone where mitigation measures would be required and each project would have to be individually evaluated for approval or denial. These measures must provide 5-dBA of attenuation above the attenuation provided by standard construction required in a 65- to 70-dBA Ldn area and 10-dBA of attenuation in a 70- to 75-dBA Ldn area.
- Exceeding 75-dBA Ldn - an unacceptable zone in which projects would not, as a rule, be approved.

HUD's regulations do not include interior noise standards. Rather a goal of 45-dBA Ldn is set forth and attenuation requirements are geared towards achieving that goal. HUD assumes that using standard construction practices, any building will provide sufficient attenuation so that if the exterior level is 65-dBA Ldn or less, the interior level will be 45-dBA Ldn or less. Thus, structural attenuation is assumed at 20, dBA. However, HUD regulations were promulgated solely for residential development requiring government funding and are not related to the operation of schools or churches.

The Federal government regulates occupational noise exposure common in the workplace through the Occupational Health and Safety Administration (OSHA) under the USEPA. Noise exposure of this type is dependent on work conditions and is addressed through a facility's or construction contractor's health and safety plan. With the exception of construction workers involved in facility construction, occupational noise is irrelevant to this study and is not addressed further in this document.

3.12.2.2 State Regulations

The following state regulations apply to noise.

California Department of Transportation (Caltrans). Caltrans has adopted policy and guidelines relating to traffic noise as outlined in the Traffic Noise Analysis Protocol (Caltrans 1998b). The noise abatement criteria specified in the protocol are the same as those specified by FHWA.

California Department of Health Services. The Office of Noise Control in the State Department of Health Services has developed criteria and guidelines for local governments to use when setting standards for human exposure to noise and preparing noise elements for General Plans (Office of Planning and Research, 2003). These guidelines include noise exposure levels for both exterior and interior environments. In addition, the California Code of Regulations sets forth requirements for the insulation of multiple-family residential dwelling units from excessive and potentially harmful noise. The State indicates that locating units in areas where exterior ambient noise levels exceed 65-dBA is undesirable. Whenever such units are to be located in such areas, the developer must incorporate into building design various construction features which reduce interior noise levels to 45-dBA CNEL.

3.12.2.2 Local Regulations

The following local noise regulations apply.

City of Oxnard - Oxnard 2030 General Plan. The Noise Element of the City's existing General Plan contains several goals, objectives, and policies pertinent to noise issues.

City of Oxnard Noise Ordinance. Article XI (Sound Regulation) of Chapter 7 in the Oxnard Municipal Code is designed to, "protect classes of land use from excessive sound because the city council has determined that such excessive sound is detrimental to the public health, safety and welfare and contrary to the public interest." The adopted Noise Ordinance sets standards for noise levels and provides the means to enforce the reduction of obnoxious or offensive noises. The Noise Ordinance sets interior and exterior noise levels for all properties within designated noise zones, unless exempted. The Noise Ordinance standards are identified in Table 3.12-1.

Table 3.12-1
City of Oxnard Exterior and Interior Noise Ordinance

Sound Zone	Type of Land Use	Allowable Exterior Sound Level	
		7 am to 10 pm	10pm to 7am
I	Residential	55-dBA	50-dBA
II	Commercial	65-dBA	60-dBA
III	Industrial	70-dBA	70-dBA
IV	As identified in Figure IX-2 of the 2030 General Plan		
Sound Zone	**Type of Land Use**	**Allowable Interior Sound Level**	
All	**Residential**	**50-dBA**	**45-dBA**

Source: City of Oxnard Municipal Code, Article X (Sound Regulation) of Chapter 7

3.12.3 Environmental Setting

The main noise generators within the City consist of vehicular traffic along the Ventura Freeway, other major roadways, the Oxnard Airport, the Union Pacific Railroad line, and a variety of stationary noise sources. Each of these noise sources is described in greater detail below.

Traffic Noise. As in most typical urbanized areas, the most pervasive noise sources in the City are motor vehicles, including automobiles, trucks, buses, and motorcycles. The noise generated from vehicles using roads within the Planning Area is governed primarily by the number of vehicles, type of vehicles (mix of automobiles, trucks, and other large vehicles), and their speed.

The highest noise levels are adjacent to the Ventura Freeway. Noise levels that would affect noise sensitive land uses such as residences, schools, and hospitals also occur along major arterials including Victoria Avenue, Channel Islands Boulevard, Ventura Road, and Oxnard Boulevard.

Airport Noise. The greatest potential for noise intrusion occurs when aircraft land, take off, or run their engines while on the ground. There are three primary sources of noise in a jet engine: the exhaust, the turbomachinery, and the fan. The noise associated with general aviation propeller aircraft (piston and turbo-prop) is produced primarily by the propellers and secondarily from the engine and exhaust.

Aircraft noise affecting the City is primarily generated by the Oxnard Airport and the Point Mugu Naval Air Station. The Oxnard Airport is situated upon 216 acres of land located in the southwest corner of the City. The Oxnard Airport is served primarily by general aviation and commuter aircraft. In 2000, the last year for which figures are available, the Airport was base to approximately 150 aircraft and 88,277 annual operations.

The Point Mugu Naval Air Station is located within the jurisdictional boundaries of the County of Ventura, which designates the site as "Institutional Use." The property is also within the City of Oxnard's Planning Area. While no major established flight patterns pass over the City, infrequently used patterns do pass over residential areas of the City.

The Camarillo Airport is also located within Ventura County. According to the Ventura County, the Camarillo Airport does not have any flight paths over the City of Oxnard. However, the northeast portion of the City may experience noise generated by Camarillo Airport operations.

Railroad Noise. The Union Pacific Railroad line running across the Planning Area is the only railroad line utilized on a regular basis. The line enters the Planning Area at its eastern boundary, runs west along East Fifth Street to the Transportation Center where it turns north and runs adjacent to Oxnard Boulevard, and eventually crosses the northern City boundary at the Ventura Freeway.

Several factors combine to produce railroad noises, including length of train, speed, grade, type of track, number of engines, and number of trips. The Union Pacific Railroad line operates approximately eight trains in the Planning Area within a 24-hour period. Four trains are scheduled Amtrak passenger trains, and the other four are nonscheduled freight trains that could pass through the City anytime during a 24-hour period. The older residential neighborhoods within the central portion of the City are subject to the greatest noise effects from local railroad activity, particularly the nighttime freight trains.

Existing Noise Conditions and Stationary Noise Sources. A series of short- and long-term noise measurements were completed to help describe existing noise levels within the City. The short-term Leq noise measurements were completed to characterize typical noise levels at various locations within the City. Noise measurements were taken along heavily traveled roadway corridors and in downtown Oxnard, residential neighborhoods, and City parks. Ambient noise levels ranged from 50.7- to 74.2-dBA Leq. The lowest noise level, 50.7-dBA, occurred in a residential neighborhood. The highest noise level, 74.2-dBA, occurred along Victoria Avenue, which is a heavily trafficked City roadway.

Industrial land uses have the potential to generate high noise levels within their immediate operating environments. The scope and degree of noise generated by industrial uses is dependent upon various factors, including type of industrial activity, hours of operation, and their location relative to sensitive land uses. Most of the industrial stationary noise sources within the Planning Area are located within two industrial areas known as the Hueneme Road Industrial Area and the Central Industrial Area.

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3.12.4 Impact Analyses

This section includes a discussion of the relevant significance criteria, the approach and methodology to the analyses, and any identified impacts and mitigation measures.

3.12.4.1 Significance Criteria

Significance thresholds below are based on Appendix G (Environmental Checklist Form) of the *CEQA Guidelines* and modified from the City's *May 2017 CEQA Guidelines*, which indicates that a potentially significant noise impact on would occur if the PWIMP would:

- Generate or expose persons to noise levels exceeding standards established in the Oxnard 2030 General Plan or Noise Ordinance, or applicable standards of other agencies;
- Generate or expose persons to excessive groundborne vibration or groundborne noise levels;
- Generate a substantial temporary or periodic increase in ambient noise in the project vicinity above levels existing without the project;
- Generate a substantial permanent increase in ambient noise in the project vicinity above levels existing without the project;
- For a project located within the airport land use plan for Oxnard Airport or within two miles of Naval Base, Ventura County at Point Mugu, would the project expose people residing or working in the project area to excessive noise levels?
- Would the project expose non-human species to excessive noise

3.12.4.2 Approach and Methodology

As described in Chapter 2, Project Description, the City's PWIMP is comprised of improvements to the City's Water Supply System, Recycled Water System, Wastewater System, and Stormwater System through build-out of the City's 2030 General Plan. However, the design details, final options, and the timing of construction phases are not precisely known, despite the best estimates provided in the schedules in Chapter 2. Further, it is not practical or prudent to try to provide project-level or detailed quantitative analysis at this time as many of the details are not known and the timing will likely change and/or the requirements for project-level analysis could change and be different in the future. As such, the environmental impact analysis for this section has been prepared at a programmatic level of detail and it addresses the full range of potential environmental effects associated with implementation of the PWIMP, but the analysis is more qualitative and general. Specifically, the analysis focuses on providing a discussion on potential significant impacts and provides broad mitigation measures that can and should be implemented at the project-level. This approach is consistent with the State CEQA Guidelines provisions for a Program EIR, as described in Section 15168, which suggests that the level of detail is dictated by "ripeness"; detailed analysis should be reserved for issues that are ripe for consideration.

For the purposes of this PEIR, temporary impacts during construction are considered significant if they would substantially interfere with affected land uses. Substantial interference could result from a combination of factors, including: exposing sensitive receptors to noise levels in excess of

regulatory standards or codes, which could result in a considerable nuisance; the generation of substantial noise levels at sensitive receptor locations lasting long periods of time at any one location (i.e., more than one week); and/or construction activities that would affect noise-sensitive uses during the nighttime. The City's 2030 General Plan Noise Element prohibits construction activities within 500 feet of sensitive receptors during the evening hours that exceed noise levels of 60-dBA L_{dn} at residential land uses and 65-dBA L_{dn} at multi-family residences and hotels. For the purposes of this analysis, nighttime construction would be significant if it generated exterior noise levels exceeding 60-dBA L_{eq} in any one-hour period at sensitive land uses where people sleep (residences and hotels).

The PWIMP's long-term operational impacts on the ambient noise environment would be considered substantial if it would expose sensitive receptors or other identified land uses to noise levels in excess of regulatory standards or codes. In addition to concerns regarding the absolute noise level that might occur when a new source is introduced into an area, it is also important to consider the existing ambient noise environment. If the ambient noise environment is quiet and the new noise source greatly increases the noise exposure, even though a criterion level might not be exceeded, an impact may occur.

A numerical threshold to identify the point at which a vibration impact occurs has not been identified by local jurisdictions in the applicable standards or municipal codes. In the absence of local regulatory significance thresholds for vibration from construction equipment, this analysis uses California Department of Transportation (Caltrans) identified PPV thresholds for adverse human reaction (strongly perceptible) and risk of architectural damage to buildings, which are 0.1 in/sec 0.2 in/sec, respectively (Caltrans, 2004).

Regarding the last two significance criteria, because the PWIMP would not involve the development of noise-sensitive land uses that would be exposed to excessive aircraft noise, there would be no impacts associated with these criteria. Therefore, impacts associated with aviation noise are not addressed further in this PEIR.

3.12.4.3 Impacts and Mitigation Measures

Based on the significance criteria and approach and methodology described above, the potential impacts are discussed below.

Impact 3.12-1: Construction and operation of the PWIMP could generate or expose persons to noise levels exceeding standards established in the Oxnard 2030 General Plan or Noise Ordinance, or applicable standards of other agencies. The potential temporary construction and long-term operational impacts are discussed below.

Temporary Construction Impacts

Construction activities would occur at numerous locations throughout the City and portions of Ventura County for approximately twenty years. Such activities would result in the generation of noise associated with site preparation and building of each component of the PWIMP. The noise levels generated during construction of the PWIMP facilities would vary during the construction period(s), depending upon the construction phase and the types of construction equipment used.

High noise levels would be created by the operation of heavy-duty trucks, backhoes, bulldozers, excavators, front-end loaders, compactors, scrapers, and other heavy-duty construction equipment. Operating cycles for these types of construction equipment may involve one or two minutes of full

power operation followed by three to four minutes at lower power settings, compared to other equipment such as drill rigs, which tend to operate at a continuous level.

The maximum combined noise levels adjacent to the construction sites could be as high as 84 to 89-dBA. However, it should be noted that average noise levels adjacent to the construction activities would be at least 10- to 20-dBA less than the combined noise levels presented in the table, due to the fact that most of the machinery would not operate at maximum power levels throughout the day and all of the equipment would not operate simultaneously throughout the day. Other primary sources of acoustical disturbance would be random incidents, which would last less than one minute, such as dropping large pieces of equipment or the hydraulic movement of machinery lifts.

In addition to onsite construction noise at the various Project component sites, construction activities would also cause increased sporadic noise levels between 60-dBA and 88-dBA at 50-feet along access routes to the Project sites due to movement of materials, equipment, and workers to and from on the various sites. Truck trips generated by Project construction would be dispersed throughout the day and over the local road network, and commute trips by construction workers would primarily occur before and after Project truck trips occur. Daily transportation of materials and construction workers would not be a substantial source of daily noise levels.

The potential for construction of the Project to violate noise standards and/or adversely affect nearby sensitive receptors could be significant. However, the impact of each individual project component varies and the following mitigation measures would help reduce any potential temporary construction related impacts to less than significant levels.

Temporary Construction Mitigation Measures

Mitigation Measure 3.12-1a: **Limit Construction Hours.** To the extent possible, construction activities will be limited to the least noise-sensitive times and will comply with the City's noise ordinances. Construction, alteration, and other related activities shall be allowed on weekdays between the hours of 8 a.m. and 5 p.m., and on Saturdays between the hours of 10 a.m. and 6 p.m. Construction activities shall not exceed the outdoor ambient sound level (dBA) of 86 dBA. Nighttime construction would require specific and special approval from the City. Temporary hotel accommodations shall be provided to all residents located within 100-feet of a designated construction area where construction activity would occur on a 24-hour continuous basis. The accommodations shall be provided for the duration of the 24-hour construction activities.

Mitigation Measure 3.12-1b: Locate Staging Areas away from Sensitive Receptors. The City's construction specifications shall require that the contractor select staging areas as far as feasibly possible from sensitive receptors. Currently, planned staging areas are at the City's existing WWTP, water, and stormwater yards/facilities.

Mitigation Measure 3.12-1c: Maintain Mufflers on Equipment. The City's construction specifications shall require the contractor to maintain all construction equipment with manufacturer's specified noise-muffling devices. The City shall ensure that the contractor(s) 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 un-muffled exhaust.

Mitigation Measure 3.12-1d: Idling Prohibition and Enforcement. The City shall prohibit and enforce unnecessary idling of internal combustion engines. In practice, this would mean turning off equipment if it will not be used for five or more minutes.

Mitigation Measure 3.12-1e: Equipment Location and Shielding. Locate all stationary noise-

generating construction equipment such as air compressors and standby power generators as far as possible from homes and businesses. Contractor specifications shall include a requirement that construction equipment located within 500-feet of noise-sensitive receptors shall be equipped with noise reducing engine housings or other noise reducing technology such that equipment noise levels are no more 85-dBA at 50-feet. The line of sight between construction within 500-feet of sensitive receptors and nearby sensitive receptors shall be blocked by portable acoustic barriers and/or shields to reduce noise levels by at least an additional 10-dBA.

Mitigation Measure 3.12-1f: Notify Residents and Sensitive Receptors. Residences and other sensitive receptors within 500-feet of a construction area shall be notified of the construction schedule in writing, at least two weeks prior to the commencement of construction activities. The City or the contractor(s) shall designate a noise disturbance coordinator who would be responsible for responding to complaints regarding construction noise. 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 noise disturbance coordinator shall be conspicuously placed on construction site fences and included in the construction schedule notification sent to nearby residences. The notice to be distributed to residences and sensitive receptors shall first be submitted to the City for review and approval.

Significance After Mitigation: Less-Than-Significant Impact.

Long-Term Operational Impacts

PWIMP facilities would generate a nominal amount of operational noise resulting from mobile sources as a result of employee commute trips. In addition, facility(s) operations and maintenance activities would require several truck trips per day for routine maintenance and inspection. Noise that would be associated with plant, pipeline, and other facility maintenance would be short-term and random and would not result in measureable increases of ambient noise levels in the surrounding area. Impacts related to PWIMP maintenance would less than significant.

The PWIMP facilities such as the expanded desalter and APWF, the new water supply and IPR/ASR wells, and pumping stations associated with the water supply and recycled water storage tanks would include long-term onsite stationary noise sources. The potential impact of individual PWIMP facility components would vary and need to be designed to avoid potential noise impacts to sensitive receptors. With the implementation of the following mitigation measure, any impacts would be considered to be less than significant.

Long-Term Operational Mitigation Measures

Mitigation Measure 3.12-1g: Enclosed Noise Structures. All stationary noise sources (e.g., pump stations, permanent and emergency power generators, electrical gear, motors, etc.) shall be located within enclosed structures with adequate setback and screening, as necessary, to achieve acceptable regulatory noise standards for industrial uses as well as to achieve acceptable levels at the property lines of nearby residences and commercial uses, as determine by the City or Ventura County, as appropriate. Noise enclosures shall be designed to reduce equipment noise levels by at least 20-dBA. Once the stationary noise sources have been installed, noise levels shall be monitored to ensure compliance with local noise standards. If PWIMP facility(s) stationary noise sources exceed the applicable noise standards, an acoustical engineer shall be retained to install additional noise attenuation measures in order to meet the applicable noise standards.

Significance After Mitigation: Less-Than-Significant Impact.

Impact 3.12-2: Construction of the PWIMP could generate or expose persons to excessive groundborne vibration or groundborne noise levels. The operations of the PWIMP facilities would not cause groundborne vibrations or groundborne noises and is not discussed further. The potential temporary construction impacts are discussed below.

Temporary Construction Impacts

Some types of construction equipment can produce vibration levels that can cause architectural damage to structures and be annoying to nearby sensitive receptors. Vibration levels generated during construction of the PWIMP facilities would vary by the type of facility, the construction period duration, the construction timing or phase, and the types of construction equipment used.

A numerical threshold to identify the point at which a vibration impact occurs has not been identified by local jurisdiction standards or municipal codes. Therefore, Peak Particle Velocity (PPV) thresholds identified by Caltrans are used in this analysis to determine the significance of vibration impacts related to adverse human reaction (strongly perceptible) and risk of architectural damage to normal buildings, which are 0.1 in/sec and 0.2 in/sec, respectively (Caltrans, 2004). At distances greater than 25-feet, construction equipment would produce vibration levels under the strongly perceptible level and would not result in architectural damage to normal buildings. Construction of the PWIMP facilities would be greater than 25-feet from structures, with exception of the pipelines/conveyance facilities through the City, which could be as close as 10-feet from some structures. Construction within 10-feet of buildings could cause annoyance impacts, and use of vibratory rollers, caisson drills, and loaded trucks within 10-feet of structures could result in a significant impact related to building damage. Implementation of the following mitigation measure would reduce these impacts to a less-than-significant level.

Temporary Construction Impacts

Mitigation Measures 3.12-2a: Vibration Monitoring. Vibration monitoring shall be conducted for any and all PWIMP construction activities within 10-feet of buildings to confirm vibration levels do not exceed 0.1 in/sec PPV. If vibration levels exceed the limits of this mitigation measure, then 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 for 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. Smaller vibratory rollers shall be used to minimize vibration levels during repaving activities where needed to meet vibration limits.

Significance After Mitigation: Less-Than-Significant Impact.

3.12.5 Cumulative Effects

Construction and operation of the PWIMP has the potential to have significant noise impacts on sensitive receptors in the area. However, with the implementation of the identified mitigation measures above would reduce these impacts to less-than-significant levels. As for cumulative impacts, the City would need to further analyze the construction of each of these PWIMP facilities on a project-level basis at the appropriate time with a full understanding of other projects being constructed in the area at the same time to be able to further assess the potential for the PWIMP to have cumulative noise impacts.