

## 4.10 NOISE

This section of the EIR analyzes the potential environmental effects on noise and groundborne vibration associated with construction and operational activities from implementation of the updated San Pedro Community Plan and implementing ordinances (proposed plan). No comment letters addressing noise were received in response to the Notice of Preparation (NOP) circulated for the proposed plan.

The Initial Study/Notice of Preparation (IS/NOP) (included as Appendix A) identified the potential for impacts associated with the following: exposure of persons to or generation of noise levels in excess of standards established in the local General Plan or noise ordinance; exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels; and a substantial temporary and/or permanent increase in ambient noise levels in the project vicinity. Issues scoped out from further analysis in the EIR include proximity to or association with an airport land use plan or airstrip, as the CPA is not located within an airport land use plan or affected area near an airstrip. Data used to prepare this report were taken from the City of Los Angeles General Plan Noise Element, the City of Los Angeles Municipal Code (LAMC), the Traffic Study prepared by Iteris (Appendix G [Transportation Improvement Mitigation Program]) for the proposed plan, and information obtained by measuring and modeling existing and future noise levels in the CPA (Appendix F [Noise Data]). Full reference-list entries for all cited materials are provided in Section 4.10.5 (References).

### 4.10.1 Environmental Setting

#### ■ Fundamentals of Sound and Environmental Noise

Sound is technically described in terms of amplitude (loudness) and frequency (pitch). The standard unit of sound amplitude measurement is the decibel (dB). The decibel scale is a logarithmic scale that describes the physical intensity of the pressure vibrations that make up any sound. The pitch of the sound is related to the frequency of the pressure vibration. Because the human ear is not equally sensitive to a given sound level at all frequencies, a special frequency-dependent rating scale has been devised to relate noise to human sensitivity. The A-weighted decibel scale (dBA) provides this compensation by discriminating against frequencies in a manner approximating the sensitivity of the human ear.

Noise, on the other hand, is typically defined as unwanted sound because of its potential to disrupt sleep, interfere with speech communication, and damage hearing. A typical noise environment consists of a base of steady “background” noise that is the sum of many distant and indistinguishable noise sources. Superimposed on this background noise is the sound from individual local sources. These can vary from an occasional aircraft or train passing by to virtually continuous noise from, for example, traffic on a major highway. Table 4.10-1 (Representative Environmental Noise Levels) lists representative noise levels for the environment.

Table 4.10-1 Representative Environmental Noise Levels		
Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	—110—	Rock Band
Jet Fly-over at 100 feet		
	—100—	
Gas Lawnmower at 3 feet		
	—90—	
		Food Blender at 3 feet
Diesel Truck going 50 mph at 50 feet	—80—	Garbage Disposal at 3 feet
Noisy Urban Area during Daytime		
Gas Lawnmower at 100 feet	—70—	Vacuum Cleaner at 10 feet
Commercial Area		Normal Speech at 3 feet
Heavy Traffic at 300 feet	—60—	
		Large Business Office
Quiet Urban Area during Daytime	—50—	Dishwasher in Next Room
Quiet Urban Area during Nighttime	—40—	Theater, Large Conference Room (background)
Quiet Suburban Area during Nighttime		
	—30—	Library
Quiet Rural Area during Nighttime		Bedroom at Night, Concert Hall (background)
	—20—	
		Broadcast/Recording Studio
	—10—	
Lowest Threshold of Human Hearing	—0—	Lowest Threshold of Human Hearing

SOURCE: California Department of Transportation, *Traffic Noise Analysis Protocol for New Highway Construction and Highway Reconstruction Projects* (October 1998).

Several rating scales have been developed to analyze the adverse effect of community noise on people. Because environmental noise fluctuates over time, these scales consider that the effect of noise upon people is largely dependent upon the total acoustical energy content (loudness) of the noise, as well as the time of day when the noise occurs. The  $L_{eq}$  is a measure of ambient noise, while the  $L_{dn}$  and CNEL are measures of community noise. Each is applicable to this analysis and defined as follows:

- $L_{eq}$ , the equivalent energy noise level, is the average acoustic energy content of noise for a stated period of time. Thus, the  $L_{eq}$  of a time-varying noise and that of a steady noise are the same if they deliver the same acoustic energy to the ear during exposure. For evaluating community impacts, this rating scale does not vary, regardless of whether the noise occurs during the day or the night.
- $L_{dn}$ , the Day-Night Average Level, is a 24-hour average  $L_{eq}$  with a 10 dBA “weighting” added to noise during the hours of 10:00 PM to 7:00 AM to account for noise sensitivity in the nighttime. The

logarithmic effect of these additions is that a 60 dBA 24 hour  $L_{eq}$  would result in a measurement of 66.4 dBA  $L_{dn}$ .

- *CNEL*, the Community Noise Equivalent Level, is a 24-hour average  $L_{eq}$  with a 5 dBA “weighting” during the hours of 7:00 PM to 10:00 PM and a 10 dBA “weighting” added to noise during the hours of 10:00 PM to 7:00 AM to account for noise sensitivity in the evening and nighttime, respectively. The logarithmic effect of these additions is that a 60 dBA 24 hour  $L_{eq}$  would result in a measurement of 66.7 dBA *CNEL*.
- $L_{min}$ , the minimum instantaneous noise level experienced during a given period of time.
- $L_{max}$ , the maximum instantaneous noise level experienced during a given period of time.

Noise environments and consequences of human activities are usually well represented by median noise levels during the day or night, or over a 24-hour period. Environmental noise levels are generally considered low when the *CNEL* is below 60 dBA, moderate in the 60 to 70 dBA range, and high above 70 dBA. Examples of low daytime levels are isolated, natural settings that can provide noise levels as low as 20 dBA and quiet, suburban, residential streets that provide noise levels around 40 dBA. Noise levels above 45 dBA at night can disrupt sleep. Examples of moderate-level noise environments are urban residential or semi-commercial areas (typically 55 to 60 dBA) and commercial locations (typically 60 dBA). People may consider louder environments adverse, but most will accept the higher levels associated with more noisy urban residential or residential-commercial areas (60 to 75 dBA) or dense urban or industrial areas (65 to 80 dBA).

When evaluating changes in 24-hour community noise levels, a difference of 3 dBA is a barely perceptible increase to most people. A 5 dBA increase is readily noticeable, while a difference of 10 dBA would be perceived as a doubling of loudness.

Noise levels from a particular source decline as distance to the receptor increases. Other factors, such as the weather and reflecting or shielding, also help intensify or reduce the noise level at any given location. A commonly used rule of thumb for roadway noise is that for every doubling of distance from the source, the noise level is reduced by about 3 dBA at acoustically “hard” locations (i.e., where the area between the noise source and the receptor is nearly complete asphalt, concrete, hard-packed soil, or other solid materials) and 4.5 dBA at acoustically “soft” locations (i.e., where the area between the source and receptor is normal earth or has vegetation, including grass). Noise from stationary or point sources is reduced by about 6 to 7.5 dBA for every doubling of distance at acoustically hard and soft locations, respectively. Noise levels may also be reduced by intervening structures; generally, a single row of buildings between the receptor and the noise source reduces the noise level by about 5 dBA, while a solid wall or berm reduces noise levels by 5 to 10 dBA. The manner in which older homes in California were constructed (approximately 30 years old or older) generally provides a reduction of exterior-to-interior noise levels of about 20 to 25 dBA with closed windows. The exterior-to-interior reduction of newer residential units and office buildings is generally 30 dBA or more.<sup>108</sup>

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<sup>108</sup> Harris Miller Miller & Hanson Inc., *Transit Noise and Vibration Impact Assessment, Final Report* (May 2006), p. 3-10

## ■ Existing Environmental Noise Levels

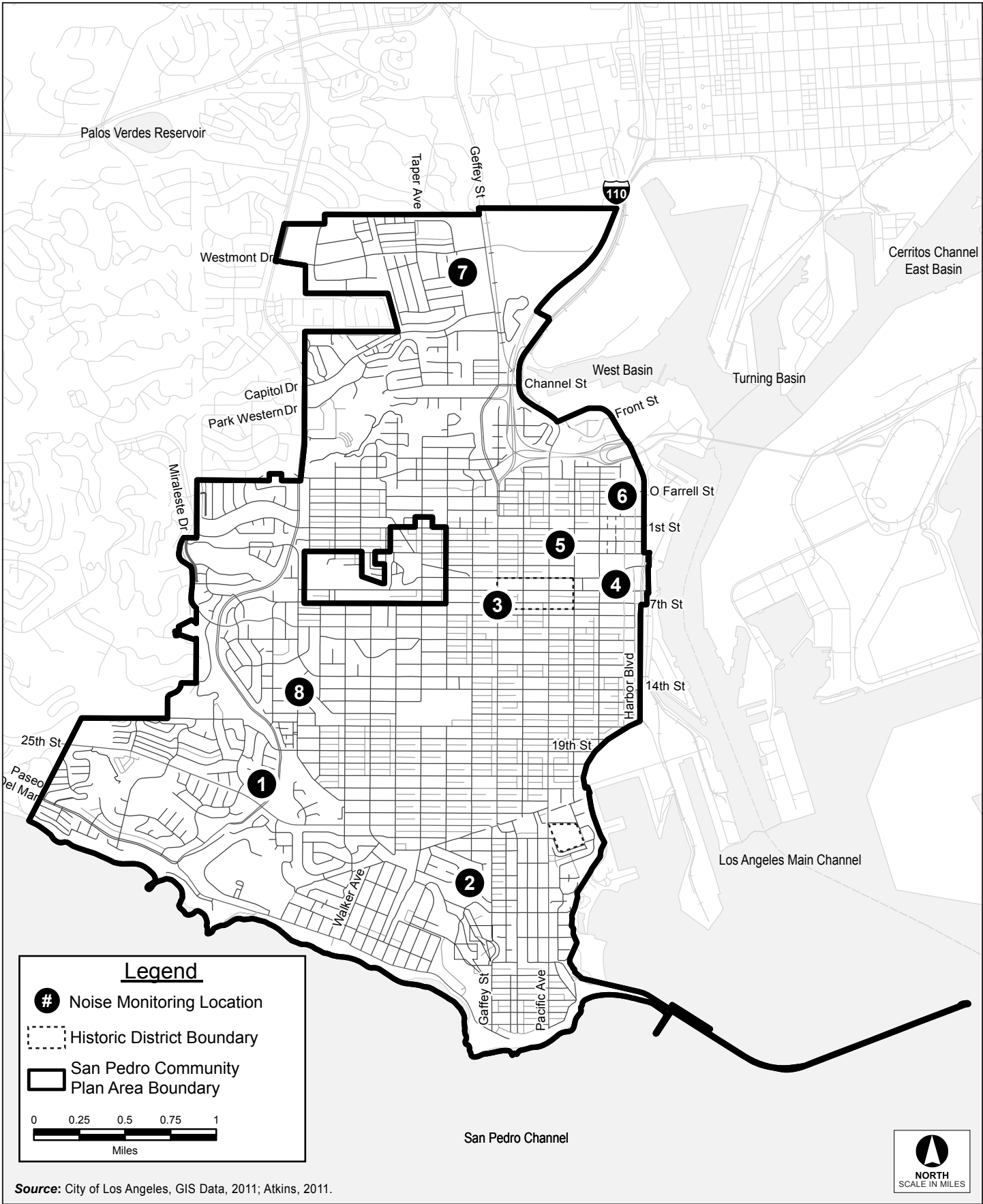
Typical of urban environments, the primary source of noise within the City is noise from motor vehicles on roadways (traffic noise). These motor vehicles include automobiles, buses, trucks, and vehicles associated with construction equipment transport. Secondary noise sources in the City include railroad operations, construction activities, and harbor activities.

Existing daytime noise levels were monitored at 8 locations in the CPA, which are depicted in Figure 4.10-1 (Noise Monitoring Locations), in order to identify representative noise levels at various sites. The noise levels were measured using a Larson-Davis Model 814 precision sound level meter, which satisfies the American National Standards Institute (ANSI) for general environmental noise measurement instrumentation. The average noise levels and sources of noise measured at each location are identified in Table 4.10-2 (Existing Noise Levels in the Community Plan Area). These daytime noise levels are characteristic of a typical urban area, with higher noise levels along major roadways, and lower levels along residential areas.

Location	Primary Noise Sources	Noise Level Statistics		
		<i>L<sub>eq</sub></i> (dBA)	<i>L<sub>min</sub></i> (dBA)	<i>L<sub>max</sub></i> (dBA)
1 North of West 25 <sup>th</sup> Street	Road Traffic on Western Avenue	68.2	57.4	84.5
2 780 West 30 <sup>th</sup> Street	Road Traffic on West 30 <sup>th</sup> Street	56.5	37.6	75.2
3 815 South Gaffey Street	Road Traffic on Gaffey Street	71.4	57.5	82.9
4 255 West 5 <sup>th</sup> Street	Road Traffic on West 5 <sup>th</sup> Street	65.2	54.3	82.0
5 Pacific Avenue and 2 <sup>nd</sup> Street	Road Traffic	72.6	59.7	89.8
6 North Palos Verde Street and West O'Farrell Street	Road Traffic on West O'Farrell Street	65.0	49.6	80.7
7 802 Barrywood Avenue	Road Traffic on Barrywood Avenue	56.2	41.6	72.0
8 South Weymouth Avenue and Le Grande Terrace	Road Traffic on South Weymouth Avenue	58.7	44.9	74.0

SOURCE: Atkins (January 26, 2011).

Existing roadway noise levels were calculated for roadway segments in the CPA that are proximate to existing or future noise-sensitive uses and would receive a moderate to large share of the project trips. This task was accomplished using the Federal Highway Administration Highway Noise Prediction Model (FHWA-RD-77-108) and traffic volumes from the project traffic analysis. The model calculates the average noise level at specific locations based on traffic volumes, average speeds, roadway geometry, and site environmental conditions. The average vehicle noise rates (energy rates) utilized in the FHWA Model have been modified to reflect average vehicle noise rates identified for California by Caltrans. The Caltrans data show that California automobile noise is 0.8 to 1.0 dBA higher than national levels and that medium and heavy truck noise is 0.3 to 3.0 dBA lower than national levels. The average daily noise levels along these roadway segments are presented in Table 4.10-3 (Existing Roadway Noise Levels).



100018607 | San Pedro NCP EIR

Figure 4.10-1  
Noise Monitoring Locations

<b>Table 4.10-3 Existing Roadway Noise Levels in the CPA</b>		
<i>Roadway</i>	<i>Roadway Segment</i>	<i>dBA L<sub>dn</sub></i>
Gaffey Street	Summerland Avenue to Miraflores Avenue	66.5
	Channel Street to Capitol Drive	66.4
	1 <sup>st</sup> Street to Sepulveda Boulevard	69.8
	Summerland Avenue to I-110 Terminus	71.3
	3 <sup>rd</sup> Street to 5 <sup>th</sup> Street	67.8
	7 <sup>th</sup> Street to 9 <sup>th</sup> Street	67.6
	22 <sup>nd</sup> Street to 23 <sup>rd</sup> Street	63.4
	25 <sup>th</sup> Street to 26 <sup>th</sup> Street	62.0
Channel Street	Gaffey Street to John S. Gibson Boulevard	65.6
Western Avenue	Capitol Drive to Westmont Drive	65.2
	Westmont Drive to CPA limit	65.8
	9 <sup>th</sup> Street to Dodson Avenue	68.5
Summerland Avenue	Cabrillo Avenue to Gaffey Street	63.3
25 <sup>th</sup> Street	Western Avenue to Patton Avenue	55.4
	Patton Avenue to Walker Avenue	55.4
	Mermaid Drive to Anchovy Street	63.5
Pacific Avenue	5 <sup>th</sup> Street to 7 <sup>th</sup> Street	65.5
	22 <sup>nd</sup> Street to 23 <sup>rd</sup> Street	62.5
	O'Farrell Street to Bonita Street	64.3
Harbor Boulevard	Swinford Street to O'Farrell Street	66.4
Centre Street	6 <sup>th</sup> Street to 7 <sup>th</sup> Street	61.7
9 <sup>th</sup> Street	Cabrillo Avenue to Gaffey Street	61.9
1 <sup>st</sup> Street	Cabrillo Avenue to Grand Avenue	63.6

SOURCE: Atkins (2011) (calculation data and results are provided in Appendix F)

## ■ Fundamentals of Environmental Groundborne Vibration

Vibration is sound radiated through the ground. The vibration of floors and walls may cause perceptible vibration, rattling of items such as windows or dishes on shelves, or a rumble noise. The rumbling sound caused by the vibration of room surfaces is called groundborne noise. The ground motion caused by vibration is measured as particle velocity in inches per second and, in the U.S., is referenced as vibration decibels (VdB).

The background vibration velocity level in residential and educational areas is usually around 50 VdB. The vibration velocity level threshold of perception for humans is approximately 65 VdB. A vibration velocity level of 75 VdB is the approximate dividing line between barely perceptible and distinctly

perceptible levels for many people. Most perceptible indoor vibration is caused by sources within buildings, such as operation of mechanical equipment, movement of people, or the slamming of doors. Typical outdoor sources of perceptible groundborne vibration are construction equipment, steel-wheeled trains, and traffic on rough roads. If a roadway is smooth, the groundborne vibration from traffic is rarely perceptible. As such, the range of interest is from approximately 50 VdB, which is the typical background vibration velocity level, to 100 VdB, which is the general threshold where minor damage can occur in fragile buildings.

The general human response to different levels of groundborne vibration velocity levels is described in Table 4.10-4 (Human Response to Different Levels of Groundborne Vibration).

<b>Table 4.10-4 Human Response to Different Levels of Groundborne Vibration</b>	
<i>Vibration Velocity Level</i>	<i>Human Reaction</i>
65 VdB	Approximate threshold of perception for many people.
75 VdB	Approximate dividing line between barely perceptible and distinctly perceptible. Many people find that transportation-related vibration at this level is unacceptable.
85 VdB	Vibration acceptable only if there are an infrequent number of events per day.

SOURCE: Harris Miller Miller & Hanson Inc. *Transit Noise and Vibration Impact Assessment, Final Report* (May 2006).

## ■ Existing Groundborne Vibration Levels

Aside from seismic events, the greatest source of groundborne vibration in the project area is roadway truck and bus traffic. Trucks and buses typically generate groundborne vibration velocity levels of around 63 VdB. These levels could reach 72 VdB where trucks and buses pass over bumps in the road.

## ■ Noise-Sensitive Receptors

The City of Los Angeles General Plan Noise Element identifies noise-sensitive uses with the goal of protecting such uses from excessive noise levels. The Noise Element considers the following land uses as “noise-sensitive” uses: single-family and multi-unit dwellings; long-term care facilities (including convalescent and retirement facilities); dormitories; motels; hotels; transient lodgings and other residential uses; houses of worship; hospitals; libraries; schools; auditoriums; concert halls; outdoor theaters; nature and wildlife preserves, and parks.

### 4.10.2 Regulatory Framework

#### ■ Federal

There are no federal regulations related to noise that apply to the proposed plan.

## ■ State

### *State Department of Health Services*

The state Office of Noise Control in the state Department of Health Services has established guidelines to provide a community with a noise environment that it deems to be generally acceptable. Specifically, ranges of noise exposure levels have been developed for different land uses to serve as the primary tool a city uses to assess the compatibility between land uses and outdoor noise.

### *California Noise Insulation Standards (California Code of Regulations, Title 24)*

Title 24 establishes an interior noise standard of 45-dBA for multiple unit residential and hotel/motel structures. Acoustical studies must be prepared for proposed multiple unit residential and hotel/motel structures within the CNEL noise contours of 60-dBA or greater. The studies must demonstrate that the design of the building will reduce interior noise to 45-dBA CNEL or lower.

## ■ Local

### *City of Los Angeles Municipal Code*

Los Angeles Municipal Code (LAMC) Chapter IV, Article 1, Section 41.40 states that no construction or repair work shall be performed between the hours of 9:00 PM and 7:00 AM Monday through Friday, since such activities would generate loud noises and disturb persons occupying sleeping quarters in any adjacent dwelling, hotel, or apartment or other place of residence. No person, other than an individual homeowner engaged in the repair or construction of his single-family dwelling, shall perform any construction or repair work of any kind or perform such work within 500 feet of land so occupied before 8:00 AM or after 6:00 PM on any Saturday or on a national holiday, or at any time on any Sunday. Under certain conditions, the City of Los Angeles may grant a waiver to allow limited construction activities to occur outside of the time limits described above.

LAMC Chapter XI, Section 112.05 specifies the maximum noise level of powered equipment or powered hand tools. Any powered equipment or powered hand tool that produces a noise level exceeding 75 dBA at a distance of 50 feet is prohibited. However, this noise limitation does not apply where compliance is technically infeasible. "Technically infeasible" means that the noise standard cannot be met despite the use of mufflers, shields, sound barriers, and/or any other noise-reduction device or techniques during the operation of equipment.

Outside of construction noise requirements, Section 111.03 of the LAMC identifies presumed ambient noise levels for different zoning designations, as shown in Table 4.10-5 (City of Los Angeles Presumed Ambient Noise Levels). The noise levels shown in Table 4.10-5 are to be used in place of measured ambient noise levels when the measured ambient noise levels are less than those identified in the table below. An increase of more than 5 dB above presumed or measured ambient noise levels, whichever is greater, is prohibited (Sections 114.02(a)3 and 112.04(b)).



**Table 4.10-5 City of Los Angeles Presumed Ambient Noise Levels**

Zones	Presumed Ambient Noise Levels	
	Day: 7:00 AM to 10:00 PM	Night: 10:00 PM to 7:00 AM
A1, A2, RA, RE, RS, RD, RW1, RW2, R1, R2, R3, R4, and R5	50 dBA	40 dBA
P, PB, CR, C1, C1.5, C2, C4, C5, and CM	60 dBA	55 dBA
M1, MR1, and MR2	60 dBA	55 dBA
M2 and M3	65 dBA	65 dBA

SOURCE: City of Los Angeles Municipal Code Section 111.03

Section 112.02 of the LAMC requires that any heating, ventilation, and air conditioning (HVAC) system within any zone of the City not cause an increase in ambient noise levels on any other occupied property or if a condominium, apartment house, duplex, or attached business, within any adjoining unit to exceed the ambient noise level by more than five (5) decibels.

### **City of Los Angeles General Plan**

The California Government Code requires that a noise element be included in the General Plan of each county and city in the state. Each local government’s goals, objectives, and policies for noise control are established by the noise element of the General Plan and the passage of specific noise ordinances. The Noise Element of the City of Los Angeles General Plan addresses the issue of noise by identifying sources of noise in the City and providing objectives and policies that ensure that noise from various sources does not create an unacceptable noise environment. The Noise Element establishes standards to ensure that new development is compatible with existing land uses, based on the Governor’s Office of Planning and Research “General Plan Guidelines.” These noise standards are shown in Figure 4.10-2 (General Plan Guidelines for Noise-Compatible Land Use). As shown in Figure 4.10-2, a noise level standard of 50 dBA CNEL is used for the exterior living areas of new residential land uses. Where a land use is denoted as “normally acceptable” for the given CNEL noise environment, the highest noise level in that range should be considered the maximum desirable for conventional construction that does not incorporate any special acoustic treatment. The acceptability of noise environments classified as “conditionally acceptable” or “normally unacceptable” will depend on the anticipated amount of time that will normally be spent outside the structure and the acoustic treatment to be incorporated in the structure’s design.

Goals are described as a general setting of direction, objectives as intermediate steps in attaining the goal, policies as specific guides to decision-making, and programs as specific means of achieving the policies. The Noise Element goals, objectives, and policies that are relevant to the proposed plan are identified below. Specific programs that would serve to reduce potential noise impacts are described under Section 4.10.3 (Project Impacts and Mitigation).

(Based on the Governor's Office of Planning and Research, "General Plan Guidelines", 1990. To help guide determination of appropriate land use and mitigation measures vis-a-vis existing or anticipated ambient noise levels)

Land Use Category	Day-Night Average Exterior Sound Level (CNEL dB)						
	50	55	60	65	70	75	80
Residential Single Family, Duplex, Mobile Home	A	C	C	C	N	U	U
Residential Multi-Family	A	A	C	C	N	U	U
Transient Lodging, Motel, Hotel	A	A	C	C	N	U	U
School, Library, Church, Hospital, Nursing Home	A	A	C	C	N	N	U
Auditorium, Concert Hall, Ampitheater	C	C	C	C/N	U	U	U
Sports Arena, Outdoor Spectator Sports	C	C	C	C	C/U	U	U
Playground, Neighborhood Park	A	A	A	A/N	N	N/U	U
Golf Course, Riding Stable, Water Recreation, Cemetery	A	A	A	A	N	A/N	U
Office Building, Business, Commercial, Professional	A	A	A	A/C	C	C/N	N
Agriculture, Industrial, Manufacturing, Utilities	A	A	A	A	A/C	C/N	N

A = Normally acceptable. Specified land use is satisfactory, based upon assumption buildings involved are conventional construction, without any special noise insulation.

C = Conditionally acceptable. New construction or development only after a detailed analysis of noise mitigation is made and needed noise insulation features are included in project design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning normally will suffice.

N = Normally unacceptable. New construction or development generally should be discouraged. A detailed analysis of noise reduction requirements must be made and noise insulation features included in the design of a project.

U = Clearly unacceptable. New construction or development generally should not be undertaken.

Source: City of Los Angeles, City Planning Commission, November 12, 1998, Adopted by the City Council, February 3, 1999.

100018607 | San Pedro NCP EIR

Figure 4.10-2  
General Plan Guidelines for Noise-Compatible Land Use

Table 4.10-6 General Plan Noise Element Policies	
No.	Goal/Objective
<b>NOISE ELEMENT</b>	
Policy 2.2	Enforce and/or implement applicable city, state, and federal regulations intended to mitigate proposed noise producing activities, reduce intrusive noise, and alleviate noise that is deemed a public nuisance.
Policy 3.1	Develop land use policies and programs that will reduce or eliminate potential and existing noise impacts.

SOURCE: Los Angeles Department of City Planning, *General Plan of the City of Los Angeles*, Noise Element (adopted February 3, 1999).

## ■ Proposed Plan Policies

The proposed plan includes several policies that are directly and indirectly related to noise. These proposed plan policies are listed below in Table 4.10-7 (Proposed San Pedro Community Plan Policies).

Table 4.10-7 Proposed San Pedro Community Plan Policies	
Policy No.	Policy
Policy LU15.1	Transitions. Require a transition of industrial uses, from intensive uses to less intensive uses, in those areas in close proximity to residential neighborhoods.
Policy LU15.2	Enhanced design. Require design techniques, such as appropriate building orientation and scale, landscaping, buffering, noise insulation, and increased setbacks, in the development of new industrial properties to improve land use compatibility with adjacent uses and to enhance the physical environment.

## Consistency Analysis

The analysis includes City requirements and mitigation measures to ensure that noise levels in the exterior activity environments meet City standards, including limiting the hours of construction in accordance with the LAMC.

The proposed plan would be consistent with the Policy 3.1 of the City’s Noise Element, and Policy LU15.2 of the proposed plan. As identified below under Impact 4.10-1, development of new residences in areas where existing noise levels currently exceed the City standard would be required to demonstrate that interior and exterior noise standards would be met through design or acoustical treatment.

As demonstrated below, the proposed plan would generate increased local traffic volumes in the near term but actually reduce net long-term trips as a result of the incorporation of mixed uses, pedestrian walkways, and connections to nearby transit. Further, as discussed in Impact 4.10-3 below, the proposed plan would not increase local ambient noise levels by more than 0.3 dBA under near-term conditions when compared to anticipated noise levels without the proposed plan. With respect to long-term conditions, because the proposed plan is anticipated to result in fewer future vehicle trips than would the current Community Plan for the CPA, noise levels would actually decrease under long-term conditions compared to long-term conditions without implementation of the land use changes under the proposed plan. Therefore, the proposed plan would not conflict with these applicable policies.

### 4.10.3 Project Impacts and Mitigation

#### ■ Analytic Method

This analysis of the existing and future noise environments is based on noise-level monitoring, noise-prediction modeling, and empirical observations. As defined in the City's General Plan Noise Element, noise-sensitive land uses residential uses; houses of worship; hospitals; libraries; schools; auditoriums; concert halls; outdoor theaters; nature and wildlife preserves, and parks. Therefore, for the purposes of this analysis, the nearest existing sensitive receptors to the project site would be the residential uses located within 50 feet of the potential areas of change as identified in Chapter 3 (Project Description).

Existing noise levels were monitored at selected locations within the CPA using a Larson-Davis Model 814 precision sound-level meter, which is consistent with the standards of the American National Standards Institute (ANSI) for general environmental noise measurement instrumentation. Noise modeling procedures involved the calculation of existing and future vehicular noise levels along individual roadway segments in the project area. These roadways were selected in consultation with City of Los Angeles staff based on the anticipated increase in traffic upon build-out of the proposed plan, the presence of noise-sensitive land uses along the roadways, and along roadways that transition from high-intensity industrial or commercial uses into lower intensity residential areas. Traffic volumes utilized as data inputs in the noise prediction model were provided by the Traffic Impact Analysis prepared by Iteris Inc. for the proposed plan. The analysis considers future cumulative traffic noise levels, in recognition of expected higher traffic volumes and resultant noise levels in the future, which provide an appropriate benchmark against which future noise resulting from implementation of the CPA can be assessed.

The Los Angeles CEQA Thresholds Guide (2006) sets forth guidance for the determination of significance of noise related impacts. This guidance is based on CEQA Guidelines Appendix G and provides specific criteria to be considered when making a significance determination. In some cases, the Thresholds Guide includes quantitative thresholds. For purposes of this analysis, Thresholds Guide criteria are used, supplemented by the thresholds identified in Appendix G, where appropriate.

#### ■ Thresholds of Significance

For purposes of this EIR, implementation of the proposed plan may have a significant adverse impact on noise if it would:

- Result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies
- Result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels
- Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project
- Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project due to construction activities lasting more than 1 day that would result in noise levels that would exceed the existing ambient exterior noise levels pursuant to Los Angeles Municipal Code Chapter IV, Article 1, Section 41.40

- Would the operation of the proposed plan result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?
- If located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, expose people residing or working in the project area to excessive noise levels
- If located within the vicinity of a private airstrip, expose people residing or working in the project area to excessive noise levels

### ***Human Exposure to Vibration***

The CEQA Guidelines also do not define the levels at which groundborne vibration or groundborne noise is considered “excessive.” For the purpose of this analysis, groundborne vibration impacts associated with human annoyance would be significant if vibration caused by implementation of the proposed plan exceeds 85 VdB, which is the vibration level that is considered by the Federal Transit Administration (FTA) to be acceptable only if there are an infrequent number of events per day (as described in Table 4.10-4). In terms of groundborne vibration impacts on structures, this analysis will use the Federal Transit Administration’s vibration damage threshold of approximately 100 VdB for fragile buildings and approximately 95 VdB for extremely fragile historic buildings.

### ■ **Effects Not Found to Be Significant**

The nearest airports to the CPA are the Torrance Municipal Airport, which is located approximately 2.3 miles to the northwest, and the Long Beach Municipal Airport approximately 7 miles to the northeast. Furthermore, the CPA is not located within the boundaries of an airport land use plan or airstrip and would not result in excessive noise level exposure for people residing or working in the CPA. No impact would occur, and no further analysis of this issue is required in the EIR.

### ■ **Less-Than-Significant Impacts**

**Impact 4.10-1      Development under the proposed plan could result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. Compliance with LAMC regulations would ensure this impact is *less than significant*.**

Sources of noise generated by implementation of development under the proposed plan would include new stationary sources such as HVAC systems. Large-scale HVAC systems would be installed for new industrial, commercial, and residential buildings in the CPA. Large HVAC systems could result in noise levels that average between 50 and 65 dBA  $L_{eq}$  at 50 feet from the equipment. It is assumed that most HVAC units would be mounted on the rooftops of all future buildings. As required by LAMC Section 112.02, all newly installed HVAC units would be required to reduce HVAC noise such that the noise levels of adjoining units and adjacent properties do not exceed ambient noise levels by 5 dB. Compliance with Section 112.02 would ensure that noise levels from the introduction of new HVAC units remains below LAMC standards and exposure to persons to noise levels above City standards would not occur.

New activity and noise would be introduced to the area as new residences and people are attracted to the new mix of uses that would develop from implementation of the proposed plan. As shown in Table 4.10-2, noise monitoring in the CPA indicates that existing noise levels at various points in the CPA currently exceed the City noise standards for residential uses, especially in the North Gaffey area, Downtown/Pacific Corridor Redevelopment Area, and along Western Avenue. Development of new residences in areas where existing noise levels currently exceed the City standard would constitute a significant impact. Discretionary development projects would be required to comply with LAMC regulations.

Compliance with LAMC Section 112.02 would ensure that noise levels attributed to new HVAC systems would not increase noise levels above City standards. In addition, implementation of City Building Code regulations would ensure that exterior living spaces, such as porches and patios, are constructed in a manner that noise levels do not exceed City noise standards. Therefore, this impact is *less than significant*.

**Impact 4.10-2      Development under the proposed plan would not result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels. This impact is *less than significant*.**

During activities associated with potential development under the proposed plan, background operational vibration levels could average around 50 VdB, as discussed previously in this section. This is substantially less than the 85 VdB threshold for people in the vicinity of the new development. Groundborne vibration resulting from operational activities would primarily be generated by trucks making periodic deliveries to the uses within the CPA boundaries. However, these types of deliveries would be consistent with deliveries that are currently made along roadways to commercial uses in the CPA boundaries and are not anticipated to increase groundborne vibration above existing levels because the proposed plan would increase the level of uses (residential) that do not typically require this type of delivery and decrease the level of uses (office and commercial) that do. In areas where mixed-use development would occur, the residential uses would be located above the ground level and would therefore, not experience groundborne vibration.

The proposed plan would allow for the increase of industrial uses within areas currently zoned for such uses. Industrial activities would potentially result in the use of equipment or processes that would induce groundborne vibration. However, Policies LU15.1 and LU15.2 of the proposed plan would establish buffers from such uses such that the development of new industrial uses would be separated from vibration sensitive uses. Adherence to these policies would ensure that vibration sensitive uses would not be adversely affected by the development of these new industrial uses. Trucks travelling to the Port of Los Angeles would utilize the existing truck routes to the port and would not travel through residential uses as a result of the proposed plan; therefore, no increase in vibration from Port of Los Angeles related traffic would occur.

Because no substantial sources of groundborne vibration would be built as part of the proposed plan, no vibration impacts would occur during operation of the proposed plan. Therefore, operational activities related to development projects would not expose sensitive receptors on or off site to excessive groundborne vibration or groundborne noise levels, and this impact is *less than significant*.

**Impact 4.10-3 Implementation of the proposed plan would not result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project. This impact is *less than significant*.**

Substantial permanent increases in noise would occur primarily as a result of increased traffic on local roadways due to the new mix of uses that could develop from implementation of the proposed plan. As stated in the Thresholds of Significance, an increase in 3 dBA in CNEL that would result in exterior noise levels reaching or exceeding the “normally unacceptable” or “clearly unacceptable” category, or any 5 dBA or greater noise increase would be considered significant. As shown in Table 4.10-8 (Current and Future (2030) Roadway Noise Levels), existing roadway noise levels were compared to future roadway noise projections without the project (2030) and future roadway noise projections with the project (2030). As shown in Table 4.10-8, increases in roadway noise levels with the proposed plan would not increase by more than 1.0 dBA CNEL compared to future roadway noise levels without the proposed plan. The greatest project related increase would occur along the roadway of Gaffey Street between Channel Street and Capitol Drive. The vehicle noise levels would result in a 0.6 dBA increase above noise levels without the proposed plan, and therefore, this increase would be considered *less than significant*.

Table 4.10-8 Current and Future (2030) Roadway Noise Levels		Noise Levels in dBA L <sub>dn</sub>						
Roadway Segment		Existing	Year 2030 Without Project Traffic	Year 2030 Increase Without Project	Year 2030 With Project Traffic	Project Related Increase	Significance Threshold	Exceeds Significance Threshold?
Gaffey Street	Summerland Avenue to Miraflores Avenue	66.5	70.2	3.7	70.1	-0.1	3.0	No
	Channel Street to Capitol Drive	66.4	67.2	0.8	67.8	0.6	3.0	No
	1 <sup>st</sup> Street to Sepulveda Boulevard	69.8	69.9	0.1	69.9	0.0	3.0	No
	Summerland Avenue to I-110 Terminus	71.3	70.2	-1.1	70.2	0.0	3.0	No
	3 <sup>rd</sup> Street to 5 <sup>th</sup> Street	67.8	67.0	-0.8	66.9	-0.1	3.0	No
	7 <sup>th</sup> Street to 9 <sup>th</sup> Street	67.6	66.7	-0.9	66.7	0.0	3.0	No
	22 <sup>nd</sup> Street to 23 <sup>rd</sup> Street	63.4	64.2	0.8	64.4	0.2	3.0	No
	25 <sup>th</sup> Street to 26 <sup>th</sup> Street	62.0	62.4	0.4	62.5	0.1	3.0	No
Channel Street	Gaffey Street to John S. Gibson Boulevard	65.6	67.7	2.1	67.8	0.1	3.0	No
Western Avenue	Capitol Drive to Westmont Drive	65.2	69.1	3.9	69.2	0.1	3.0	No
	Westmont Drive to CPA limit	65.8	70.1	4.3	70.1	0.0	3.0	No
	9 <sup>th</sup> Street to Dodson Avenue	68.5	70.3	1.8	70.4	0.1	3.0	No
Summerland Avenue	Cabrillo Avenue to Gaffey Street	63.3	62.5	-0.8	62.6	0.1	3.0	No
25 <sup>th</sup> Street	Western Avenue to Patton Avenue	55.4	62.4	7	62.8	0.4	3.0	No

**Table 4.10-8 Current and Future (2030) Roadway Noise Levels**

Roadway Segment		Noise Levels in dBA L <sub>dn</sub>						
		Existing	Year 2030 Without Project Traffic	Year 2030 Increase Without Project	Year 2030 With Project Traffic	Project Related Increase	Significance Threshold	Exceeds Significance Threshold?
	Patton Avenue to Walker Avenue	55.4	62.4	7	62.8	0.4	3.0	No
	Mermaid Drive to Anchovy Street	63.5	64.7	1.2	64.7	0.0	3.0	No
Pacific Avenue	5 <sup>th</sup> Street to 7 <sup>th</sup> Street	65.5	67.5	2.0	67.3	-0.2	3.0	No
	22 <sup>nd</sup> Street to 23 <sup>rd</sup> Street	62.5	59.9	-2.6	59.8	-0.1	3.0	No
	O'Farrell Street to Bonita Street	64.3	66.6	2.3	66.9	0.3	3.0	No
Harbor Boulevard	Swinford Street to O'Farrell Street	66.4	68.9	2.5	68.8	-0.1	3.0	No
Centre Street	6 <sup>th</sup> Street to 7 <sup>th</sup> Street	61.7	64.1	2.4	63.7	-0.4	3.0	No
9 <sup>th</sup> Street	Cabrillo Avenue to Gaffey Street	61.9	64.8	2.9	64.6	-0.2	3.0	No
1 <sup>st</sup> Street	Cabrillo Avenue to Grand Avenue	63.6	65.3	1.7	65.3	0.0	3.0	No

SOURCE: Atkins (2011) (calculation data and results are provided in Appendix F)

**Impact 4.10-4 Implementation of the proposed plan would not result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project. Compliance with LAMC Sections 112.02 and 115.02 would ensure that this impact is *less than significant*.**

Implementation of the proposed plan could include special events or temporary activities that would cause an increase in ambient noise levels. Noise creating events such as parades and street festivals would not be located within residential areas and would be required to obtain permits and comply with the requirements of the LAMC Section 115.02 regarding amplified sound. In addition, operation of the proposed plan would not require periodic use of special stationary equipment that would expose off-site sensitive receptors to an increase in ambient noise levels above those existing without the proposed plan. Impact 4.10-1 evaluates the potential for mechanical equipment, which would be assumed to be a constant/permanent source of ambient noise levels, attributable to the proposed plan to increase ambient noise levels. Compliance with LAMC Section 112.02 would ensure that noise levels attributed to new HVAC systems would not increase noise levels above City standards. Therefore, there would be no temporary or periodic noise impacts to on- or off-site receptors due to operation of the proposed plan. This impact is *less than significant*.



## ■ Significant and Unavoidable Impacts

**Impact 4.10-5**      **Construction of development pursuant to the proposed plan could result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. Project-level environmental review and implementation of mitigation measure MM4.10-1 for discretionary projects would reduce this impact, but not necessarily to a less-than-significant level. Therefore, this impact is *significant and unavoidable*.**

The proposed plan and implementing ordinances provide a framework on a program level for future development in the CPA and specifies the type of uses, densities, and intensities that would be permitted. Plan amendments would potentially change or refine land use plan designations, including the development of mixed-use. Other changes would be implemented throughout the CPA, including zone changes to retain existing single- and multi-family residential uses, existing industrial land uses, and commercial uses and zone changes to encourage mixed-use and transit-oriented development. Implementation of the CPA would result in construction activities associated with the development of these new uses. While specific development plans are not known at this time, it is likely that construction activities associated with implementation under the CPA would be located within 50 feet of existing or future noise-sensitive uses.

Development of projects under of the CPA would require the use of heavy equipment for demolition, site excavation, installation of utilities, site grading, paving, and building fabrication. Construction activities would also involve the use of smaller power tools, generators, and other sources of noise. During each stage of construction there would be a different mix of equipment operating, and noise levels would vary based on the amount of equipment in operation and the location of the activity.

The EPA has compiled data regarding the noise-generating characteristics of specific types of construction equipment and typical construction activities. These data are presented in Table 4.10-9 (Noise Ranges of Typical Construction Equipment) and Table 4.10-10 (Typical Outdoor Construction Noise Levels). These noise levels would diminish rapidly with distance from the construction site at a rate of approximately 6 dBA per doubling of distance. For example, a noise level of 86 dBA measured at 50 feet from the noise source to the receptor would reduce to 80 dBA at 100 feet from the source to the receptor, and reduce by another 6 to 74 dBA at 200 feet from the source to the receptor.

The LAMC regulates construction noise levels through the provisions of Chapter IV, Article 1, Section 41.40. Section 41.40 states that noise from construction activities, provided it occurs between the designated hours (7:00 AM to 9:00 PM Monday through Friday, and 8:00 AM to 6:00 PM on Saturdays) is exempt from the noise standards established in Section 111.03 (refer to Table 4.10-5).

Notwithstanding the exemption provided in Section 41.40, Section 112.05 of the LAMC establishes performance standards for powered equipment or tools. The maximum allowable noise level for most construction equipment within 500 feet of any residential zone is 75 dBA measured at 50 feet from the noise source. This restriction holds unless compliance is not technically feasible even with the use of noise “mufflers, shields, sound barriers, and/or other noise reduction devices or techniques.”

<b>Table 4.10-9 Noise Ranges of Typical Construction Equipment</b>	
<i>Equipment</i>	<i>Noise Levels in dBA Leq at 50 Feet<sup>a</sup></i>
Front Loader	73 to 86
Trucks	82 to 95
Cranes (moveable)	75 to 88
Cranes (derrick)	86 to 89
Vibrator	68 to 82
Saws	72 to 82
Pneumatic Impact Equipment	83 to 88
Jackhammers	81 to 98
Pumps	68 to 72
Generators	71 to 83
Compressors	75 to 87
Concrete Mixers	75 to 88
Concrete Pumps	81 to 85
Back Hoe	73 to 95
Pile Driving (peaks)	95 to 107
Tractor	77 to 98
Scraper/Grader	80 to 93
Paver	85 to 88

SOURCE: U.S. Environmental Protection Agency. *Noise from Construction Equipment and Operations, Building Equipment and Home Appliances* (1971).

a. Machinery equipped with noise control devices or other noise-reducing design features does not generate the same level of noise emissions as that shown in this table.

<b>Table 4.10-10 Typical Outdoor Construction Noise Levels</b>		
<i>Construction Phase</i>	<i>Noise Levels at 50 Feet (dBA Leq)</i>	<i>Noise Levels at 50 Feet with Mufflers (dBA Leq)</i>
Ground Clearing	84	82
Excavation, Grading	89	86
Foundations	78	77
Structural	85	83
Finishing	89	86

SOURCE: U.S. Environmental Protection Agency. *Noise from Construction Equipment and Operations, Building Equipment and Home Appliances* (1971).

Noise that would be experienced by sensitive uses due to development associated with implementation of the proposed plan is determined at their property lines. While the nearest sensitive uses vary at different locations in and around the CPA, and as specific development plans have not yet been determined at individual sites, for the purpose of this analysis it is assumed that sensitive receptors could be as close as 50 feet from where construction would take place. Sensitive receptors in the project

vicinity could experience noise levels up to 86 dBA  $L_{eq}$  as a result of construction activities, or as high as 107 dBA  $L_{eq}$  in the event that pile drivers are used during the construction of building foundations. In order to reduce construction noise levels, project-level environmental review and mitigation measure MM4.10-1 would be implemented for discretionary projects to reduce construction noise.

Implementation of mitigation measure MM4.10-1 would reduce construction noise levels at existing and future noise-sensitive receptors during construction activities associated with implementation of the proposed plan; however, as identified in Table 4.10-9, noise levels from various mechanized construction equipment would exceed 75 dBA at distances of 50 feet from the equipment that could exceed the limitations established in Section 112.05 of the LAMC. Depending on the location of construction activities, typical construction noise levels could still exceed 75 dBA despite implementation of mitigation. Implementation of environmental review and mitigation measure MM4.10-1 on a discretionary project level would help to reduce this impact, but not necessarily to less than significant, because certain construction activities may still be required in proximity to nearby sensitive receptors and construction-related noise levels could exceed the 75 dBA threshold. Because specific development projects are not known, this impact would be *significant and unavoidable*.

**Impact 4.10-6 Construction of development pursuant to the proposed plan could generate or expose persons or structures to excessive groundborne vibration. Implementation of project-level environmental review and mitigation measure MM4.10-1 for discretionary projects would reduce this impact, but not necessarily to a less-than-significant level. Therefore, this impact is *significant and unavoidable*.**

### Construction

Construction-related groundborne noise and vibration have two potential impacts. First, groundborne noise and vibration at high enough levels can result in human annoyance. Second, groundborne vibration can potentially damage the foundations and exteriors of historic structures. Groundborne vibration that can cause this kind of damage is typically limited to impact equipment, especially pile drivers. Construction activities that would occur under the proposed plan have the potential to generate low levels of groundborne vibration. Table 4.10-11 (Vibration Source Levels for Construction Equipment) identifies various vibration velocity levels for the types of construction equipment that would operate within the CPA during construction.

Equipment	Approximate VdB			
	25 Feet	50 Feet	75 Feet	100 Feet
Pile Driver (Impact)	112	106	102	100
Large Bulldozer	87	81	77	75
Loaded Trucks	86	80	76	74
Jackhammer	79	73	69	67
Small Bulldozer	58	52	48	46

SOURCE: U.S. Department of Transportation, Federal Railroad Administration, *High-Speed Ground Transportation Noise and Vibration Impact Assessment* (October 2005).

In addition to the construction equipment shown in Table 4.9-11, vibration that would be experienced from the use of impact pile drivers could reach as high as 112 VdB at a distance of 25 feet.<sup>109</sup> Like noise, groundborne noise and vibration will attenuate at a rate of approximately 6 VdB per doubling of distance. The groundborne noise and vibration generated during construction activities would primarily impact existing sensitive uses (e.g., residences, schools, and hospitals) that are located adjacent to, or within, the vicinity of specific projects. These sensitive uses could sometimes be located as close as 25 feet to the construction site or as far as several hundred feet away. Based on the information presented in Table 4.10-11, vibration levels (excluding pile driving) could reach up to 87 VdB at sensitive uses located within 25 feet of construction. For sensitive uses that are located at or within 25 feet of project construction sites, sensitive receptors (e.g., residents, school children, and hospital patients) at these locations may experience groundborne noise and vibration levels during construction activities that exceed the FTA's vibration impact threshold of 85 VdB for human annoyance. As long as construction occurs more than 50 feet from sensitive receptors, the impact associated with groundborne noise and vibration generated by the equipment would be below 85 VdB and, thus, would be less than significant. However, as specific site plans or construction schedules are unknown at this time, it may be possible that construction activities could occur as close as 25 feet from sensitive receptors. This would result in these sensitive receptors experiencing groundborne noise and vibration impacts above the threshold of 85 VdB, in which case this impact would be potentially significant. Implementation of project-level environmental review and mitigation measure MM4.10-1 for discretionary projects would help to reduce this impact, but not necessarily to less than significant, because certain construction activities may still be required in proximity to nearby sensitive receptors. Because specific development projects are not known, this impact would be *significant and unavoidable*.

**Impact 4.10-7**      **Construction of development pursuant to the proposed plan could result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project due to construction activities. Implementation of project-level environmental review and mitigation measure MM4.10-1 for discretionary projects would reduce this impact, but not necessarily to a less-than-significant level. Therefore, this impact is *significant and unavoidable*.**

Construction activities related to development projects occurring as a result of implementation of the proposed plan would involve demolition, grading, and excavation activities, followed by construction and external finishing of the proposed buildings and associated parking areas, as well as roadway and landscaping improvements. These activities would involve the use of heavy equipment. Construction activities would also involve the use of smaller power tools, generators, and other equipment that generates noise. Each stage of construction would use a different mix of equipment, and noise levels would vary based on the amount and types of equipment in operation and the location of the activity related to potential receptors.

As described under Impact 4.10-5, specific development plans have not been identified for future projects contemplated under the proposed plan, and therefore, the location of noise-sensitive receptors would vary from project to project and the actual noise levels experienced by noise-sensitive receptors

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<sup>109</sup> Harris Miller Miller & Hanson Inc., *Transit Noise and Vibration Impact Assessment, Final Report* (May 2006).

cannot be determined at this time. However, for the purpose of this analysis it is assumed that sensitive receptors could be as close as 50 feet from where construction would take place. Sensitive receptors in the project vicinity could experience noise levels up to 86 dBA  $L_{eq}$  as a result of construction activities, or as high as 107 dBA  $L_{eq}$  in the event that pile drivers are used during the construction of building foundations.

Development projects would be required to comply with the LAMC Section 41.10, limiting construction hours to 7:00 AM to 9:00 PM Monday through Friday, and 8:00 AM to 6:00 PM on Saturdays. However, construction activity would generate temporary and periodic increases in ambient noise levels that would potentially exceed the thresholds established by the City of Los Angeles Thresholds Guide as follows:

- Construction activities lasting more than 1 day would exceed existing ambient exterior noise levels by 10 dBA or more at a noise-sensitive use
- Construction activities lasting more than 10 days in a 3-month period would exceed existing ambient exterior noise levels by 5 dBA or more at a noise-sensitive use
- Construction activities would exceed the ambient noise level by 5 dBA at a noise-sensitive use between the hours of 9:00 PM and 7:00 AM Monday through Friday, before 8:00 AM or after 6:00 PM on Saturday, or at any time on Sunday

Construction activities associated with implementation of projects pursuant to the proposed plan would likely last for a period of several weeks and would generate noise levels at noise-sensitive uses ranging from 86 dBA  $L_{eq}$  to as high as 107 dBA  $L_{eq}$ . These noise levels would occur during various stages of individual project construction and could exceed the limits established by the Threshold Guidelines. Implementation of project-level environmental review and mitigation measure MM4.10-1 for discretionary projects would reduce noise levels, but not necessarily below the thresholds of significance. Therefore, this impact would be *significant and unavoidable*.

## ■ Mitigation Measures

The proposed plan incorporates programs and policies that help mitigate adverse noise impacts. Adherence to all relevant plans, codes, and regulations, and environmental review for discretionary development on a project-by-project basis would also serve to reduce project-specific and cumulative noise impacts. Additionally, the following mitigation measure would be implemented for future discretionary projects in the San Pedro CPA to further reduce construction-related noise impacts:

- MM4.10-1      The City, as a condition of approval for all applicable discretionary projects, shall require all contractors to include the following best management practices in contract specifications:*
- *Re-route truck traffic away from residential streets, if possible. If no alternatives are available, route truck traffic on streets with the fewest residences.*
  - *Site equipment on construction lots as far away from noise-sensitive sites as possible.*
  - *When construction activities are located in close proximity to noise-sensitive sites, construct noise barriers, such as temporary walls or piles of excavated material between activities and noise sensitive uses.*
  - *Avoid use of impact pile drivers where possible in noise-sensitive areas. Drilled piles or the use of a sonic vibratory pile driver are quieter alternatives where geological conditions permit their use. Use noise shrouds when necessary to reduce noise of pile drilling/driving.*

- *Use construction equipment with mufflers that comply with manufacturers' requirements.*
- *Consider potential vibration impacts to older (historic) buildings.*

## ■ Level of Significance After Mitigation

Mitigation measures and standard conditions of approval would reduce impacts from noise, but ***significant and unavoidable*** impacts would remain for construction noise and vibration.

### 4.10.4 Cumulative Impacts

A cumulative impact analysis is only provided for those thresholds that result in a less-than-significant or significant and unavoidable impact. A cumulative impact analysis is not provided for Effects Found Not to Be Significant, which result in no project-related impacts.

The geographic context for the analysis of cumulative noise impacts depends on the impact being analyzed. For construction impacts, only the immediate area around the specific development site would be included in the cumulative context. For operational/roadway related impacts, the context is build-out of the San Pedro Community Plan, including existing and future development of cumulative projects within the San Pedro Community Plan area, as well as related projects in adjacent communities that would be potentially impacted. This cumulative impact analysis considers development of the proposed plan, in conjunction with ambient growth as discussed in Section 4.13 (Transportation/Traffic), and other development within the San Pedro Community Plan area and surrounding jurisdictions. Noise is by definition a localized phenomenon, and is significantly reduced in magnitude as distance from the source increases. Consequently, only projects and growth due to occur in the project area would be likely to contribute to cumulative noise impacts.

Similar to any urban area where new structures are proposed as part of urban development/redevelopment, increases in noise at sensitive uses would occur as a result of construction of various developments, including those associated with the proposed plan. Other construction that may occur in the vicinity of the CPA would contribute noise levels similar to those generated for the proposed plan. Where this development adjoins the proposed plan construction, the combined construction noise levels would have a cumulative effect with respect to increases in ambient noise levels and exceedance of City standards. Noise is not strictly additive, and a doubling of noise sources would not cause a doubling of noise levels; however, cumulative construction noise levels would be in excess of the City standards at nearby sensitive receptors.

As discussed under Impact 4.9-5, Section 41.10 of the LAMC limits construction activities to between the hours of 7:00 AM and 9:00 PM Monday through Friday, and 8:00 AM to 6:00 PM on Saturdays, and also prohibits construction activities on Sundays and public holidays. However, as identified in Impact 4.10-5, noise levels from various pieces of construction equipment could exceed the 75 dBA limit established in Section 112.05 of the LAMC. As the construction activities associated with implementation of the proposed plan would exceed the 75 dBA noise limit, combined with the effects of cumulative development, the proposed plan's contribution to the impact would be cumulatively considerable. Therefore, the cumulative impact of the plan's construction-related exposure of persons to noise levels above the City of Los Angeles established limit would be considered ***significant and unavoidable***.

As also discussed under Impact 4.9-1, Compliance with LAMC Section 112.02 would ensure that noise levels attributed to new HVAC systems would not increase noise levels above City standards. Consequently, multiple units would have to be located within 50 feet of a receptor to achieve noise levels that would exceed the City standards. The development types anticipated and allowed under the proposed plan and other nearby projects are not so dense that multiple stationary units would need to be so closely spaced, either on or off site. Consequently, the cumulative effect of multiple HVAC units and other mechanical equipment would be less than significant with compliance with LAMC Section 112.02, and the contribution of the project would not be cumulatively considerable. This is a *less-than-significant* impact.

Other development projects within and adjacent to the CPA could potentially introduce residential development into areas that currently exceed the exterior/interior standards for residential uses. However, such residential development would have to be constructed so that the noise levels in interior/exterior living spaces do not exceed the standards as set forth in the Noise Element of the General Plan and LAMC. Since any potential new residential development within the CPA would be required to mitigate through site and building design, insulation, and other noise preventative measures as specified in Title 24 of the California Building Code, the proposed plan's impact would not be cumulatively considerable and the cumulative impact of the project would also be *less than significant*.

As discussed in Impact 4.10-6, the construction of projects pursuant to the proposed plan would produce temporary vibration impacts. However, the construction vibration impact would be significant and unavoidable. Cumulative development in the CPA is not considered likely to result in the exposure of on-site or off-site receptors to excessive groundborne noise and vibration due to the localized nature of vibration impacts, the fact that all construction would not occur at the same time and at the same location. Therefore, only receptors located in close proximity to each construction site would be potentially affected by each activity. Construction activities associated with these projects, which are adjacent to or within, the CPA, may overlap with construction activities for the proposed plan for some amount of time. However, for the combined vibration impact from the simultaneous construction projects to reach cumulatively significant levels, intense construction from both projects would have to occur simultaneously within 50 feet of any receptor. As individual development projects under the proposed plan may be constructed concurrently with each other or other related projects, it is possible that intense construction from two or more projects would simultaneously occur at distances of 50 feet or less from existing nearby receptors. Therefore, vibration from future development could potentially combine to result in a potentially significant cumulative impact. The cumulative impact of the proposed plan would be *significant and unavoidable*.

Groundborne vibration could conceivably be generated by operation of the development projects and related projects in the vicinity of the CPA. However, the policies LU15.1 and LU15.2 of the proposed plan would establish buffers from industrial uses such that the development of new industrial uses would be separated from vibration sensitive uses. Trucks travelling to the Port of Los Angeles would utilize the existing truck routes to and from the port, which are South Harbor Boulevard, the Seaside Freeway, I-110, the Terminal Island Freeway, and I-710, and would not travel through residential neighborhoods as a result of the proposed plan; therefore, no increase in vibration from Port of Los Angeles related traffic would occur. Since no substantial sources of groundborne vibration would be built as part of the

proposed plan, no vibration impacts, attributable to the proposed plan, would likely occur during operation of the proposed plan. It is reasonable to assume that other projects in the vicinity of the CPA would have similar characteristics. Consequently, the proposed plan would not be considered cumulatively considerable with respect to operational groundborne noise and vibration impacts at any on-site or off-site receptor. This impact is *less than significant*.

Substantial permanent increases in noise would occur primarily as a result of increased traffic on local roadways due to the proposed plan, related projects, and ambient growth through Year 2030 within the study area. Cumulative traffic-generated noise impacts have been assessed based on the contribution of the proposed plan to the future cumulative base traffic volumes in the project vicinity. As shown in Table 4.10-8 (Current and Future (2030) Roadway Noise Levels), cumulative traffic would result in increases in noise levels that would exceed the 3.0 dBA CNEL threshold, as noise levels along Gaffey Street and Western Avenue would increase by over 3.0 dBA CNEL. Additionally, future year noise levels without the project would increase by up to 7.0 dBA CNEL along 25<sup>th</sup> Street. As described under Impact 4.10-3, the proposed plan would not result in roadway noise levels exceeding the established thresholds; however, future noise levels without the proposed plan are anticipated to exceed the significance threshold by up to 7.0 dBA CNEL resulting in a cumulative impact. However the proposed plan's contribution to future roadway noise levels would result in a decrease in noise levels compared to future year conditions without the proposed plan, due, in part, to trip capture and trip reduction attributable to mixed-use development. Therefore, the proposed plan's contribution would not be considered cumulatively considerable, and the cumulative impact is *less than significant*.

Operation of development projects related to implementation of the proposed plan could include special events or temporary activities that would cause an increase in ambient noise levels. Noise creating events such as parades and street festivals would not be located within residential areas and would be required to obtain permits and comply with the requirements of the LAMC Section 115.02 regarding amplified sound. Therefore, there would be no temporary or periodic noise impacts to on- or off-site receptors due to operation of the proposed plan, and the cumulative impact of the proposed plan is *less than significant*.

Periodic and temporary noise levels would be generated by the construction of projects pursuant to the proposed plan along with other construction in the vicinity. As discussed in Impact 4.9-7, the proposed plan by itself would expose some receptors to noise levels in excess of acceptable City standards. Construction noise impacts are localized in nature and decrease substantially with distance. As discussed previously, related projects provided in Table 3-2 (Summary of Proposed Plan Expected Build-Out) in Chapter 3 are in the vicinity of the CPA. Construction activity associated with these projects may overlap with construction activity pursuant to the proposed plan. Thus, the possibility exists that a substantial cumulative increase in construction noise levels could result from construction associated with the proposed plan and related projects. The cumulative impact of the proposed plan and the related projects concurrently emitting high levels of construction noise would likely be significant and unavoidable. Construction activities associated with implementation of the proposed plan would likely last for a period of several weeks and would generate noise levels at noise-sensitive uses ranging from 86 dBA  $L_{eq}$  to as high as 107 dBA  $L_{eq}$ . These noise levels would occur during various stages of individual projects construction and would exceed the thresholds of significance limits established in this EIR.



Consequently, it is anticipated that projects analyzed in the cumulative context would similarly exceed the thresholds of significance for construction standards, and the cumulative impact of the proposed plan would be *significant and unavoidable*.

#### 4.10.5 References

- California Department of Transportation. *Traffic Noise Analysis Protocol for New Highway Construction and Highway Reconstruction Projects*, October 1998.
- Harris Miller Miller & Hanson Inc. *Transit Noise and Vibration Impact Assessment, Final Report*, May 2006.
- Hendriks, Rudy. *Technical Noise Supplement: A Technical Supplement to the Traffic Noise Analysis Protocol*. Sacramento: California Department of Transportation, October 1998.
- Los Angeles Department of City Planning. *General Plan of the City of Los Angeles*. Noise Element, adopted February 3, 1999.
- . *Municipal Code*. Chapter IV, Article 1, Section 41.40.
- . *Municipal Code*. Chapter XI.
- U.S. Department of Transportation. Federal Railroad Administration. *High-Speed Ground Transportation Noise and Vibration Impact Assessment*, October 2005.
- U.S. Environmental Protection Agency. *Noise from Construction Equipment and Operations, Building Equipment and Home Appliances*, 1971.

