

## 5. Environmental Analysis

### 5.12 NOISE

This section discusses the fundamentals of sound; examines federal, state, and local noise guidelines, policies, and standards; reviews noise levels at existing receptor locations; evaluates potential noise impacts associated with the Antelope Valley Area Plan Update (Proposed Project); and provides mitigation to reduce noise impacts at noise-sensitive receptor land uses.

This section of the Draft Environmental Impact Report (DEIR) evaluates the potential for implementation of the Proposed Project to result in noise impacts in the vicinity of the Project Area. Additional information relative to this noise section is included in the Technical Appendices to this Draft EIR (Appendix E)

#### 5.12.1 Environmental Setting

##### Noise Descriptors

Noise is most often defined as unwanted sound. Although sound can be easily measured, the perception of noise and the physical response to sound complicate the analysis of its impact on people. People judge the relative magnitude of sound sensation in subjective terms such as “noisiness” or “loudness.”

The following are brief definitions of terminology used in this section:

- **Sound:** A disturbance created by a vibrating object, that when transmitted by pressure waves through a medium such as air, is capable of being detected by a receiving mechanism, such as the human ear or a microphone.
- **Noise:** Sound that is loud, unpleasant, unexpected, or otherwise undesirable.
- **Decibel (dB):** A unit that denotes the ratio between two quantities that are proportional to power. The number of decibels is 10 times the logarithm (base 10) of this ratio, which has a reference quantity in the denominator. For sound pressure decibels, the reference quantity is 20 micropascals ( $\mu\text{Pa}$ ).
- **A-Weighted Decibel (dBA):** An overall frequency-weighted sound level in decibels that approximates the frequency response of the human ear.
- **Equivalent Continuous Noise Level ( $L_{eq}$ ):** The mean of the noise level, energy averaged over the measurement period.
- **Statistical Sound Level ( $L_n$ ):** The sound level that is exceeded “n” percent of time during a given sample period. For example, the  $L_{50}$  level is the statistical indicator of the time-varying noise signal that is exceeded 50 percent of the time (during each sampling period), which is half of the sampling time, the changing noise levels are above this value and half of the time they are below it. This is called the “median sound level.” The  $L_{10}$  level, likewise, is the value that is exceeded 10 percent of the time (i.e., near the maximum) and this is often known as the “intrusive sound level.” The  $L_{90}$  is the sound level exceeded 90 percent of the time and is often considered the “effective background level” or “residual noise level.”

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- **Day-Night Sound Level ( $L_{dn}$  or DNL):** The energy-average of the A-weighted sound levels occurring during a 24-hour period, with 10 dB added to the sound levels occurring during the period from 10:00 PM to 7:00 AM.
- **Community Noise Equivalent Level (CNEL):** The energy-average of the A-weighted sound levels occurring during a 24-hour period, with 5 dB added to the levels occurring during the period from 7:00 PM to 10:00 PM and 10 dB added to the sound levels occurring during the period from 10:00 PM to 7:00 AM.

### Characteristics of Sound

Sound is a pressure wave transmitted through the air. It is described in terms of loudness or amplitude (measured in decibels), frequency or pitch (measured in Hertz [Hz] or cycles per second), and duration (measured in seconds or minutes). The standard unit of measurement of the loudness of sound is the decibel (dB). Changes of 1 to 3 dB are detectable under quiet, controlled conditions and changes of less than 1 dBA are usually indiscernible. A 3 dB change in noise levels is considered the minimum change that is detectable with human hearing in outside environments. A change of 5 dB is readily discernible to most people in an exterior environment whereas a 10 dB change is perceived as a doubling (or halving) of the sound.

The human ear is not equally sensitive to all frequencies. Sound waves below 16 Hz are not heard at all and are “felt” more as a vibration. Similarly, while people with extremely sensitive hearing can hear sounds as high as 20,000 Hz, most people cannot hear above 15,000 Hz. In all cases, hearing acuity falls off rapidly above about 10,000 Hz and below about 200 Hz. Since the human ear is not equally sensitive to sound at all frequencies, a special frequency dependent rating scale is usually used to relate noise to human sensitivity. The A-weighted decibel scale (dBA) performs this compensation by discriminating against frequencies in a manner approximating the sensitivity of the human ear.

Noise is defined as unwanted sound, and is known to have several adverse effects on people, including hearing loss, speech and sleep interference, physiological responses, and annoyance. Based on these known adverse effects of noise, the federal government, the State of California, and many local governments have established criteria to protect public health and safety and to prevent disruption of certain human activities.

### Measurement of Sound

Sound intensity is measured through the A-weighted measure to correct for the relative frequency response of the human ear. In other words, an A-weighted noise level deemphasizes low and very high frequencies of sound similar to the human ear’s de-emphasis of these frequencies.

Unlike linear units such as inches or pounds, decibels are measured on a logarithmic scale, representing points on a sharply rising curve. This logarithmic scale is used to better account for the large variations in pressure amplitude (the above range of human hearing, 0 to 140 dBA, represents a ratio in pressures of 100 trillion to one). All noise levels in this study are relative to the industry-standard pressure reference value of 20 micropascals. Because of the physical characteristics of noise transmission and perception, the relative loudness of sound does not closely match the actual amounts of sound energy. Table 5.12-1 presents the subjective effect of changes in sound pressure levels.

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**Table 5.12-1 Change in Apparent Loudness**

± 3 dB	Threshold of human perceptibility
± 5 dB	Clearly noticeable change in noise level
± 10 dB	Half or twice as loud
± 20 dB	Much quieter or louder

Source: Bies and Hansen 2009.

In practical application, an increase of 10 dB is 10 times more intense than 1 dB, while 20 dB is 100 times more intense, and 30 dB is 1,000 times more intense. A sound as soft as human breathing is about 10 times greater than 0 dB. The decibel system of measuring sound gives a rough connection between the physical intensity of sound and its perceived loudness to the human ear. Ambient sounds generally range from 30 dBA (very quiet) to 100 dBA (very loud). To help relate noise level values to common experience, Table 5.12-2 shows typical noise levels from noise sources.

**Table 5.12-2 Typical Noise Levels**

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	110	Rock Band
Jet Flyover at 1,000 feet		
	100	
Gas Lawn Mower at three feet		
	90	
Diesel Truck at 50 feet, at 50 mph		Food Blender at 3 feet
	80	Garbage Disposal at 3 feet
Noisy Urban Area, Daytime		
	70	Vacuum Cleaner at 10 feet
Commercial Area		Normal speech at 3 feet
Heavy Traffic at 300 feet	60	
		Large Business Office
Quiet Urban Daytime	50	Dishwasher Next Room
Quiet Urban Nighttime	40	Theater, Large Conference Room (background)
Quiet Suburban Nighttime		
	30	Library
Quiet Rural Nighttime		Bedroom at Night, Concert Hall (background)
	20	
		Broadcast/Recording Studio
	10	
Lowest Threshold of Human Hearing	0	Lowest Threshold of Human Hearing

Source: Caltrans 2009.

Sound levels are generated from a source and their decibel level decreases as the distance from that source increases. Sound dissipates exponentially with distance from the noise source. This phenomenon is known as “spreading loss.” For a single point source, sound levels decrease by approximately 6dB for each doubling of distance from the source. This drop-off rate is appropriate for noise generated by onsite operations from

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stationary equipment or activity at a project site. If noise is produced by a line source, such as highway traffic, the sound decreases by 3dB for each doubling of distance in a hard site environment. Line source noise in a relatively flat environment with absorptive vegetation decreases by 4.5dB for each doubling of distance.

Time variation in noise exposure is typically expressed in terms of a steady-state energy level equal to the energy content of the time varying period (called  $L_{eq}$ ), or alternately, as a statistical description of the sound level that is exceeded over some fraction of a given observation period. For example, the  $L_{50}$  noise level represents the noise level that is exceeded 50percent of the time. Half the time the noise level exceeds this level and half the time the noise level is less than this level. This level is also representative of the level that is exceeded 30minutes in an hour. Similarly, the  $L_2$ ,  $L_8$  and  $L_{25}$  values represent the noise levels that are exceeded 2, 8, and 25percent of the time or 1, 5, and 15minutes per hour. These “L” values are typically used to demonstrate compliance for stationary noise sources with a given city’s or county’s noise ordinance, as discussed below. Other values typically noted during a noise survey are the  $L_{min}$  and  $L_{max}$ . These values represent the minimum and maximum root-mean-square noise levels obtained over the measurement period.

Because community receptors are more sensitive to unwanted noise intrusion during the evening and at night, state law and most local jurisdictions (including the County of Los Angeles [County]) require that, for planning purposes, an artificial dB increment be added to quiet time noise levels in a 24-hour noise descriptor called the Community Noise Equivalent Level (CNEL) or Day-Night Noise Level ( $L_{dn}$ ). The CNEL descriptor requires that an artificial increment of 5 dBA be added to the actual noise level for the hours from 7:00 PM to 10:00 PM and 10 dBA for the hours from 10:00 PM to 7:00 AM. The  $L_{dn}$  descriptor uses the same methodology except that there is no artificial increment added to the hours between 7:00 PM and 10:00 PM. Both descriptors give roughly the same 24-hour level with the CNEL being only slightly more restrictive (i.e., higher).

### Psychological and Physiological Effects of Noise

Physical damage to human hearing begins at prolonged exposure to noise levels higher than 85 dBA. Exposure to high noise levels affects our entire system, with prolonged noise exposure in excess of 75 dBA increasing body tensions, and thereby affecting blood pressure, functions of the heart and the nervous system. In comparison, extended periods of noise exposure above 90 dBA could result in permanent hearing damage. When the noise level reaches 120 dBA, a tickling sensation occurs in the human ear even with short-term exposure. This level of noise is called the threshold of feeling. As the sound reaches 140 dBA, the tickling sensation is replaced by the feeling of pain in the ear. This is called the threshold of pain. A sound level of 190 dBA will rupture the eardrum and permanently damage the inner ear.

### Vibration Fundamentals

Vibration is a trembling, quivering, or oscillating motion of the earth. Like noise, vibration is transmitted in waves, but in this case through the earth or solid objects. Unlike noise, vibration is typically of a frequency that is felt rather than heard.

Vibration can be either natural as in the form of earthquakes, volcanic eruptions, sea waves, landslides, or manmade as from explosions, the action of heavy machinery or heavy vehicles such as trains. Both natural

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and manmade vibration may be continuous such as from operating machinery, or transient as from an explosion. The way in which vibration is transmitted through the earth is called propagation. Propagation of earthborn vibrations is complicated and difficult to predict because of the endless variations in the soil through which waves travel. There are three main types of vibration propagation: surface, compression and shear waves. Surface waves, or Raleigh waves, travel along the ground's surface. These waves carry most of their energy along an expanding circular wave front, similar to ripples produced by throwing a rock into a pool of water. P-waves, or compression waves, are body waves that carry their energy along an expanding spherical wave front. The particle motion in these waves is longitudinal (i.e., in a "push-pull" fashion). P-waves are analogous to airborne sound waves. S-waves, or shear waves, are also body waves that carry energy along an expanding spherical wave front. However, unlike P-waves, the particle motion is transverse or "side-to-side and perpendicular to the direction of propagation."

As vibration waves propagate from a source, the energy is spread over an ever-increasing area such that the energy level striking a given point is reduced with the distance from the energy source. This geometric spreading loss is inversely proportional to the square of the distance. Wave energy is also reduced with distance as a result of material damping in the form of internal friction, soil layering, and void spaces. The amount of attenuation provided by material damping varies with soil type and condition as well as the frequency of the wave.

As with noise, vibration can be described by both its amplitude and frequency. Amplitude may be characterized in three ways: displacement, velocity, and acceleration. Particle displacement is a measure of the distance that a vibrated particle travels from its original position and for the purposes of soil displacement is typically measured in inches or millimeters. Particle velocity is the rate of speed at which soil particles move in inches per second or millimeters per second. Particle acceleration is the rate of change in velocity with respect to time and is measured in inches per second or millimeters per second. Typically, particle velocity (measured in inches or millimeters per second) and/or acceleration (measured in gravities) are used to describe vibration. Table 5.12-3 presents the human reaction to various levels of peak particle velocity.

**Table 5.12-3 Human Reaction to Typical Vibration Levels**

Vibration Level Peak Particle Velocity (in/sec)	Human Reaction	Effect on Buildings
0.006–0.019	Threshold of perception, possibility of intrusion	Vibrations unlikely to cause damage of any type
0.08	Vibrations readily perceptible	Recommended upper level of vibration to which ruins and ancient monuments should be subjected
0.10	Level at which continuous vibration begins to annoy people	Virtually no risk of "architectural" (i.e., not structural) damage to normal buildings
0.20	Vibrations annoying to people in buildings	Threshold at which there is a risk to "architectural" damage to normal dwelling-houses with plastered walls and ceilings
0.4–0.6	Vibrations considered unpleasant by people subjected to continuous vibrations and unacceptable to some people walking on bridges	Vibrations at a greater level than normally expected from traffic, but would cause "architectural" damage and possibly minor structural damage

Source: Caltrans 2002.

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Vibrations also vary in frequency and this affects perception. Typical construction vibrations fall in the 10 to 30 Hz range and usually occur around 15 Hz. Traffic vibrations exhibit a similar range of frequencies; however, due to their suspension systems, buses often generate frequencies around 3 Hz at high vehicle speeds. It is less common, but possible, to measure traffic frequencies above 30 Hz.

#### Noise- and Vibration-Sensitive Receptors

Certain land uses are particularly sensitive to noise and vibration. These uses include residential, schools, libraries, churches, nursing homes, hospitals, and open space/recreation areas where quiet environments are necessary for enjoyment, public health, and safety. Commercial and industrial uses are generally not considered noise- and vibration-sensitive uses, unless noise and vibration would interfere with their normal operations and business activities.

#### Regulatory Framework

To limit population exposure to physically and/or psychologically damaging as well as intrusive noise levels, the federal government, the State of California, various county governments, and most municipalities in the state have established standards and ordinances to control noise.

#### Federal

##### *Aircraft Noise Standards*

The Federal Aviation Administration (FAA) Advisory Circular Number 150-5020-2, entitled “Noise Assessment Guidelines for New Helicopters” recommends the use of a cumulative noise measure, the 24-hour equivalent sound level [ $L_{eq(24)}$ ], so that the relative contributions of the heliport and other sound sources within the community may be compared. The  $L_{eq(24)}$  is similar to the  $L_{dn}$  used in assessing the impacts of fixed-wing aircraft.

Public Law 96-193 also directs the FAA to identify land uses that are “normally compatible” with various levels of noise from aircraft operations. Because of the size and complexity of many major hub airports and their operations, Federal Air Regulation (FAR) Part 150 identifies a large number of land uses and their attendant noise levels. However, since the operations of most heliports and helistops tend to be much simpler and the impacts more restricted in area, Part 150 does not apply to heliports/helistops not located on airport property. Instead, the FAA recommends exterior noise criteria for individual heliports based on the types of surrounding land uses. These recommended noise levels are included in Table 5.12-4.

**Table 5.12-4 Normally Compatible Community Sound Levels**

Type of Area	$L_{eq(24)}$
Residential	
• Suburban	57
• Urban	67
• City	72
Commercial	72
Industrial	77

Source: FAA Advisory Circular Number 150-5020-2, 1983

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The maximum recommended cumulative sound level [ $L_{eq(24)}$ ] from the operations of helicopters at any new site should not exceed the ambient noise already present in the community at the site of the proposed heliport or the sound levels in Table 5.12-4, whichever is lower.

#### *Highway Noise Standards*

The Federal Highway Administration (FHWA) is the agency responsible for administering the Federal-Aid highway program in accordance with federal statutes and regulations. The FHWA developed the noise regulations as required by the Federal-Aid Highway Act of 1970 (Public Law 91-605, 84 Stat. 1713). The regulation, 23 Code of Federal Regulation (CFR) 772 Procedures for Abatement of Highway Traffic Noise and Construction Noise, applies to highway construction projects where a state department of transportation has requested federal funding for participation in the project. The regulation requires the highway agency to investigate traffic noise impacts in areas adjacent to federally-aided highways for proposed construction of a highway on a new location or the reconstruction of an existing highway to either significantly change the horizontal or vertical alignment or increase the number of through-traffic lanes. If the highway agency identifies impacts, it must consider abatement. The highway agency must incorporate all feasible and reasonable noise abatement into the project design.

State and local governments have the authority to regulate land use planning or the land development process. The FHWA and other federal agencies encourage state and local governments to practice land use planning and control in the vicinity of highways to avoid future noise impacts and the need to provide noise abatement for future highway projects. The federal government advocates use of local government authority to regulate land development in such a way that noise-sensitive land uses are either prohibited from being located adjacent to a highway, or that the developments are planned, designed, and constructed in such a way that noise impacts are minimized. For interstate freeways and for state routes, these noise investigations are coordinated through the California Department of Transportation (Caltrans).

#### **State**

##### *State of California Building Code*

The State of California's noise insulation standards are codified in the California Code of Regulations, Title 24, Building Standards Administrative Code, Part 2, California Building Code. These noise standards are applied to new construction in California for the purpose of interior noise compatibility from exterior noise sources. The regulations specify that acoustical studies must be prepared when noise-sensitive structures, such as residential buildings, schools, or hospitals, are located near major transportation noise sources, and where such noise sources create an exterior noise level of 65 dBA CNEL or higher. Acoustical studies that accompany building plans must demonstrate that the structure has been designed to limit interior noise in habitable rooms to acceptable noise levels. For new residential buildings, schools, and hospitals, the acceptable interior noise limit for new construction is 45 dBA CNEL.

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#### *State of California Roadway-Related Noise and Vibration*

FHWA approved the Caltrans noise policy (Protocol) for new or reconstruction highway projects. This Protocol became effective on July 13, 2011 for all Federal-Aid projects. This noise protocol is mandated by the revised Title 23, Part 772 Federal Code (which became effective a year earlier on July 13, 2010). This Protocol contains many new provisions including the criteria for grandfathering existing projects currently under development.

Additionally, the Technical Noise Supplement (TeNS) to the Traffic Noise Analysis Protocol has been updated. As of July 2011, 23 CFR 771 requires the use of the official Traffic Noise Model (TNM) analysis for all Activity Category Land Uses. This document contains Caltrans noise analysis procedures, practices, and other useful technical background information related to the analysis and reporting of highway and construction noise impacts and abatement. It supplements and expands on concepts and procedures referred to in the Traffic Noise Analysis Protocol, which in turn is required by federal regulations in 23 CFR 772. Except for some Caltrans-specific methods and procedures, most methods and procedures recommended in this document are in conformance with industry standards and practices. This document can be used as a standalone guide for highway noise training purposes or as a reference for technical concepts, methodology, and terminology needed to acquire a basic understanding of highway noise and construction noise-related issues.

As with transportation-related noise, Caltrans addresses roadway vibration in its Transportation and Construction Vibration Guidance Manual. This manual provides practical guidance to engineers, planners, and consultants who must address vibration issues associated with the construction, operation, and maintenance of Caltrans projects.

#### *California Noise/Land Use Compatibility Matrix*

The California Office of Noise Control has prepared a land use compatibility chart for community noise to provide a tool to gauge the compatibility of land uses relative to existing and future noise levels. This land use compatibility chart, reproduced below as Table 5.12-5, identifies 'normally acceptable,' 'conditionally acceptable,' and 'clearly unacceptable' noise levels for various land uses. A conditionally acceptable designation implies new construction or development should be undertaken only after a detailed analysis of the noise reduction requirements for each land use is made and needed noise insulation features are incorporated in the design. By comparison, a normally acceptable designation indicates that standard construction can occur with no special noise reduction requirements.

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Table 5.12-5 Community Noise and Land Use Compatibility

Land Uses	CNEL (dBA)					
	55	60	65	70	75	80
Residential-Low Density Single Family, Duplex, Mobile Homes						
Residential-Multiple Family						
Transient Lodging: Hotels and Motels						
Schools, Libraries, Churches, Hospitals, Nursing Homes						
Auditoriums, Concert Halls, Amphitheaters						
Sports Arena, Outdoor Spectator Sports						
Playground, Neighborhood Parks						
Golf Courses, Riding Stables, Water Recreation, Cemeteries						
Office Buildings, Businesses, Commercial and Professional						
Industrial, Manufacturing, Utilities, Agricultural						
<b>Explanatory Notes</b>						
	<b>Normally Acceptable:</b> With no special noise reduction requirements assuming standard construction.		<b>Normally Unacceptable:</b> New construction is discouraged. If new construction does not proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.			
	<b>Conditionally Acceptable:</b> New construction or development should be undertaken only after a detailed analysis of the noise reduction requirement is made and needed noise insulation features included in the design.		<b>Clearly Unacceptable:</b> New construction or development should generally not be undertaken.			

Source: California Office of Noise Control. Guidelines for the Preparation and Content of Noise Elements of the General Plan. February 1976. Adapted from the US EPA Office of Noise Abatement Control, Washington D.C. Community Noise. Prepared by Wyle Laboratories. December 1971.

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#### County of Los Angeles

##### *Existing Noise Element Goals and Policies*

The Proposed Area Plan includes several chapters to refine the countywide goals and policies in the General Plan by addressing specific issues relevant to the Project Area. There are no goals and policies related to noise and vibration are included in the Proposed Area Plan (August 2014). Therefore, the applicable Goals and Policies for the Project Area are from the Adopted General Plan Noise Element:

The goals of the Noise Element include:

- Reduce transportation noise to a level that does not jeopardize health and welfare
- Minimize noise levels of future transportation facilities
- Establish compatible land use adjacent to transportation facilities
- Allocate noise mitigation costs among those who produce the noise
- Alert the public regarding the potential impact of transportation noise
- Protect areas that are presently quiet from future noise impact

The following policies from the 1974 Noise Element of the Los Angeles County General Plan are intended to support the above goals:

1. Promote the necessary organizational adjustments within county government to establish a central authority which identifies technological opportunities, conducts studies, assesses effectiveness of programs, sets standards, and recommends transportation noise mitigation techniques, programs, and alternatives.
2. Determine and evaluate the present and future noise levels associated with all major transportation facilities in the county.
3. Establish acceptable noise standards consistent with health and quality of life goals and employ effective techniques of noise abatement through such means as building code, noise, subdivision, and zoning ordinances.
4. Reduce the present and future impact of excessive noise from transportation sources through judicious use of technology, planning, and regulatory measures.
5. Establish noise criteria in the specifications for purchase of vehicles, aircraft, and their components intended for use by the county, including all equipment needed for maintenance and repair of such vehicles and aircraft.
6. Promote increased public awareness concerning the effects of noise.
7. Encourage cities to adopt definitive noise ordinances and policies that are consistent throughout the county.

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8. Coordinate with, and assist the various cities in dealing with the problem of noise and provide leadership and technical expertise when requested by other jurisdictions.
9. Coordinate with federal, state, and city governments in developing and implementing noise abatement programs.
10. Seek funds from the appropriate levels of government to underwrite the costs of noise abatement programs.
11. Monitor the programs and policies of the responsible special districts, regional, state, and federal agencies in order to insure [sic] that they effectively exercise their mandate to control the sources of noise for new, proposed, or existing transportation facilities, vehicles, or aircraft.
12. Encourage the state Department of Transportation to conduct an active highway noise abatement program with scenic/esthetic considerations.
13. Urge continued federal and state research into the noise problem and recommend additional research programs as problems are identified.
14. Recommend needed legislation to the state and federal government which will provide for noise abatement and the distribution of the costs of noise abatement programs among the producers of noise.
15. Encourage the federal and state governments and other agencies to work for standardization and simplification of the measurement methods used in assessing noise impact.

### *Existing Los Angeles County Code Provisions*

The following are provisions of the Los Angeles County Code that relate to the prevention or mitigation of excessive noise.

#### **Section 1207 Sound Transmission**

##### **1207.1 Purpose and scope.**

The purpose of this Section is to establish uniform minimum noise insulation performance standards to protect persons within hotels, motels, dormitories, long-term care facilities, apartment houses, dwellings, private schools, and places of worship from the effects of excessive noise, including, but not limited to, hearing loss or impairment and interference with speech and sleep. This Section shall apply to all buildings for which applications for building permits were made subsequent to August 22, 1974.

##### **1207.11.1 Application.**

Consistent with local land use standards, all structures identified in Section 1207.1 located in noise critical areas, such as proximity to highways, county roads, city streets, railroads, rapid transit lines, airports or industrial areas, shall be designed to prevent the intrusion of exterior

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noises beyond prescribed levels. Proper design shall include, but shall not be limited to, orientation of the structure, setbacks, shielding, and sound insulation of the building itself.

#### **1207.11.2 Allowable interior noise levels.**

Interior noise levels attributable to exterior sources shall not exceed 45 dBA in any habitable rooms, classrooms, and all rooms used in patient care and worship. The noise metric shall be either the day-night average sound level ( $L_{dn}$ ) or the community noise equivalent level (CNEL), consistent with the noise element of the local general plan.

#### **1207.11.3 Airport noise sources.**

Residential structures and all other structures identified in Section 1207.1, located where the annual  $L_{dn}$  or CNEL (as defined in Title 21, Division 2.5, Chapter 6, Article 1, Section 5001, California Code of Regulations) exceeds 60 dBA and 65 dBA, respectively, shall require an acoustical analysis showing that the proposed design will achieve prescribed allowable interior level.

**EXCEPTION:** New single-family detached dwellings and all nonresidential, noise-sensitive structures located outside the noise impact boundary of 65 dBA CNEL are exempt from Section 1207.

Alterations or additions to all noise-sensitive structures, within the 65 dBA and greater CNEL shall comply with Section 1207. If the addition or alteration cost exceeds 75 percent of the replacement cost of the existing structure, then the entire structure must comply with Section 1207.

For public-use airports or heliports, the  $L_{dn}$  or CNEL shall be determined from the Aircraft Noise Impact Area Map prepared by the Airport Authority. For military bases, the  $L_{dn}$  shall be determined from the facility Air Installation Compatible Use Zone (AICUZ) plan. For all other airports or heliports, or public-use airports or heliports for which a land use plan has not been developed, the  $L_{dn}$  or CNEL shall be determined from the noise element of the general plan of the local jurisdiction.

#### **1207.11.4 Other noise sources.**

All structures identified in Section 1207 located where the  $L_{dn}$  or CNEL exceeds 60 dBA shall require an acoustical analysis showing that the proposed design will limit exterior noise to the prescribed allowable interior level. The noise element of the local general plan shall be used to the greatest extent possible to identify sites with noise levels potentially greater than 60 dBA.

#### **1207.12 Compliance.**

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Evidence of compliance shall consist of submittal of an acoustical analysis report, prepared under the supervision of a person experienced in the field of acoustical engineering, with the application for a building permit for all structures identified in Section 1207 or the use of prescriptive standards. The report shall show topographical relationships of noise sources and dwelling sites, identification of noise sources and their characteristics, predicted noise spectra, and levels at the exterior of the proposed dwelling structure considering present and future land usage, basis for the prediction (measured or obtained from published data), noise attenuation measures to be applied, and an analysis of the noise insulation effectiveness of the proposed construction showing that the prescribed interior noise level requirements are met.

**[Sections 12.08.010 through 12.08.360 relate to the general provisions and definitions of the Los Angeles County Code of Ordinances Noise Chapter.]**

### **12.08.370 Decibel measurement—Basis.**

Any decibel measurement made pursuant to the provisions of this chapter shall be based on a reference sound-pressure of 20 micropascals, as measured with a sound level meter using the A-weighted network (scale) at slow response, or at the fast response when measuring impulsive sound levels and vibrations.

### **12.08.380 Noise zones designated.**

Receptor properties described hereinafter in this chapter are hereby assigned to the following noise zones:

Noise Zone I—Noise-sensitive area; Noise Zone II—Residential properties; Noise Zone III—Commercial properties; Noise Zone IV—Industrial properties.

### **12.08.390 Exterior noise standards—Citations for violations authorized when.**

A. Unless otherwise herein provided, the following exterior noise levels shall apply to all receptor properties within a designated noise zone [See Table 5.12-6, below]:

**Table 5.12-6 County of Los Angeles Exterior Noise Standards (by Noise Zone)**

Noise Zone	Designated Noise Zone Land Use (Receptor property)	Time Interval	Exterior Noise Level (dB)
I	Noise-sensitive area	Anytime	45
II	Residential properties	10:00 PM to 7:00 AM (nighttime)	45
		7:00 AM to 10:00 PM (daytime)	50
III	Commercial properties	10:00 PM to 7:00 AM (nighttime)	55
		7:00 AM to 10:00 PM (daytime)	65
IV	Industrial properties	Anytime	70

Source: Los Angeles County Code of Ordinances.

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- B. Unless otherwise herein provided, no person shall operate or cause to be operated, any source of sound at any location within the unincorporated county, or allow the creation of any noise on property owned, leased, occupied or otherwise controlled by such person which causes the noise level, when measured on any other property either incorporated or unincorporated, to exceed any of the following exterior noise standards:

**Standard No. 1** shall be the exterior noise level which may not be exceeded for a cumulative period of more than 30 minutes in any hour. Standard No. 1 shall be the applicable noise level from subsection A of this section; or, if the ambient  $L_{50}$  exceeds the foregoing level, then the ambient  $L_{50}$  becomes the exterior noise level for Standard No. 1.

**Standard No. 2** shall be the exterior noise level which may not be exceeded for a cumulative period of more than 15 minutes in any hour. Standard No. 2 shall be the applicable noise level from subsection A of this section plus 5 dB; or, if the ambient  $L_{25}$  exceeds the foregoing level, then the ambient  $L_{25}$  becomes the exterior noise level for Standard No. 2.

**Standard No. 3** shall be the exterior noise level which may not be exceeded for a cumulative period of more than five minutes in any hour. Standard No. 3 shall be the applicable noise level from subsection A of this section plus 10 dB<sup>1</sup>; or, if the ambient  $L_{8.3}$  exceeds the foregoing level, then the ambient  $L_{8.3}$  becomes exterior noise level for Standard No. 3.

**Standard No. 4** shall be the exterior noise level which may not be exceeded for a cumulative period of more than one minute in any hour. Standard No. 4 shall be the applicable noise level from subsection A of this section plus 15 dB; or, if the ambient  $L_{1.7}$  exceeds the foregoing level, then the ambient  $L_{1.7}$  becomes the exterior noise level for Standard No. 4.

**Standard No. 5** shall be the exterior noise level which may not be exceeded for any period of time. Standard No. 5 shall be the applicable noise level from subsection A of this section plus 20 dB; or, if the ambient  $L_0$  (i.e.,  $L_{max}$ ) exceeds the foregoing level then the ambient  $L_0$  ( $L_{max}$ ) becomes the exterior noise level for Standard No. 5.

- C. If the measurement location is on a boundary property between two different zones, the exterior noise level utilized in subsection B of this section to determine the exterior standard shall be the arithmetic mean of the exterior noise levels in subsection A of the subject zones. Except as provided for above in this subsection C, when an intruding noise source originates on an industrial property and is impacting another noise zone,

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<sup>1</sup> County Code Section 12.08.390 contains a typographical error, which is corrected here. Standard No. 3, dealing with the  $L_{8.3}$  noise level metric, should have an increment of plus 10 dB above the basic limits (shown in Table 5.12-6), rather than the as-written (and incorrect) increment of plus 20 dB. The County Noise Ordinance will be updated as part of the implementation of the Proposed General Plan Update, which is a separate effort than this Proposed Project.

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the applicable exterior noise level as designated in subsection A shall be the daytime exterior noise level for the subject receptor property.

- D. The ambient noise histogram shall be measured at the same location along the property line utilized in subsection B of this section, with the alleged intruding noise source inoperative. If for any reason the alleged intruding noise source cannot be turned off, the ambient noise histogram will be estimated by performing a measurement in the same general area of the alleged intruding noise source but at a sufficient distance such that the noise from the alleged intruding noise source is at least 10 dB below the ambient noise histogram in order that only the actual ambient noise histogram be measured. If the difference between the ambient noise histogram and the alleged intruding noise source is 5 to 10 dB, then the level of the ambient noise histogram itself can be reasonably determined by subtracting a one-decibel correction to account for the contribution of the alleged intruding noise source.
- E. In the event the intrusive exceeds the exterior noise standards as set forth in subsections B and C of this section at a specific receptor property and the health officer has reason to believe that this violation at said specific receptor property was unanticipated and due to abnormal atmospheric conditions, the health officer shall issue an abatement notice in lieu of a citation. If the specific violation is abated, no citation shall be issued therefor. If, however, the specific violation is not abated, the health officer may issue a citation.

### **12.08.400 Interior noise standards.**

- A. No person shall operate or cause to be operated within a dwelling unit, any source of sound, or allow the creation of any noise, which causes the noise level when measured inside a neighboring receiving dwelling unit to exceed the following standards:

**Standard No. 1** The applicable interior noise level for cumulative period of more than five minutes in any hour; or

**Standard No. 2** The applicable interior noise level plus 5 dB for a cumulative period of more than one minute in any hour; or

**Standard No. 3** The applicable interior noise level plus 10 dB or the maximum measured ambient noise level for any period of time.

- B. The following interior noise levels for multifamily residential dwellings shall apply, unless otherwise specifically indicated, within all such dwellings with windows in their normal seasonal configuration. (See Table 5.12-7 below)

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**Table 5.12-7 County of Los Angeles Multi-family Residential Land Use Interior Noise Standards**

Noise Zone	Designated Land Use	Time Interval	Allowable Interior Noise Level (dBA)
All	Multi-family Residential	10:00 PM to 7:00 AM (nighttime)	40
		7:00 AM to 10:00 PM (daytime)	45

Source: Los Angeles County Code.

- C. If the measured ambient noise level reflected by the  $L_{50}$  exceeds that permissible within any of the interior noise standards in subsection A of Section 12.08.390, the allowable interior noise level shall be increased in 5 dB increments in each standard as appropriate to reflect said ambient noise level ( $L_{50}$ ).

#### **12.08.410 Correction for certain types of sounds.**

For any source of sound which emits a pure tone or impulsive noise, the noise levels as set forth in Sections 12.08.390 and 12.08.400 shall be reduced by five decibels.

#### **12.08.420 Measurement Methods.**

- A. Utilizing the A-weighting scale of the sound-level meter and the “slow” meter response (use “fast” response for impulsive type sounds), the noise level shall be measured at a position or positions at any point on the receiver’s property.
- B. In general, the microphone shall be located four to five feet above the ground; 10 feet or more from the nearest reflective surface, where possible. However, in those cases where another elevation is deemed appropriate, the latter shall be utilized.
- C. Interior noise measurements shall be made within the affected residential unit. The measurements shall be made at a point at least four feet from the wall, ceiling, or floor nearest the noise source, with windows in the normal seasonal configuration. Calibration of the measurement equipment, utilizing an acoustic calibrator, shall be performed immediately prior to recording any noise data.

#### **12.08.430 Acts deemed violations when**

Notwithstanding any other provisions of this chapter, the acts set out in this Part 4, and the causing or permitting thereof, are declared to be in violation of this chapter.

#### **12.08.440 Construction noise.**

- A. Operating or causing the operation of any tools or equipment used in construction, drilling, repair, alteration or demolition work between weekday hours of 7:00 PM and

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7:00 AM, or at any time on Sundays or holidays, such that the sound therefrom creates a noise disturbance across a residential or commercial real-property line, except for emergency work of public service utilities or by variance issued by the health officer is prohibited.

B. Noise Restrictions at Affected Structures. The contractor shall conduct construction activities in such a manner that the maximum noise levels at the affected buildings will not exceed those listed in the following schedule:

1. At Residential Structures.

a. Mobile Equipment. Maximum noise levels for nonscheduled, intermittent, short-term operation (less than 10 days) of mobile equipment:

**Table 5.12-8 Noise Restrictions on Mobile Equipment at Residential Structures**

	Single-Family Residential	Multi-Family Residential	Semi-residential/ Commercial
Daily, except Sundays and legal holidays, 7:00 AM to 8:00 PM	75 dBA	80 dBA	85 dBA
Daily, 8:00 PM to 7:00 AM and all day Sunday and legal holidays	60 dBA	64 dBA	70 dBA

Source: Los Angeles County Code of Ordinances.

b. Stationary Equipment. Maximum noise level for repetitively scheduled and relatively long-term operation (periods of 10 days or more) of stationary equipment:

**Table 5.12-9 Noise Restrictions on Stationary Equipment at Residential Structures**

	Single-Family Residential	Multi-Family Residential	Semi-residential/ Commercial
Daily, except Sundays and legal holidays, 7:00 AM to 8:00 PM	60 dBA	65 dBA	70 dBA
Daily, 8:00 PM to 7:00 AM and all day Sunday and legal holidays	50 dBA	55 dBA	60 dBA

Source: Los Angeles County Code.

2. At Business Structures

a. Mobile equipment. Maximum noise levels for nonscheduled, intermittent, short-term operation of mobile equipment: Daily, including Sunday and legal holidays, all hours: maximum of 85 dBA.

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- C. All mobile or stationary internal-combustion-engine powered equipment or machinery shall be equipped with suitable exhaust and air-intake silencers in proper working order.
- D. In case of a conflict between this chapter and any other ordinance regulating construction activities, provisions of any specific ordinance regulating construction activities shall control.

#### **12.08.450 Forced-air blowers in tunnel car washes.**

Operating or permitting the operation of any forced-air blower in a tunnel car wash between the hours of 7:00 AM and 8:00 PM in such a manner as to exceed any of the following sound levels is prohibited:

**Table 5.12-10 Noise Restrictions on Forced Air Blowers in Tunnel Car Washes**

Land Use Classification	Sound Level Limit, dBA	
	Installed Before 1-1-80	Installed On or After 1-1-80
Residential	70	60
Commercial/Industrial	75	65

Source: Los Angeles County Code.

Measurement Location: Any point on contiguous receptor property, five feet above grade level, no closer than three feet from any wall.

#### **12.08.460 Loading and unloading operations.**

Loading, unloading, opening, closing, or other handling of boxes, crates, containers, building materials, garbage cans, or similar objects between the hours of 10:00 PM and 6:00 AM in such a manner as to cause noise disturbance is prohibited.

#### **12.08.470 Noise disturbances in noise-sensitive zones.**

- A. Creating or causing the creation of any noise disturbance within any noise-sensitive zone, as designated by the health officer, is prohibited, provided that conspicuous signs are displayed indicating the presence of the zone.
- B. Noise-sensitive zones must be indicated by the display of conspicuous signs in at least three separate locations within 164 meters (one-tenth mile) of the institution or facility.

#### **12.08.480 Places of public entertainment.**

Operating, playing or permitting the operation or playing of any radio, television, phonograph, drum, musical instrument, sound amplifier or similar device which produces, reproduces or amplifies sound in any place of public entertainment at a sound level greater than 95 dBA, as read by the slow response on a sound level meter at any point that is normally occupied by a customer is prohibited, unless a conspicuous and legible sign is

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located outside such place, near each public entrance, stating “WARNING: SOUND LEVELS WITHIN MAY CAUSE HEARING IMPAIRMENT.”

### **12.08.490 Powered model vehicles.**

Operating or permitting the operation of powered model vehicles so as to create a noise disturbance across a residential real-property boundary, or within a noise-sensitive zone between the hours of 8:00 PM and 7:00 AM the following day is prohibited.

### **12.08.500 Emergency signaling devices.**

- A. The intentional sounding or permitting the sounding outdoors of any emergency signaling device, including fire, burglar or civil-defense alarm, siren, whistle, or similar stationary emergency signaling device, except for emergency purposes or for testing, as provided in subsection B2 below, is prohibited.
- B.
  - 1. Testing of a stationary emergency signaling device shall not occur before 7:00 AM or after 7:00 PM. Any such testing shall use only the minimum cycle test time. In no case shall such test time exceed 60 seconds.
  - 2. Testing of the complete emergency signaling system, including the functioning of the signaling device, and the personnel response to the signaling device, shall not occur more than once in each calendar month. Such testing shall not occur before 7:00 AM or after 10:00 PM. The time limit specified in subsection B1 above shall not apply to such complete-system testing.
- C. Sounding or permitting the sounding of any exterior burglar or fire alarm, or any motor-vehicle burglar alarm is prohibited, unless such alarm is terminated within 15 minutes of activation.

### **12.08.510 Stationary nonemergency signaling devices.**

- A. Sounding or permitting the sounding of any electronically amplified signal from any stationary bell, chime, siren, whistle, or similar device intended primarily for nonemergency purposes, from any place, for more than 10 consecutive seconds in any hourly period is prohibited.
- B. Houses of religious worship shall be exempt for the operation of this provision.
- C. Sound sources covered by this provision and not exempted under subsection B may be exempted by a variance issued by the health officer.

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#### 12.08.520 Refuse collection vehicles.

- A. On or after three years following August 17, 1978, the effective date of the ordinance codified in this chapter, operating or permitting the operation of the compacting mechanism of any motor vehicle which compacts refuse and which creates, during the compacting cycle, a sound level in excess of 86 dBA when measured at 50 feet from any point of the vehicle is prohibited.
- B. Operating or permitting the operation of the compacting mechanism of any motor vehicle which compacts refuse between the hours of 10:00 PM and 6:00 AM the following day in a residential area or noise-sensitive zone, or within 500 feet thereof is prohibited.
- C. Collecting refuse with collection vehicle between the hours of 10:00 PM and 6:00 AM the following day in a residential area or noise-sensitive zone or within 500 feet thereof.
- D. In the case of conflict between this chapter and any other ordinance regulating refuse collection, provisions of any specific ordinance regulating refuse collection shall control.

#### 12.08.530 Residential air-conditioning or refrigeration equipment.

Operating or permitting the operation of any air-conditioning or refrigeration equipment in such a manner as to exceed any of the following sound levels is prohibited.

**Table 5.12-11 Noise Restrictions on Residential air conditioning or refrigeration equipment.**

Measurement Location	Sound Level Limit, dBA	
	Installed Before 1-1-80	Installed On or After 1-1-80
Any point on neighboring property line, 5 feet above grade level, no closer than 3 feet from any wall.	60	55
Center of neighboring patio, 5 feet above grade level, no closer than 3 feet from any wall.	55	50
Outside the neighboring living area window nearest the equipment location, not more than 3 feet from the window opening, but at least 3 feet from any other surface.	55	50

Source: Los Angeles County Code.

#### 12.08.540 Street sales.

Offering for sale, selling anything, or advertising by shouting or outcry within any residential or commercial area or noise-sensitive zone of the unincorporated areas of the county is prohibited except by variance issued by the health officer. The provisions of this section shall not be construed to prohibit the selling by outcry of merchandise, food and beverages

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at licensed sporting events, parades, fairs, circuses, or other similar licensed public-entertainment events.

### **12.08.541 Street sales—Restrictions on sound system speakers.**

A person offering for sale, selling or advertising anything edible shall not emit music or other sounds from an external speaker affixed to a motor vehicle between the hours of 8:00 PM and 6:00 AM within any residential, commercial or noise sensitive-zone of the unincorporated area of the County. The provisions of this section shall not be construed to prohibit the selling by outcry of merchandise, food and beverages, at licensed sporting events, parades, fairs, circuses, or other similar licensed-entertainment events.

### **12.08.550 Vehicle or motorboat repairs and testing.**

Repairing, rebuilding, modifying or testing any motor vehicle, motorcycle or motorboat in such a manner as to cause a noise disturbance across a real-property boundary or within a noise-sensitive zone is prohibited.

### **12.08.570 Activities exempt from chapter restrictions.**

The following activities set out in this chapter shall be exempted from the provisions of this chapter:

- A. Emergency Exemption. The emission of sound for the purpose of alerting persons to the existence of an emergency, or the emission of sound in the performance of emergency work;
- B. Warning Devices. Warning devices necessary for the protection of public safety, as for example police, fire and ambulance sirens, and train horns;
- C. Outdoor Activities. Activities conducted on public playgrounds and public or private school grounds, including but not limited to school athletic and school entertainment events;
- D. Exemption from Exterior Noise Standards. The following activities are exclusively regulated by the prohibitions of Part 4 [Sections 12.08.430 through 12.08.560] of this chapter:
  - 1. Construction,
  - 2. Stationary nonemergency signaling devices,
  - 3. Emergency signaling devices,
  - 4. Refuse collection vehicles,
  - 5. Residential air-conditioning or refrigeration equipment,
  - 6. Forced-air blowers;

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- E. Motion Picture Production and Related Activities;
- F. Railroad Activities. All locomotives and rail cars operated by any railroad which is regulated by the California Public Utilities Commission;
- G. Federal or State Pre-exempted Activities. Any activity, to the extent regulation thereof has been preempted by state or federal law;
- H. Public Health and Safety Activities. All transportation, flood control, and utility company maintenance and construction operations at any time on public right-of-way, and those situations which may occur on private real property deemed necessary to serve the best interest of the public and to protect the public's health and well-being, including but not limited to street sweeping, debris and limb removal, removal of downed wires, restoring electrical service, repairing traffic signals, unplugging sewers, snow removal, house moving, vacuuming catch basins, removal of damaged poles and vehicles, repair of water hydrants and mains, gas lines, oil lines, sewers, etc.;
- I. Motor Vehicles on Private Right-of-way and Private Property. Except as provided in Section 12.08.550, all legal vehicles of transportation operating in a legal manner in accordance with local, state and federal vehicle-noise regulations within the public right-of-way or air space, or on private property;
- J. Seismic Surveys Authorized by the State Land Commission;
- K. Agricultural Operations. All mechanical devices, apparatus, or equivalent associated with agricultural operations conducted on agricultural property, unless if in the vicinity of residential land uses, in which case a variance permit is required to operate noise-producing devices, with the following stipulations:
  - 1. Operations do not take place between 8:00 PM and 6:00 AM, or
  - 2. Such operations and equipment are utilized for the protection or salvage of agricultural crops during periods of potential or actual frost damage or other adverse weather conditions, or
  - 3. Such operations and equipment are associated with agricultural pest-control through pesticide application, provided the application is made in accordance with permits issued by or regulations enforced by the county agricultural commissioner,
  - 4. Such devices utilized for pest control which incorporate stationary or mobile noise sources (electro-mechanical bird-scare devices, etc.) are operated only by permit issued by the health officer. The allowable hours and days for operation of these devices will be specified in the permit,

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5. All equipment and machinery powered by internal combustion engines shall be equipped with a proper muffler and air-intake silencer in good working order;
- L. Minor Maintenance to Residential Real Property. Noise sources associated with the minor maintenance of residential real property, provided said activities take place as follows:
1. During Pacific Standard Time between the hours of 8:00 AM and 6:00 PM on any day except Sunday, when such activities may take place between the hours of 9:00 AM and 6:00 PM, and
  2. During Daylight Savings Time between the hours of 8:00 AM and 7:00 PM on any day except Sunday, when such activities may take place between the hours of 9:00 AM and 6:00 PM;
- M. Operation of Oil and Gas Wells.
1. Normal well servicing, remedial or maintenance work performed within an existing well which does not involve drilling or re-drilling and which is restricted to the hours between 7:00 AM and 10:00 PM, and
  2. Drilling or re-drilling work which is done in full compliance with the conditions of permits issued under Chapter 5, Article 1, of the County Zoning Ordinance, as amended, as set out in Title 22 of this code.

### **12.12.030 Construction noise prohibited when.**

Except as otherwise provided in this chapter, a person, on any Sunday, or at any other time between the hours of 8:00 PM and 6:30 AM the following day, shall not perform any construction or repair work of any kind upon any building or structure, or perform any earth excavating, filling or moving, where any of the foregoing entails the use of any air compressors; jackhammers; power-driven drill; riveting machine; excavator, diesel-powered truck, tractor or other earth moving equipment; hand hammers on steel or iron, or any other machine, tool, device or equipment which makes loud noises to the disturbance of persons occupying sleeping quarters in a dwelling, apartment, hotel, mobile home, or other place of residence.

### **12.12.040 Exemptions—Certain zoned areas.**

The provisions of this chapter do not apply in any territory which is in a zone in which the Zoning Ordinance, codified in Title 22 of this code, prohibits any residential use and which is not less than 500 feet from any territory in any residential zone as defined in Section 201 of Ordinance 1494, or any territory in a residential zone in any city.

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#### **12.12.050 Exemptions—Work performed with county engineer’s permission.**

The provisions of Section 12.12.030 do not apply to any person who performs the construction, repair, excavation, or earthmoving work involved pursuant to the express written permission of the county engineer to perform such work at times prohibited in Section 12.12.030. Upon receipt of an application in writing therefor, stating the reasons for the request and the facts upon which such reasons are based, the county engineer may grant such permission if he finds that:

- A. The work proposed to be done is effected with a public interest; or
- B. Hardship or injustice, or unreasonable delay, would result from the interruption thereof during the hours and days specified in Section 12.12.030; or
- C. The building or structure involved is devoted or intended to be devoted to a use immediately incident to public defense.

#### **12.12.060 Exemptions—Work by public utilities—Conditions.**

The provisions of Section 12.12.030 do not apply to the construction, repair or excavation by a public utility which is subject to the jurisdiction of the Public Utilities Commission as may be necessary for the preservation of life or property, and where such necessity makes it necessary to construct, repair or excavate during the prohibited hours.

#### **12.12.070 Exemptions—Emergency work—Permit requirements.**

The provisions of Section 12.12.030 do not apply to such construction, repair or excavation during prohibited hours as may be necessary for the preservation of life or property when such necessity arises during such hours as the offices of the county are closed or where such necessity requires immediate action prior to the time at which it would be possible to obtain a permit pursuant to Section 12.12.050, if the person doing such construction, repair or excavation obtains a permit therefor within one day after the offices of the county engineer are first opened subsequent to the making of such construction, repair or excavation.

**[Sections 12.12.080 through 12.12.100 discuss appeals, violations, penalties, and severability for this chapter of the Los Angeles County Code of Ordinances]**

#### **13.45.010 Loud, unnecessary and unusual noise.**

Notwithstanding any other provisions of this chapter and in addition thereto, it shall be unlawful for any person to willfully make or continue, or cause to be made or continued, any loud, unnecessary, and unusual noise which disturbs the peace or quiet of any neighborhood or which causes discomfort or annoyance to any reasonable person of normal sensitiveness residing in the area. The standard which may be considered in determining whether a

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violation of the provisions of this section exists may include, but not be limited to, the following:

- A. The level of noise;
- B. Whether the nature of the noise is usual or unusual;
- C. Whether the origin of the noise is natural or unnatural;
- D. The level and intensity of any background noise;
- E. The proximity of the noise to residential sleeping facilities;
- F. The nature and zoning of the area within which the noise emanates;
- G. The density of the inhabitation of the area within which the noise emanates;
- H. The time of the day or night the noise occurs;
- I. The duration of the noise;
- J. Whether the noise is recurrent, intermittent, or constant; and
- K. Whether the noise is produced by a commercial or non-commercial activity.

If interior allowable noise levels are met by requiring that windows be unopenable or closed, the design for the structure must also specify an air-conditioning or ventilation system to provide a habitable interior environment. The ventilation system must not compromise the interior room noise reduction.

Additional sections of the Los Angeles County Code mention noise briefly or in passing and do not contain specific regulations that would need to be specifically considered in relation to the Project. Many of these incidental mentions of noise pertain to generalized prohibitions on excessive noise from specific activities or land uses, all of which are governed by other overarching provisions of the Los Angeles County Code.

### Vibration Criteria

The County has adopted, as part of County Code, the following provision (also listed above) that governs impacts from vibration:

#### **12.08.560 Vibration.**

Operating or permitting the operation of any device that creates vibration which is above the vibration perception threshold of any individual at or beyond the property boundary of the source if on private property, or at 150 feet (46 meters) from the source if on a public space or public right-of-way is prohibited. The perception threshold shall be a motion velocity of 0.01 in/sec over the range of 1 to 100 Hertz.

### *Vibration Annoyance*

Table 5.12-12, *Groundborne Vibration Impact Criteria: Human Annoyance*, shows the Federal Transit Administration (FTA) and Caltrans vibration criteria to evaluate vibration-related annoyance due to resonances of the structural components of a building. These criteria are based on the work of many researchers that suggested that humans are sensitive to vibration velocities in the range of 8 to 80 Hz.

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**Table 5.12-12 Groundborne Vibration Criteria: Human Annoyance**

Land Use Category	Vibration Velocity, in/sec (RMS amplitude) <sup>1</sup>	Description
Workshop	0.032	Distinctly felt vibration. Appropriate to workshops and non-sensitive areas
Office	0.016	Felt vibration. Appropriate to offices and non-sensitive areas.
Residential – Daytime	0.008	Barely felt vibration. Adequate for computer equipment.
Residential – Nighttime	0.004	Vibration not felt, but groundborne noise may be audible inside quiet rooms.

Source: FTA 2006 and Caltrans 2004.

<sup>1</sup> As measured in 1/3-octave bands of frequency over the frequency ranges of 8 to 80 Hz.

#### *Vibration-Related Structural Damage*

Structures amplify groundborne vibration and wood-frame buildings, such as typical residential structures, are more affected by ground vibration than heavier buildings. The level at which groundborne vibration is strong enough to cause architectural damage has not been determined conclusively. The most conservative estimates are reflected in the FTA standards, shown in Table 5.12-13, *Groundborne Vibration Impact Criteria – Architectural Damage*.

**Table 5.12-13 Groundborne Vibration Impact Criteria: Architectural Damage**

Building Category	PPV (in/sec)
I. Reinforced concrete, steel, or timber (no plaster)	0.5
II. Engineered concrete and masonry (no plaster)	0.3
III. Non-engineered timber and masonry buildings	0.2
IV. Buildings extremely susceptible to vibration damage	0.12

Source: FTA 2006.

#### 5.12.1.2 EXISTING SETTING

##### Existing Noise Environment

Antelope Valley is impacted by a multitude of noise sources. Mobile sources, especially automobiles, trucks, and trains, are the most common and significant sources of noise in most communities and the predominant source of noise in Antelope Valley. Major sources of transportation noise include highways and rail lines that traverse unincorporated areas. In addition, commercial, industrial, and institutional land uses (i.e., schools, fire stations, utilities) throughout Antelope Valley generate stationary-source noise. These different classes of noise sources are discussed in more detail in the following subsections.

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#### *Military Installations and Operations Areas*

The Proposed Area Plan includes several military installations. Although much of the Project Area consists of undeveloped land, a substantial portion of this land is used for military operations. Figure 5.12-1 identifies military installations and operation areas in the Project Area. In particular, portions of Edwards Air Force Base and Air Force Plant 42 are located in the north and east portions of the Project Area. Noise from military installations would primarily be related to aircraft operations and, secondarily, to ground-based activities involving vehicle movements and/or weapons training. In general, noise from military installations is exempt from the purview of local jurisdictions, such as cities or counties.

#### *Rail Noise*

In general, noise from rail operations, both for people and goods movement, is under the jurisdiction of the Federal Railroad Administration (FRA), which sets forth and enforces safety standards, including noise emissions for railroad locomotive cabs, at-grade crossing bells, and locomotive warning horns.

Rail lines are operated by Union Pacific and Metrolink. Figure 5.12-2 shows the freight and passenger rail lines that run throughout Antelope Valley. Freight trains are frequently operated on this track owned by Union Pacific Railroad, which connects freight service from Los Angeles to the Central Valley, Stockton and the Bay Area. The Antelope Valley Line has 30 trains on weekdays and 12 trains on weekends. As a commuter rail service, most weekday trains on the Antelope Valley line run during the peak morning and evening hours. According to the California State Railroad Plan, an extension of Metrolink's Antelope Valley line would provide service from Lancaster to Rosamond/Edwards Air Force Base.

#### *Aircraft Noise*

Antelope Valley includes public-and private-use airports that contribute to the noise environment. Noise from aircraft and airports is regulated by the FAA. The largest airports that operate commercial flights and regular general aviation activity are the Palmdale Regional airport and the General William J. Fox Airfield. In addition, private strips are scattered through the area.

General William J. Fox Airfield, a Los Angeles County airport, is a major regional general aviation facility serving the cities of Lancaster and Palmdale as well as unincorporated communities in northern Los Angeles County. Other significant roles include serving as a flight training facility for aircraft and pilots from the Los Angeles Basin and as an air attack base for U.S. Forest Service firefighting aircraft. The airport has a single runway oriented east-northeast/west-southwest. No significant changes to the runway are planned. The airport and other property within 1 mile of the airport boundary lie fully within the boundaries of the City of Lancaster. Nearby areas to the west, north, and east are in unincorporated Los Angeles County jurisdiction.

The Palmdale Airport is temporarily operating at United States Air Force (Air Force) Plant 42, a military airport. An agreement of cooperation between the Air Force and the County allows for up to 400 commercial operations per day (ALUP 2004). Passenger service was canceled at the facility in late 2008. The Palmdale City Council recently voted to take on key oversight portions of the airport from Los Angeles World Airports (LAWA), the Los Angeles airport authority, which has operated the facility since 1967. Now,

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Palmdale will operate the terminal building, a parking lot and a taxiway. The two main runways are each more than two miles long and have been used traditionally by the Air Force as well as United States military allies. At the time of its closing, 80 percent of airport operations were used by the military, 16 percent by general aviation, 2 percent by commercial flights and another 2 percent by air taxi service.

The associated airport noise contours are shown in Figure 5.12-3, *Airport Noise Contours*. As shown, the airport noise contours from the General William J. Fox Airfield are contained within City of Lancaster land. The airport noise contour for the Palmdale Regional Airport extend to the Proposed Area Plan to the east of the airport that are unpopulated, and to an area to the west of the State Route-14 Freeway that is currently developed with single family housing.

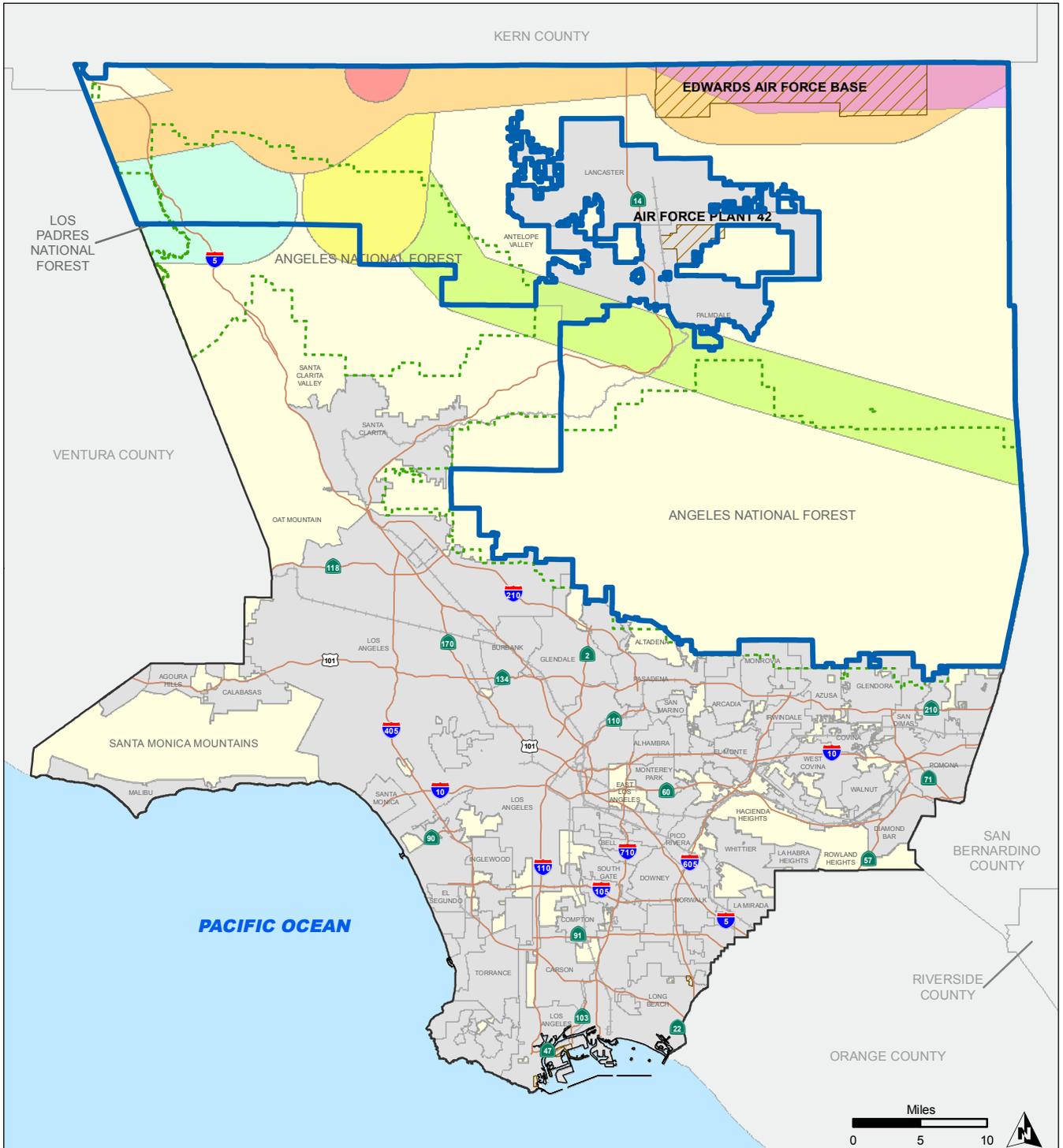
### Vibration

The primary existing sources of vibration within the Proposed Area Plan are rail and truck traffic. Perceptible vibration levels may be caused by train pass-bys in areas adjacent to the railroad lines. Also, heavy trucks hitting discontinuities in the pavement from gaps and potholes can cause potentially troublesome vibration effects. Under normal conditions with well-maintained asphalt, vibration levels are usually not perceptible beyond the road right-of-way. Mining and extracting uses are potential sources of vibration due to the use of heavy earthmoving equipment and the possibility of the use of blasting with explosives. Sand and gravel extraction sites within the Project Area currently occur in the areas in the vicinity of the Little Rock and Big Rock washes.

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## MILITARY INSTALLATIONS AND OPERATIONS AREA

FIGURE 5.12-1



	Military Operation Area - Floor Elevation from Ground Level - 0 Feet		Special Use Airspace
	Military Operation Area - Floor Elevation from Ground Level - 200 Feet		Military Installations
	Military Operation Area - Floor Elevation from Ground Level - 500 Feet		Unincorporated Areas
	Military Operation Area - Floor Elevation from Ground Level - 1000 Feet		Cities
	Military Operation Area - Floor Elevation from Ground Level - 1100 Feet		Antelope Valley Project Area

Source: Department of Regional Planning, December 2013. Additional Sources: Navy Region Southwest, Intergovernmental Branch

## 5. Environmental Analysis

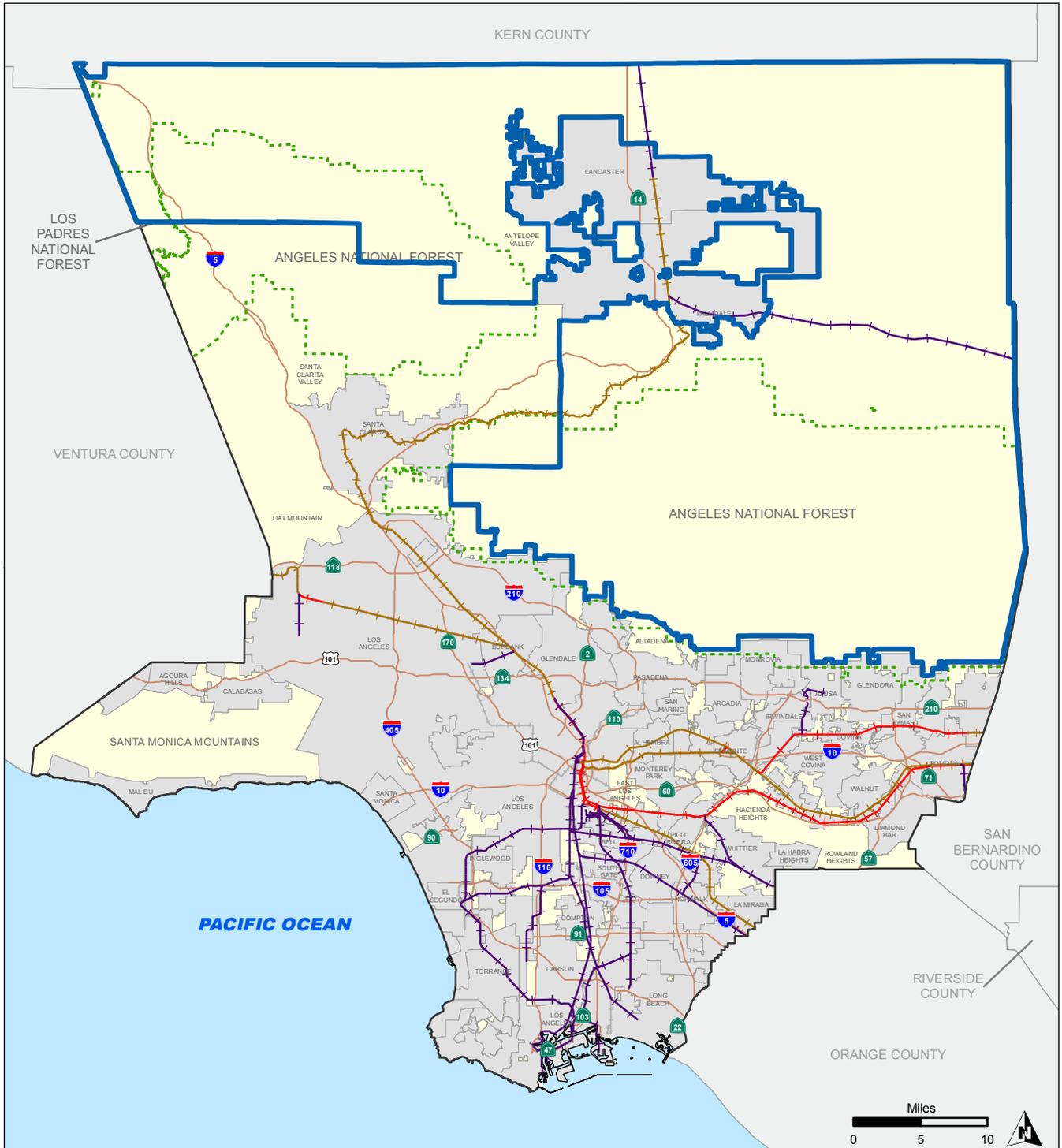
### NOISE

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# 5. ENVIRONMENTAL ANALYSIS

FIGURE 5.12-2

## RAIL LINES



- +—+ Freight Rail Line Only
- +—+ Freight and Passenger Rail Line
- +—+ Passenger Rail Line Only
- Unincorporated Areas
- Cities
- Antelope Valley Project Area

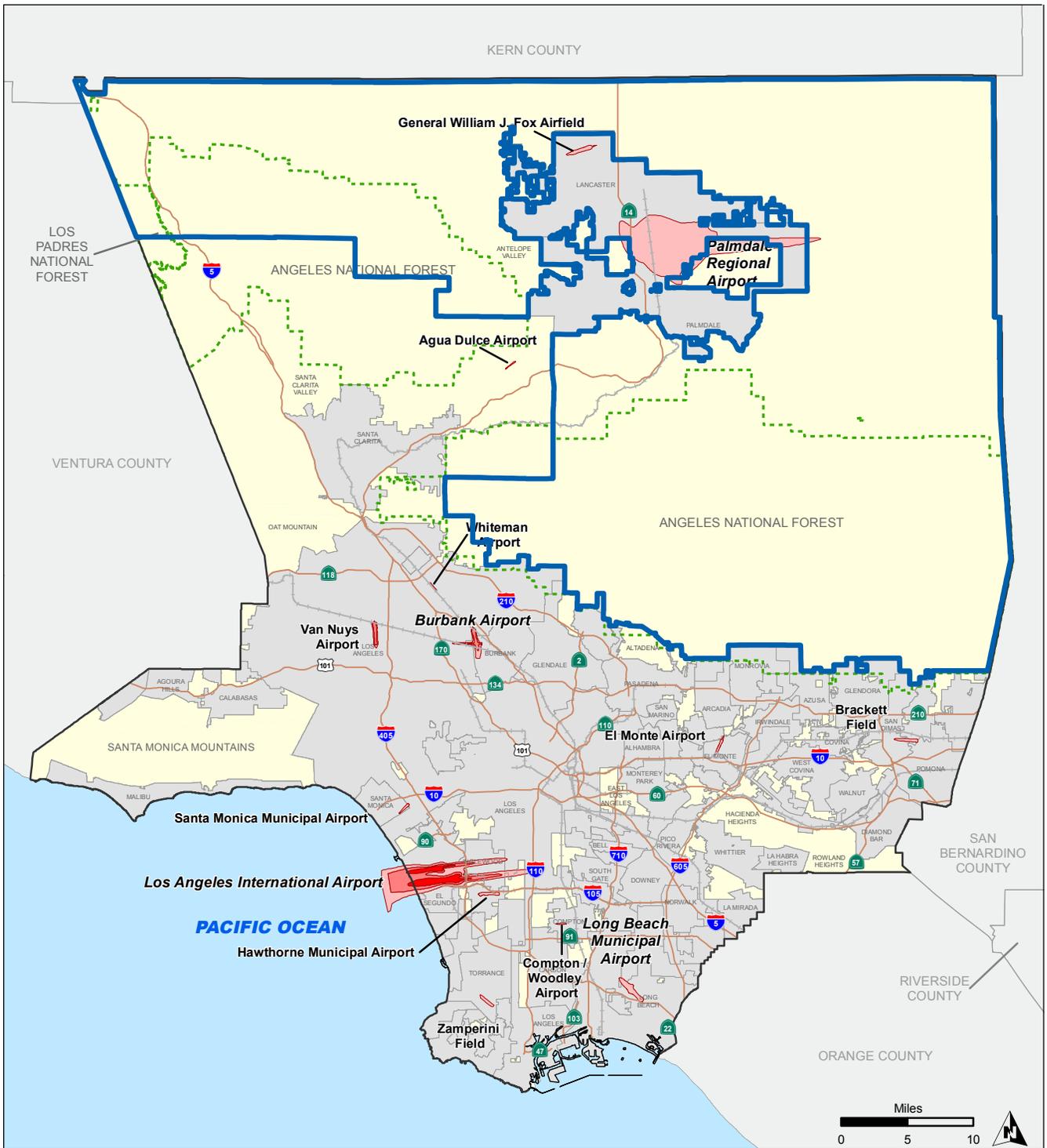
Source: Department of Regional Planning, December 2013

## 5. Environmental Analysis

### NOISE

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AIRPORT NOISE CONTOURS



- Airport Noise Category - 65 CNEL\*
- Airport Noise Category - 70 CNEL\*
- Airport Noise Category - 75 CNEL\*
- Antelope Valley Project Area
- Unincorporated Areas
- Cities

Source: Department of Regional Planning, Dec. 2013. Additional Sources: Los Angeles County Airport Land Use Plan, data Current as of 1991 (Fox Field current as of 2004). Updates for LAX (2011), and Van Nuys (2010) from Los Angeles World Airports - Noise Management. Updates for Burbank Airport (2011) from Acoustical Analysis Associates, Inc.  
 \* Community Noise Equivalent Level

## 5. Environmental Analysis

### NOISE

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## 5. Environmental Analysis NOISE

### On-Road Vehicles

By far, the largest single source of community noise within the Proposed Area Plan is vehicular traffic on major roadways. In order to assess the potential for mobile-source noise impacts, it is necessary to determine the noise currently generated by vehicles traveling through the Project Area. Average daily traffic (ADT) volumes were based on the existing daily traffic volumes provided by the traffic analysis for the project, which is summarized in Section 5.16. The results of this modeling indicate that average noise levels along arterial segments currently range from approximately 48 dBA to 79 dBA CNEL as calculated at a distance of 100 feet from the centerline of the road. Noise levels for existing conditions along analyzed roadways are presented in Table 5.12-14, *Existing Roadway Noise Levels and Contours*.<sup>2</sup>

**Table 5.12-14 Existing Conditions Traffic Noise Levels and Contours**

Roadway	Segment	Existing Conditions				
		ADT Volumes	CNEL (dBA @ 100 ft)	Distance to CNEL Contour (Feet from Centerline)		
				70 (dBA CNEL)	65 (dBA CNEL)	60 (dBA CNEL)
Bouquet Canyon Rd	Elizabeth Lake Rd to Palmdale City Line	1,800	55.1	10.2	22.0	47.3
Avenue N-8	45th St W to 30th St W	5,000	58.1	16.1	34.8	74.9
40th St W	Avenue N to Avenue N-8	5,000	58.1	16.1	34.8	74.9
35th St W	Avenue N to Avenue N-8	5,000	58.1	16.1	34.8	74.9
25th St W	Avenue O to Palmdale City Line	6,100	63.2	35.0	75.3	162.3
Avenue N-8	20th St W to Palmdale City Line	5,000	58.1	16.1	34.8	74.9
Avenue Q	60th St E to 75th St E	8,800	65.6	51.0	110.0	236.9
Avenue Q	80th St E to 90th St E	8,800	65.6	51.0	110.0	236.9
Avenue Q	90th St E to 120th St E	1,000	52.6	6.9	14.8	32.0
120th St E	Avenue L to Avenue Q	5,200	63.4	36.1	77.8	167.7
Avenue L	40th St E to 45th St E	500	53.2	7.6	16.3	35.2
Avenue L	50th St E to 80th St E	500	53.2	7.6	16.3	35.2
10th St W	Palmdale City Line to Avenue O	26,800	71.7	129.8	279.7	602.5
10th St W	Auto Center Dr to Elizabeth Lake Rd	22,000	70.0	100.5	216.5	466.4
Avenue H	110th St W to 105th St W	500	50.9	5.3	11.4	24.6
Avenue H	97th St W to 92nd St W	500	50.9	5.3	11.4	24.6
Avenue H	80th St W to 70th St W	500	50.9	5.3	11.4	24.6
Avenue F	110th St W to Lancaster City Line	500	49.6	4.3	9.3	20.1
Avenue F	Lancaster City Line to 95th St W	600	50.3	4.9	10.5	22.7
Avenue F	95th St W to 70th St W	1,800	55.1	10.2	21.9	47.3
Avenue E	110th St W to Lancaster City	500	49.6	4.3	9.3	20.1

<sup>2</sup> The existing noise contours are shown in Appendix E of this EIR.

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Table 5.12-14 Existing Conditions Traffic Noise Levels and Contours

Roadway	Segment	Existing Conditions				
		ADT Volumes	CNEL (dBA @ 100 ft)	Distance to CNEL Contour (Feet from Centerline)		
				70 (dBA CNEL)	65 (dBA CNEL)	60 (dBA CNEL)
	Line					
Avenue E	100th St W to 70th St W	1,800	55.1	10.2	21.9	47.3
100th St W	Lancaster Blvd to Avenue J	500	48.1	3.5	7.5	16.1
100th St W	Avenue D to Avenue D-8	500	48.1	3.5	7.5	16.1
100th St W	Avenue E to Avenue F	500	48.1	3.5	7.5	16.1
80th St W	Lancaster City Line to Lancaster City Line	1,700	58.5	17.1	36.7	79.2
Avenue K-8	52nd St W to 50th St W	600	50.4	4.9	10.6	22.7
70th St E	Lancaster City Line to Avenue K-8	500	53.2	7.5	16.3	35.0
70th St E	Avenue K-12 to Avenue L	500	53.2	7.5	16.3	35.0
100th St E	Avenue J to Avenue J-8	500	53.2	7.5	16.3	35.0
100th St E	Lancaster City Line to Avenue L	500	53.2	7.5	16.3	35.0
Avenue L	55th St W to 40th St W	7,300	61.2	26.0	56.0	120.7
Avenue G	25th St W to Division St	5,200	63.4	36.1	77.8	167.7
Avenue H	Division St to 40th St E	9,000	65.7	52.1	112.2	241.7
50th St E	Avenue K-4 to Avenue L	2,200	59.6	20.4	43.9	94.5
Elizabeth Lake Rd	Johnson Rd to Portal Pass Rd	2,700	60.5	23.2	50.0	107.8
Amargosa Creek Rd	Portal Pass Rd to Johnson Rd	5,000	58.1	16.1	34.8	74.9
Avenue M	Elizabeth Lake Rd to 80th St W	5,000	58.1	16.1	34.8	74.9
110th St W	Johnson Rd to Avenue M	5,000	58.1	16.1	34.8	74.9
Johnson Rd	Elizabeth Lake Rd to 110th St W	2,400	56.4	12.3	26.6	57.2
San Fransisquito Canyon Rd	Angeles National Forest Boundary to Elizabeth Lake Rd	1,600	54.6	9.4	20.3	43.7
Portal Pass Rd	Elizabeth Lake Rd to Ritter Ranch Rd	5,000	58.1	16.1	34.8	74.9
Ritter Ranch Rd	Portal Pass Rd to Bouquet Canyon Rd	5,000	58.1	16.1	34.8	74.9
87th St W	Ritter Ranch Rd to Elizabeth Lake Rd	5,000	58.1	16.1	34.8	74.9
Avenue L-8	10th St W to SR 14	4,300	59.1	18.8	40.6	87.4
Avenue L-8	SR 14 to 30th St W	600	48.9	3.9	8.4	18.2
Avenue L-8	60th St W to 80th St W	3,900	58.7	17.6	38.0	81.9
Davenport Road	Sierra Highway to Agua Dulce Canyon Road	1,800	57.6	15.0	32.3	69.5
Agua Dulce Canyon Road	Soledad Canyon Road to Sierra Highway	7,800	61.5	27.1	58.3	125.6

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Table 5.12-14 Existing Conditions Traffic Noise Levels and Contours

Roadway	Segment	Existing Conditions				
		ADT Volumes	CNEL (dBA @ 100 ft)	Distance to CNEL Contour (Feet from Centerline)		
				70 (dBA CNEL)	65 (dBA CNEL)	60 (dBA CNEL)
Escondido Canyon Road	Agua Dulce Canyon Road to SCV Planning Boundary	2,000	55.5	10.8	23.2	50.1
W Avenue J	90th Street E to 100th Street E	500	49.5	4.3	9.2	19.9
W Avenue J	100th Street E to 110th Street E	500	49.5	4.3	9.2	19.9
W Avenue J	110th Street E to 140th Street E	500	49.5	4.3	9.2	19.9
W Avenue J	140th Street E to 150th Street E	500	49.5	4.3	9.2	19.9
W Avenue J	150th Street E to 170th Street E	500	49.5	4.3	9.2	19.9
W Avenue J	170th Street E to 200th Street E	500	49.5	4.3	9.2	19.9
Lancaster Road	W Avenue I to 190th Street W	500	48.1	3.4	7.4	16.0
Lancaster Road	190th Street W to 170th Street W	500	48.1	3.4	7.4	16.0
Lancaster Road	170th Street W to 110th Street W	700	51.0	5.4	11.6	25.0
Lancaster Road	110th Street W to 90th Street W	600	50.3	4.9	10.5	22.5
Lancaster Road	90th Street W to 70th Street W	800	51.5	5.9	12.7	27.3
Lancaster Road	70th Street W to 60th Street W	800	51.5	5.9	12.7	27.3
170th Street E	Avenue T to Avenue W	3,500	57.9	15.7	33.8	72.8
170th Street E	Avenue W to 165th Street	1,000	52.5	6.8	14.7	31.6
Elizabeth Lake Road	Johnson Road to San Francisquito Canyon Road	1,400	53.9	8.5	18.3	39.5
Elizabeth Lake Road	San Francisquito Canyon Road to Bouquet Canyon Road	2,400	59.9	21.2	45.7	98.4
Elizabeth Lake Road	Bouquet Canyon Road to Godde Hill Road	6,800	60.8	24.4	52.5	113.2
E Avenue P	15th Street E to 20th Street E	18,000	69.8	97.1	209.2	450.7
E Avenue P	20th Street E to 25th Street E	17,800	69.8	96.4	207.6	447.3
E Avenue P	25th Street E to 30th Street E	6,400	65.3	48.7	105.0	226.2
E Avenue P	30th Street E to 40th Street E	2,200	60.5	23.4	50.4	108.5

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Table 5.12-14 Existing Conditions Traffic Noise Levels and Contours

Roadway	Segment	Existing Conditions				
		ADT Volumes	CNEL (dBA @ 100 ft)	Distance to CNEL Contour (Feet from Centerline)		
				70 (dBA CNEL)	65 (dBA CNEL)	60 (dBA CNEL)
E Avenue P	40th Street E to 47th Street E	500	52.0	6.3	13.6	29.2
E Avenue P	47th Street E to 70th Street E	500	52.0	6.3	13.6	29.2
200th Street E	E Avenue G to E Avenue J	1,000	53.8	8.3	17.9	38.6
E Palmdale Boulevard	90th Street E to 95th Street E	11,700	66.8	61.0	131.3	282.9
E Palmdale Boulevard	95th Street E to 100th Street E	11,900	66.8	61.6	132.8	286.1
E Palmdale Boulevard	100th Street E to 105th Street E	11,300	66.6	59.6	128.3	276.4
E Palmdale Boulevard	105th Street E to 110 Street E	11,000	66.5	58.5	126.0	271.5
W Avenue G	SR-14 Antelope Valley Freeway to 15th Street W	4,400	62.6	31.9	68.8	148.2
W Avenue G	15th Street W to 10th Street W	4,500	62.7	32.4	69.8	150.4
W Avenue G	10th Street W to Sierra Highway	5,200	63.3	35.7	76.9	165.6
W Avenue G	Sierra Highway to Division Street	4,700	62.8	33.4	71.9	154.8
E Avenue O	145th Street E to 150th Street E	6,600	64.3	41.6	89.7	193.2
E Avenue O	150th Street E to 170th Street E	2,000	59.1	18.8	40.4	87.1
E Avenue O	170th Street E to 175th Street E	2,400	59.9	21.2	45.7	98.4
E Avenue O	175th Street E to 180th Street E	2,500	60.1	21.8	46.9	101.1
E Avenue O	180th Street E to 200th Street E	2,500	60.1	21.8	47.0	101.3
E Avenue O	200th Street E to 210 Street E	2,300	59.7	20.6	44.5	95.8
E Avenue O	210 Street E to 240th Street E	2,000	59.1	18.8	40.5	87.3
W Avenue L	Rancho Vista Road to 45th Street W	5,500	59.9	21.3	45.8	98.7
W Avenue L	45th Street W to 40th Street W	7,300	61.1	25.7	55.4	119.3
Pearblossom Highway (SR-138)	70th Street E to E Avenue T 8	18,400	66.6	59.2	127.6	274.9
Pearblossom Highway (SR-138)	E Avenue T 8 to 82nd Street E	17,600	64.9	46.0	99.0	213.3

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Table 5.12-14 Existing Conditions Traffic Noise Levels and Contours

Roadway	Segment	Existing Conditions				
		ADT Volumes	CNEL (dBA @ 100 ft)	Distance to CNEL Contour (Feet from Centerline)		
				70 (dBA CNEL)	65 (dBA CNEL)	60 (dBA CNEL)
Pearblossom Highway (SR-138)	82nd Street E to 87th Street E	13,500	63.8	38.5	83.0	178.8
Pearblossom Highway (SR-138)	87th Street E to 96th Street E	16,000	68.1	75.1	161.8	348.6
Pearblossom Highway (SR-138)	96th Street E to 106th Street E	17,900	68.8	82.8	178.3	384.1
Pearblossom Highway (SR-138)	106th Street E to 116th Street E	17,800	68.7	82.5	177.6	382.7
Pearblossom Highway (SR-138)	116th Street E to 126th Street E	17,700	68.6	80.3	173.1	372.8
Pearblossom Highway (SR-138)	126th Street E to 131st Street E	18,600	67.7	70.1	151.1	325.5
Pearblossom Highway (SR-138)	131 Street E to 170th Street E	17,700	66.4	57.7	124.4	267.9
Fort Tejon Road	87th Street E to Mount Emma Road	4,500	59.0	18.5	39.9	86.1
Fort Tejon Road	Mount Emma Road to 96th Street	9,000	62.0	29.4	63.4	136.6
Fort Tejon Road	96th Street to 106th Street	9,000	62.0	29.4	63.4	136.6
Fort Tejon Road	106th Street to 131 Street E	7,900	55.5	10.8	23.2	50.1
SR-14	North of Avenue D/SR-138	70,600	78.2	350	754	1,624
SR-14	South of Avenue D/SR-138	67,900	78.4	360	777	1,673
SR-14	South of SR-138/High Desert Cor.	4,700	79.4	426	917	1,976
SR-138	Between I-5 and 300th Street W	3,500	67.5	68	147	318
SR-138	Between 300th St W and 190th St W	4,000	66.3	57	123	264
Avenue D/SR-138	Between 190th Street W and SR-14	44,300	66.8	62	133	286
I-5 Freeway	North of SR-138	46,300	83.1	745	1,604	3,456
I-5 Freeway	South of SR-138	71,300	82.9	725	1,563	3,367

Note: Calculations are included in Appendix E.

Stationary Sources of Noise

Whereas mobile-source noise affects many receptors along an entire length of roadway, stationary noise sources affect only their immediate areas. Stationary sources of noises may occur from all types of land uses. Residential uses would generate noise from landscaping, maintenance activities, and air conditioning systems. Commercial uses would generate noise from heating, ventilation, air conditioning (HVAC) systems, loading docks and other sources. Industrial uses may generate noise from HVAC systems, loading docks, and, possibly, machinery; all of which may be on a more continual basis due to the nature of the particular

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activities<sup>3</sup>. Also, noise from at-grade railroad crossing bells and/or train warning horns, both regulated by the FRA, can generate notable noise levels near the crossings.

Noise generated by residential, commercial, and school uses is generally short and intermittent. Schools are considered noise-sensitive because of the necessity for quiet in the classroom to provide an adequate environment for learning. However, outdoor activities that occur on school campuses throughout Antelope Valley can generate noticeable levels of noise. While it is preferable to have schools in residential areas to support the neighborhood, noise generated on both the weekdays (by physical education classes and sports programs) and weekends (by use of the fields by youth organizations) can elevate noise levels.

Noise from stationary sources in the Area Plan is regulated through the County Code and by the Cities of Palmdale and Lancaster when noise emanates from a property in those Cities.

#### 5.12.2 Thresholds of Significance

According to Appendix G of the CEQA Guidelines, a project would normally have a significant effect on the environment if the project would result in:

- N-1 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.
- For noise compatibility, noise levels at noise-sensitive exterior areas exceed 65 dBA CNEL.
  - For noise compatibility, interior noise levels in habitable noise-sensitive areas exceed 45 dBA CNEL.
- N-2 Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels.
- N-3 A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.
- Project-related traffic noise increase the ambient noise level at noise-sensitive locations by 3 dBA or more and the ambient noise levels under with-project conditions fall within the “Normally Unacceptable” or “Clearly Unacceptable” categories; OR
  - Project-related traffic noise increases the ambient noise level at noise-sensitive locations by 5 dBA or more.
- N-4 A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.

---

<sup>3</sup>Noise exposure to workers within industrial facilities is controlled by federal and state employee health and safety regulations, whereas noise levels outside of industrial and other facilities are subject to local standards.

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- N-5 For a project located within an airport land use plan or where such a plan has not been adopted, within two miles of a public airport or public use airport, expose people residing or working in the Project Area to excessive noise levels.
- N-6 For a project within the vicinity of a private airstrip, expose people residing or working the Project Area to excessive noise levels.

### 5.12.3 Relevant Area Plan Goals and Policies

There are no relevant goals and policies included in the Proposed Area Plan related to noise. However, the Adopted Noise Element from the County General Plan would apply to the Project Area.

### 5.12.4 Environmental Impacts

The following impact analysis addresses thresholds of significance for which the Initial Study disclosed potentially significant impacts. The applicable thresholds are identified in brackets after the impact statement.

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**Impact 5.12-1: Construction activities would result in temporary noise increases in the vicinity of the Proposed Project. [Threshold N-4]**

---

***Impact Analysis:*** Implementation of the Proposed Project would result in construction of new residential, commercial, and industrial uses throughout the Proposed Area Plan. Two types of temporary noise impacts could occur during construction. First, the transport of workers and movement of materials to and from the individual work sites could incrementally increase noise levels along local access roads. The second type of temporary noise impact is related to demolition, site preparation, grading, and/or physical construction. Construction is performed in distinct steps, each of which has its own mix of equipment, and, consequently, its own noise characteristics. Table 5.12-15 lists typical construction equipment noise levels recommended for noise-impact assessments, based on a reference distance of 50 feet between the equipment and noise receptor.

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**Table 5.12-15 Construction Equipment Noise Emission Levels**

Construction Equipment	Typical Maximum Noise Level (dBA L <sub>max</sub> ) <sup>1</sup>	Construction Equipment	Typical Noise Level (dBA L <sub>max</sub> ) <sup>1</sup>
Air Compressor	81	Pile-Driver (Impact)	101
Backhoe	80	Pile-Driver (Sonic)	96
Ballast Equalizer	82	Pneumatic Tool	85
Ballast Tamper	83	Pump	76
Compactor	82	Rail Saw	90
Concrete Mixer	85	Rock Drill	98
Concrete Pump	71	Roller	74
Concrete Vibrator	76	Saw	76
Crane, Derrick	88	Scarifier	83
Crane, Mobile	83	Scraper	89
Dozer	85	Shovel	82
Generator	81	Spike Driver	77
Grader	85	Tie Cutter	84
Impact Wrench	85	Tie Handler	80
Jack Hammer	88	Tie Inserter	85
Loader	85	Truck	88
Paver	89		

Source: FTA 2006.

<sup>1</sup> Measured 50 feet from the source.

As shown, construction equipment generates high-levels of noise with maximums ranging from 71 dBA to 101 dBA. Construction of individual developments associated with the buildout of the Proposed Project would temporarily increase the ambient noise environment and would have the potential to affect noise-sensitive land uses in the vicinity of an individual project. County Code Section 12.08.440 allows for construction activities during the specified hours of 7:00 AM to 7:00 PM on weekdays (including Saturdays), but restricts such activities on Sundays or holidays. Furthermore, this code section restricts noise levels by both equipment type (i.e., mobile or stationary) and receptor land use classification type. However, construction activities may occur outside of these hours if the County determines that the emergency maintenance, repair, or improvement of public service utilities is needed or if a variance is issued by the health officer. Construction work can also occur outside these hours if there is no disturbance but must comply with established noise levels and approval by County staff.

Significant noise impacts may occur from operation of heavy earthmoving equipment and truck haul that would occur with construction of individual development projects. Implementation of the Proposed Project anticipates an increase in development intensity. Construction noise levels are dependent upon the specific locations, site plans, and construction details of individual projects, which have not yet been developed. Construction would be localized and would occur intermittently for varying periods of time. Because specific project-level information is not available at this time, it is not possible to quantify the construction noise

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impacts at specific sensitive receptors. Construction of individual developments associated with implementation of the Proposed Project would temporarily increase the ambient noise environment in the vicinity of each individual project. However, compliance with the Section 12.08.440 Construction Noise, of the County Code will reduce any potential construction noise impacts to a less than significant level.

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**Impact 5.12-2 Buildout of the Proposed Project would result in an increase in traffic on local roadways in Area Plan, which would substantially increase the existing ambient noise environment. [Thresholds N-1 and N-3]**

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**Impact Analysis:** Future development in accordance with the Proposed Project would cause increases in traffic along some roadways. For the purpose of assessing the compatibility of new development with the anticipated ambient noise, the County utilizes the State’s Community Noise and Land Use Compatibility standards; previously summarized in Table 5.12-5. Noise-sensitive land uses include residential, schools, libraries, churches, nursing homes, hospitals, and open space/recreation areas. Commercial and industrial areas are not considered noise sensitive and have much higher tolerances for exterior noise levels. The “normally unacceptable” minimum noise level for considered noise-sensitive land uses is 70 dBA CNEL. For purposes of this analysis, a significant impact would occur if project-related traffic increases the ambient noise environment of noise-sensitive locations by 3 dB or more and the ambient noise level under with-project conditions is 70 dBA CNEL or higher (i.e., those with-project conditions that fall within the “Normally Unacceptable” or “Clearly Unacceptable” land use categories). Additionally, a significant impact would also occur if project-related traffic increases the ambient noise environment of noise-sensitive locations by 5 dB or more regardless of the ambient noise level under with-project conditions.

The traffic noise levels were estimated using the FHWA Highway Traffic Noise Prediction Model (RD-77-108). The FHWA model predicts noise levels through a series of adjustments to a reference sound level. These adjustments account for distances from the roadway, traffic flows, vehicle speeds, car/truck mix, length of exposed roadway, and road width. The distances to the 70, 65, and 60 CNEL contours for selected roadway segments in the vicinity of Proposed Project site are included in Appendix E. Table 5.12-16, *Project Off-Site Contributions: Existing Conditions*, shows the increase in noise levels on roadways if Project traffic would be added to existing traffic conditions, the noise levels are presented at 100 feet from the centerline of each roadway segment provided by the traffic consultant for the project (Fehr and Peers). As seen on Table 5.12-16, sensitive receptors along several roadway segments would be impacted under existing plus project conditions.

**Table 5.12-16 Project Off-Site Contributions – Existing Conditions**

Roadway	Segment	CNEL at 100 feet (dBA)			
		Existing, No Project	Existing, Plus Project	Project Contribution	Potential Impact?
Bouquet Canyon Rd	Elizabeth Lake Rd to Palmdale City Line	55.1	59.2	4.1	Yes
Avenue N-8	45th St W to 30th St W	58.1	59.1	1.0	No
40th St W	Avenue N to Avenue N-8	58.1	59.1	1.0	No
35th St W	Avenue N to Avenue N-8	58.1	59.1	1.0	No

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Table 5.12-16 Project Off-Site Contributions – Existing Conditions

Roadway	Segment	CNEL at 100 feet (dBA)			
		Existing, No Project	Existing, Plus Project	Project Contribution	Potential Impact?
25th St W	Avenue O to Palmdale City Line	63.2	63.7	0.5	No
Avenue N-8	20th St W to Palmdale City Line	58.1	59.1	1.0	No
Avenue Q	60th St E to 75th St E	65.6	66.8	1.1	No
Avenue Q	80th St E to 90th St E	65.6	66.8	1.1	No
Avenue Q	90th St E to 120th St E	52.6	62.4	9.9	Yes
120th St E	Avenue L to Avenue Q	63.4	69.2	5.8	Yes
Avenue L	40th St E to 45th St E	53.2	53.6	0.5	No
Avenue L	50th St E to 80th St E	53.2	53.6	0.5	No
10th St W	Palmdale City Line to Avenue O	71.7	72.7	1.0	No
10th St W	Auto Center Dr to Elizabeth Lake Rd	70.0	71.0	1.0	No
Avenue H	110th St W to 105th St W	50.9	61.4	10.6	Yes
Avenue H	97th St W to 92nd St W	50.9	61.4	10.6	Yes
Avenue H	80th St W to 70th St W	50.9	61.9	11.1	Yes
Avenue F	110th St W to Lancaster City Line	49.6	51.2	1.6	No
Avenue F	Lancaster City Line to 95th St W	50.3	58.2	7.8	Yes
Avenue F	95th St W to 70th St W	55.1	64.1	9.0	Yes
Avenue E	110th St W to Lancaster City Line	49.6	51.2	1.6	No
Avenue E	100th St W to 70th St W	55.1	64.1	9.0	Yes
100th St W	Lancaster Blvd to Avenue J	48.1	49.1	1.0	No
100th St W	Avenue D to Avenue D-8	48.1	58.1	10.0	Yes
100th St W	Avenue E to Avenue F	48.1	54.7	6.6	Yes
80th St W	Lancaster City Line to Lancaster City Line	58.5	65.3	6.8	Yes
Avenue K-8	52nd St W to 50th St W	50.4	52.9	2.6	No
70th St E	Lancaster City Line to Avenue K-8	53.2	60.1	6.9	Yes
70th St E	Avenue K-12 to Avenue L	53.2	60.1	6.9	Yes
100th St E	Avenue J to Avenue J-8	53.2	55.7	2.5	No
100th St E	Lancaster City Line to Avenue L	53.2	53.6	0.5	No
Avenue L	55th St W to 40th St W	61.2	63.2	2.0	No
Avenue G	25th St W to Division St	63.4	69.4	6.1	Yes
Avenue H	Division St to 40th St E	65.7	69.0	3.2	Yes
50th St E	Avenue K-4 to Avenue L	59.6	65.4	5.7	Yes
Elizabeth Lake Rd	Johnson Rd to Portal Pass Rd	60.5	67.6	7.1	Yes
Amargosa Creek Rd	Portal Pass Rd to Johnson Rd	58.1	59.1	1.0	No
Avenue M	Elizabeth Lake Rd to 80th St W	58.1	59.1	1.0	No
110th St W	Johnson Rd to Avenue M	58.1	59.1	1.0	No
Johnson Rd	Elizabeth Lake Rd to 110th St W	56.4	62.8	6.5	Yes
San Fransisquito Canyon Rd	Angeles National Forest Boundary to Elizabeth Lake Rd	54.6	62.3	7.6	Yes
Portal Pass Rd	Elizabeth Lake Rd to Ritter Ranch Rd	58.1	59.1	1.0	No

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Table 5.12-16 Project Off-Site Contributions – Existing Conditions

Roadway	Segment	CNEL at 100 feet (dBA)			
		Existing, No Project	Existing, Plus Project	Project Contribution	Potential Impact?
Ritter Ranch Rd	Portal Pass Rd to Bouquet Canyon Rd	58.1	59.1	1.0	No
87th St W	Ritter Ranch Rd to Elizabeth Lake Rd	58.1	59.1	1.0	No
Avenue L-8	10th St W to SR 14	59.1	59.9	0.8	No
Avenue L-8	SR 14 to 30th St W	48.9	49.9	1.0	No
Avenue L-8	60th St W to 80th St W	58.7	59.6	0.9	No
Davenport Road	Sierra Highway to Agua Dulce Canyon Road	57.6	60.4	2.8	No
Agua Dulce Canyon Road	Soledad Canyon Road to Sierra Highway	61.5	62.6	1.1	No
Escondido Canyon Road	Agua Dulce Canyon Road to SCV Planning Boundary	55.5	58.9	3.5	No
W Avenue J	90th Street E to 100th Street E	49.5	58.4	9.0	Yes
W Avenue J	100th Street E to 110th Street E	49.5	58.9	9.5	Yes
W Avenue J	110th Street E to 140th Street E	49.5	59.1	9.6	Yes
W Avenue J	140th Street E to 150th Street E	49.5	60.7	11.2	Yes
W Avenue J	150th Street E to 170th Street E	49.5	60.2	10.7	Yes
W Avenue J	170th Street E to 200th Street E	49.5	60.6	11.2	Yes
Lancaster Road	W Avenue I to 190th Street W	48.1	59.1	11.1	Yes
Lancaster Road	190th Street W to 170th Street W	48.1	58.3	10.2	Yes
Lancaster Road	170th Street W to 110th Street W	51.0	64.7	13.8	Yes
Lancaster Road	110th Street W to 90th Street W	50.3	63.1	12.9	Yes
Lancaster Road	90th Street W to 70th Street W	51.5	63.1	11.6	Yes
Lancaster Road	70th Street W to 60th Street W	51.5	61.9	10.3	Yes
170th Street E	Avenue T to Avenue W	57.9	65.2	7.3	Yes
170th Street E	Avenue W to 165th Street	52.5	62.9	10.4	Yes
Elizabeth Lake Road	Johnson Road to San Francisquito Canyon Road	53.9	59.7	5.8	Yes
Elizabeth Lake Road	San Francisquito Canyon Road to Bouquet Canyon Road	59.9	66.5	6.6	Yes
Elizabeth Lake Road	Bouquet Canyon Road to Godde Hill Road	60.8	64.6	3.8	No
E Avenue P	15th Street E to 20th Street E	69.8	71.4	1.6	No
E Avenue P	20th Street E to 25th Street E	69.8	71.4	1.6	No
E Avenue P	25th Street E to 30th Street E	65.3	68.5	3.2	No
E Avenue P	30th Street E to 40th Street E	60.5	65.3	4.8	No
E Avenue P	40th Street E to 47th Street E	52.0	52.6	0.6	No
E Avenue P	47th Street E to 70th Street E	52.0	52.6	0.6	No
200th Street E	E Avenue G to E Avenue J	53.8	62.8	9.0	Yes
E Palmdale Boulevard	90th Street E to 95th Street E	66.8	69.1	2.3	No
E Palmdale Boulevard	95th Street E to 100th Street E	66.8	69.2	2.3	No
E Palmdale Boulevard	100th Street E to 105th Street E	66.6	68.9	2.3	No
E Palmdale Boulevard	105th Street E to 110 Street E	66.5	68.9	2.4	No
W Avenue G	SR-14 Antelope Valley Freeway to 15th Street	62.6	68.4	5.8	Yes

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**Table 5.12-16 Project Off-Site Contributions – Existing Conditions**

Roadway	Segment	CNEL at 100 feet (dBA)			
		Existing, No Project	Existing, Plus Project	Project Contribution	Potential Impact?
	W				
W Avenue G	15th Street W to 10th Street W	62.7	68.6	5.9	Yes
W Avenue G	10th Street W to Sierra Highway	63.3	69.4	6.2	Yes
W Avenue G	Sierra Highway to Division Street	62.8	67.4	4.6	No
E Avenue O	145th Street E to 150th Street E	64.3	67.8	3.5	No
E Avenue O	150th Street E to 170th Street E	59.1	66.3	7.2	Yes
E Avenue O	170th Street E to 175th Street E	59.9	66.4	6.5	Yes
E Avenue O	175th Street E to 180th Street E	60.1	67.1	7.0	Yes
E Avenue O	180th Street E to 200th Street E	60.1	67.3	7.2	Yes
E Avenue O	200th Street E to 210 Street E	59.7	66.1	6.4	Yes
E Avenue O	210 Street E to 240th Street E	59.1	65.4	6.3	Yes
W Avenue L	Rancho Vista Road to 45th Street W	59.9	62.1	2.2	No
W Avenue L	45th Street W to 40th Street W	61.1	63.2	2.1	No
Pearblossom Highway (SR-138)	70th Street E to E Avenue T 8	66.6	68.8	2.2	No
Pearblossom Highway (SR-138)	E Avenue T 8 to 82nd Street E	64.9	67.1	2.2	No
Pearblossom Highway (SR-138)	82nd Street E to 87th Street E	63.8	66.3	2.5	No
Pearblossom Highway (SR-138)	87th Street E to 96th Street E	68.1	70.0	1.9	No
Pearblossom Highway (SR-138)	96th Street E to 106th Street E	68.8	71.8	3.0	Yes
Pearblossom Highway (SR-138)	106th Street E to 116th Street E	68.7	70.4	1.7	No
Pearblossom Highway (SR-138)	116th Street E to 126th Street E	68.6	70.2	1.7	No
Pearblossom Highway (SR-138)	126th Street E to 131st Street E	67.7	70.0	2.3	No
Pearblossom Highway (SR-138)	131 Street E to 170th Street E	66.4	68.0	1.6	No
Fort Tejon Road	87th Street E to Mount Emma Road	59.0	61.4	2.4	No
Fort Tejon Road	Mount Emma Road to 96th Street	62.0	65.8	3.8	No
Fort Tejon Road	96th Street to 106th Street	62.0	65.8	3.8	No
Fort Tejon Road	106th Street to 131 Street E	65.1	68.9	3.8	No
SR-14	North of Avenue D/SR-138	78.2	79.3	1.1	No
SR-14	South of Avenue D/SR-138	78.4	80.6	2.3	No
SR-14	South of SR-138/High Desert Cor.	79.4	81.1	1.7	No
SR-138	Between I-5 and 300th Street W	67.5	75.2	7.7	Yes
SR-138	Between 300th St W and 190th St W	66.3	71.8	5.4	Yes
Avenue D/SR-138	Between 190th Street W and SR-14	66.8	72.6	5.7	Yes
I-5 Freeway	North of SR-138	83.1	83.0	-0.1	No
I-5 Freeway	South of SR-138	82.9	84.2	1.2	No

Table 5.12-17, Project Off-Site Contributions: Buildout Conditions, shows the increase in noise levels on roadways at long-range buildout conditions, the noise levels are presented at 100 feet from the centerline of each roadway segment provided by the traffic consultant for the project (Fehr and Peers).

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Table 5.12-17 Project Off-Site Contributions – Future Conditions

Roadway	Segment	CNEL at 100 feet (dBA)			
		Future Baseline	Buildout	Project Contribution	Potential Impact?
Bouquet Canyon Rd	Elizabeth Lake Rd to Palmdale City Line	55.1	59.4	4.4	Yes
Avenue N-8	45th St W to 30th St W	58.1	59.3	1.2	No
40th St W	Avenue N to Avenue N-8	58.1	59.3	1.2	No
35th St W	Avenue N to Avenue N-8	58.1	59.3	1.2	No
Avenue O-8	30th St W to 20th St W	56.4	58.5	2.1	No
25th St W	Avenue O to Palmdale City Line	65.5	66.6	1.0	No
Avenue N-8	20th St W to Palmdale City Line	58.1	59.3	1.2	No
Avenue Q	60th St E to 75th St E	64.7	66.1	1.4	No
Avenue Q	80th St E to 90th St E	64.7	66.1	1.4	No
Avenue Q	90th St E to 120th St E	52.9	61.6	8.7	Yes
120th St E	Avenue L to Avenue Q	61.6	67.4	5.8	Yes
Avenue L	40th St E to 45th St E	65.7	68.0	2.3	No
Avenue L	50th St E to 80th St E	66.0	69.5	3.5	No
Avenue L	90th St E to 102nd St E	53.6	61.0	7.4	Yes
Avenue L	107th St E to 120th St E	53.6	61.0	7.4	Yes
10th St W	Palmdale City Line to Avenue O	72.0	73.7	1.7	No
10th St W	Auto Center Dr to Elizabeth Lake Rd	70.3	71.5	1.1	No
Avenue H	110th St W to 105th St W	50.8	61.1	10.3	Yes
Avenue H	97th St W to 92nd St W	50.8	61.1	10.3	Yes
Avenue H	80th St W to 70th St W	50.8	61.6	10.8	Yes
Avenue F	110th St W to Lancaster City Line	49.5	55.5	6.1	Yes
Avenue F	Lancaster City Line to 95th St W	50.9	59.2	8.2	Yes
Avenue F	95th St W to 70th St W	57.1	65.1	7.9	Yes
Avenue E	110th St W to Lancaster City Line	49.5	55.5	6.1	Yes
Avenue E	100th St W to 70th St W	57.1	65.1	7.9	Yes
100th St W	Lancaster Blvd to Avenue J	48.0	49.2	1.2	No
100th St W	Avenue D to Avenue D-8	52.2	61.1	8.9	Yes
100th St W	Avenue E to Avenue F	53.6	61.5	7.9	Yes
80th St W	Lancaster City Line to Lancaster City Line	59.3	64.4	5.0	Yes
Avenue K-8	52nd St W to 50th St W	50.3	52.5	2.2	No
70th St E	Lancaster City Line to Avenue K-8	53.1	57.5	4.4	No
70th St E	Avenue K-12 to Avenue L	53.1	58.2	5.1	Yes
100th St E	Avenue J to Avenue J-8	53.1	54.5	1.4	No
100th St E	Lancaster City Line to Avenue L	53.1	60.3	7.2	Yes
Avenue L	55th St W to 40th St W	62.2	64.5	2.3	No
Avenue G	25th St W to Division St	63.4	69.5	6.1	Yes
Avenue H	Division St to 40th St E	65.1	68.9	3.8	No
50th St E	Avenue K-4 to Avenue L	58.4	65.3	6.8	Yes
Elizabeth Lake Rd	Johnson Rd to Portal Pass Rd	60.6	66.9	6.3	Yes

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Table 5.12-17 Project Off-Site Contributions – Future Conditions

Roadway	Segment	CNEL at 100 feet (dBA)			
		Future Baseline	Buildout	Project Contribution	Potential Impact?
Amargosa Creek Rd	Portal Pass Rd to Johnson Rd	58.1	59.3	1.2	No
Avenue M	Elizabeth Lake Rd to 80th St W	58.1	59.3	1.2	No
110th St W	Johnson Rd to Avenue M	58.1	59.3	1.2	No
Johnson Rd	Elizabeth Lake Rd to 110th St W	56.6	62.3	5.7	Yes
San Francisquito Canyon Rd	Angeles National Forest Boundary to Elizabeth Lake Rd	54.8	59.7	4.9	No
Portal Pass Rd	Elizabeth Lake Rd to Ritter Ranch Rd	58.1	59.3	1.2	No
Ritter Ranch Rd	Portal Pass Rd to Bouquet Canyon Rd	58.1	59.3	1.2	No
87th St W	Ritter Ranch Rd to Elizabeth Lake Rd	58.1	59.3	1.2	No
Avenue L-8	10th St W to SR 14	59.4	60.5	1.1	No
Avenue L-8	SR 14 to 30th St W	48.0	49.2	1.2	No
Avenue L-8	60th St W to 80th St W	58.7	60.1	1.3	No
Davenport Road	Sierra Highway to Agua Dulce Canyon Road	59.0	61.4	2.4	No
Agua Dulce Canyon Road	Soledad Canyon Road to Sierra Highway	61.3	62.7	1.4	No
Escondido Canyon Road	Agua Dulce Canyon Road to SCV Planning Boundary	57.0	59.6	2.7	No
W Avenue J	90th Street E to 100th Street E	50.3	56.5	6.2	Yes
W Avenue J	100th Street E to 110th Street E	49.5	54.6	5.1	Yes
W Avenue J	110th Street E to 140th Street E	49.5	53.5	4.0	No
W Avenue J	140th Street E to 150th Street E	49.5	55.3	5.8	Yes
W Avenue J	150th Street E to 170th Street E	49.5	56.0	6.6	Yes
W Avenue J	170th Street E to 200th Street E	49.5	58.7	9.2	Yes
Lancaster Road	Pine Canyon Road to W Avenue I	52.2	62.0	9.8	Yes
Lancaster Road	W Avenue I to 190th Street W	48.1	56.1	8.0	Yes
Lancaster Road	190th Street W to 170th Street W	48.1	57.5	9.4	Yes
Lancaster Road	170th Street W to 110th Street W	49.5	61.5	11.9	Yes
Lancaster Road	110th Street W to 90th Street W	49.5	59.2	9.7	Yes
Lancaster Road	90th Street W to 70th Street W	53.3	60.9	7.6	Yes
Lancaster Road	70th Street W to 60th Street W	52.9	59.7	6.7	Yes
170th Street E	Avenue T to Avenue W	58.2	63.4	5.2	Yes
170th Street E	Avenue W to 165th Street	51.0	60.7	9.8	Yes
Elizabeth Lake Road	Johnson Road to San Francisquito Canyon Road	53.6	58.9	5.3	Yes
Elizabeth Lake Road	San Francisquito Canyon Road to Bouquet Canyon Road	60.1	65.2	5.1	Yes
Elizabeth Lake Road	Bouquet Canyon Road to Godde Hill Road	59.6	63.5	3.9	No
E Avenue P	15th Street E to 20th Street E	69.8	71.3	1.5	No
E Avenue P	20th Street E to 25th Street E	69.8	71.3	1.5	No
E Avenue P	25th Street E to 30th Street E	64.0	66.8	2.8	No
E Avenue P	30th Street E to 40th Street E	62.3	65.0	2.7	No
E Avenue P	40th Street E to 47th Street E	61.7	64.4	2.6	No

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Table 5.12-17 Project Off-Site Contributions – Future Conditions

Roadway	Segment	CNEL at 100 feet (dBA)			
		Future Baseline	Buildout	Project Contribution	Potential Impact?
E Avenue P	47th Street E to 70th Street E	61.7	64.4	2.6	No
200th Street E	E Avenue G to E Avenue J	52.3	61.7	9.5	Yes
E Palmdale Boulevard	90th Street E to 95th Street E	64.8	68.0	3.2	No
E Palmdale Boulevard	95th Street E to 100th Street E	64.9	68.6	3.7	No
E Palmdale Boulevard	100th Street E to 105th Street E	64.7	68.3	3.6	No
E Palmdale Boulevard	105th Street E to 110 Street E	64.4	68.3	3.9	No
W Avenue G	SR-14 Antelope Valley Freeway to 15th Street W	60.3	68.6	8.3	Yes
W Avenue G	15th Street W to 10th Street W	60.3	68.7	8.4	Yes
W Avenue G	10th Street W to Sierra Highway	61.2	69.5	8.3	Yes
W Avenue G	Sierra Highway to Division Street	63.4	68.1	4.7	No
E Avenue O	145th Street E to 150th Street E	63.3	67.4	4.1	No
E Avenue O	150th Street E to 170th Street E	55.6	63.9	8.2	Yes
E Avenue O	170th Street E to 175th Street E	53.9	62.5	8.6	Yes
E Avenue O	175th Street E to 180th Street E	55.1	64.3	9.1	Yes
E Avenue O	180th Street E to 200th Street E	55.1	64.7	9.5	Yes
E Avenue O	200th Street E to 210 Street E	53.1	60.0	6.9	Yes
E Avenue O	210 Street E to 240th Street E	53.1	55.2	2.1	No
W Avenue L	Rancho Vista Road to 45th Street W	60.9	63.3	2.4	No
W Avenue L	45th Street W to 40th Street W	62.2	64.5	2.3	No
Pearblossom Highway (SR-138)	70th Street E to E Avenue T 8	68.4	72.5	4.1	Yes
Pearblossom Highway (SR-138)	E Avenue T 8 to 82nd Street E	68.0	72.5	4.5	Yes
Pearblossom Highway (SR-138)	82nd Street E to 87th Street E	67.2	71.1	3.9	Yes
Pearblossom Highway (SR-138)	87th Street E to 96th Street E	67.3	71.4	4.2	Yes
Pearblossom Highway (SR-138)	96th Street E to 106th Street E	67.5	72.0	4.6	Yes
Pearblossom Highway (SR-138)	106th Street E to 116th Street E	67.5	71.5	4.0	Yes
Pearblossom Highway (SR-138)	116th Street E to 126th Street E	67.2	71.1	3.9	Yes
Pearblossom Highway (SR-138)	126th Street E to 131st Street E	66.3	70.8	4.5	Yes
Pearblossom Highway (SR-138)	131 Street E to 170th Street E	64.6	68.0	3.4	No
Fort Tejon Road	87th Street E to Mount Emma Road	56.3	63.6	7.3	Yes
Fort Tejon Road	Mount Emma Road to 96th Street	57.0	64.4	7.4	Yes
Fort Tejon Road	96th Street to 106th Street	57.0	64.5	7.5	Yes
Fort Tejon Road	106th Street to 131 Street E	57.9	65.3	7.4	Yes
SR-14	North of Avenue D/SR-138	78.6	79.9	1.3	No

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**Table 5.12-17 Project Off-Site Contributions – Future Conditions**

Roadway	Segment	CNEL at 100 feet (dBA)			
		Future Baseline	Buildout	Project Contribution	Potential Impact?
SR-14	South of Avenue D/SR-138	79.1	81.7	2.5	No
SR-14	South of SR-138/High Desert Cor.	79.5	80.9	1.4	No
SR-138	Between I-5 and 300th Street W	79.7	82.9	3.2	Yes
SR-138	Between 300th St W and 190th St W	79.0	80.2	1.2	No
Avenue D/SR-138	Between 190th Street W and SR-14	78.5	80.1	1.6	No
I-5 Freeway	North of SR-138	85.4	85.5	0.2	No
I-5 Freeway	South of SR-138	84.2	85.6	1.3	No
High Desert Corridor	East of 125th Street E	77.9	79.0	1.1	No

Notes: Calculations included in Appendix \*E\*.

Buildout of the Proposed Project could result in noise level increases of up to 11.9 dBA. The following are roadway segments which have existing nearby noise-sensitive receptors that would experience a substantial increase in noise over existing conditions and would meet the significance criteria.

#### Project Area

- Bouquet Canyon Rd from Elizabeth Lake Rd to Palmdale City Line
- Avenue Q from 90th St E to 120th St E
- 120th St E from Avenue L to Avenue Q
- Avenue L from 90th St E to 102nd St E
- Avenue L from 107th St E to 120th St E
- Avenue H from 110th St W to 105th St W
- Avenue H from 97th St W to 92nd St W
- Avenue H from 80th St W to 70th St W
- Avenue F from 110th St W to Lancaster City Line
- Avenue F from Lancaster City Line to 95th St W
- Avenue F from 95th St W to 70th St W
- Avenue E from 110th St W to Lancaster City Line
- Avenue E from 100th St W to 70th St W
- 100th St W from Avenue D to Avenue D-8
- 100th St W from Avenue E to Avenue F
- 80th St W from Lancaster City Line to Lancaster City Line
- 70th St E from Avenue K-12 to Avenue L
- 100th St E from Lancaster City Line to Avenue L

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- Avenue G from 25th St W to Division St
- 50th St E from Avenue K-4 to Avenue L
- Elizabeth Lake Rd from Johnson Rd to Portal Pass Rd
- Johnson Rd from Elizabeth Lake Rd to 110th St W
- W Avenue J from 90th Street E to 100th Street E
- W Avenue J from 100th Street E to 110th Street E
- W Avenue J from 140th Street E to 150th Street E
- W Avenue J from 150th Street E to 170th Street E
- W Avenue J from 170th Street E to 200th Street E
- Lancaster Road from Pine Canyon Road to W Avenue I
- Lancaster Road from W Avenue I to 190th Street W
- Lancaster Road from 190th Street W to 170th Street W
- Lancaster Road from 170th Street W to 110th Street W
- Lancaster Road from 110th Street W to 90th Street W
- Lancaster Road from 90th Street W to 70th Street W
- Lancaster Road from 70th Street W to 60th Street W
- 170th Street E from Avenue T to Avenue W
- 170th Street E from Avenue W to 165th Street
- Elizabeth Lake Road from Johnson Road to San Francisquito Canyon Road
- Elizabeth Lake Road from San Francisquito Canyon Road to Bouquet Canyon Road
- 200th Street E from E Avenue G to E Avenue J
- W Avenue G from SR-14 Antelope Valley Freeway to 15th Street W
- W Avenue G from 15th Street W to 10th Street W
- W Avenue G from 10th Street W to Sierra Highway
- E Avenue O from 150th Street E to 170th Street E
- E Avenue O from 170th Street E to 175th Street E
- E Avenue O from 175th Street E to 180th Street E
- E Avenue O from 180th Street E to 200th Street E
- E Avenue O from 200th Street E to 210 Street E
- Pearblossom Highway (SR-138) from 70th Street E to E Avenue T 8
- Pearblossom Highway (SR-138) from E Avenue T 8 to 82nd Street E
- Pearblossom Highway (SR-138) from 82nd Street E to 87th Street E
- Pearblossom Highway (SR-138) from 87th Street E to 96th Street E
- Pearblossom Highway (SR-138) from 96th Street E to 106th Street E

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- Pearblossom Highway (SR-138) from 106th Street E to 116th Street E
- Pearblossom Highway (SR-138) from 116th Street E to 126th Street E
- Pearblossom Highway (SR-138) from 126th Street E to 131st Street E
- Fort Tejon Road from 87th Street E to Mount Emma Road
- Fort Tejon Road from Mount Emma Road to 96th Street
- Fort Tejon Road from 96th Street to 106th Street
- Fort Tejon Road from 106th Street to 131 Street E
- SR-138 Between I-5 and 300th Street W

The existing noise-sensitive receptors along these roadways include single- and multi-family residential land uses in addition to schools healthcare facilities. Individual projects associated with buildout of the Proposed Project would occur over a period of many years and the increase in noise on an annual basis would not be readily discernable as traffic and noise would increase incrementally.

The Adopted General Plan Noise Element include goals that would reduce impacts to the extent feasible:

- Reduce transportation noise to a level that does not jeopardize health and welfare
- Minimize noise levels of future transportation facilities
- Establish compatible land use adjacent to transportation facilities
- Allocate noise mitigation costs among those who produce the noise
- Alert the public regarding the potential impact of transportation noise
- Protect areas that are presently quiet from future noise impact

However, cumulative increases in the ambient noise environment along the roadway segments identified from buildout of the area plan would be substantial. Additionally, there are no other reasonably feasible measures to reduce traffic noise impacts to existing uses either due to implementation constraints, aesthetics drawbacks, and/or costs considerations<sup>4</sup>. Therefore, traffic noise impacts to existing noise-sensitive receptors (along the above-noted roadway segments) would experience a substantial increase in noise over existing conditions, would meet the significance criteria, and would be exposed to potentially significant noise levels due to traffic flows.

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#### **Impact 5.12-3 New noise-sensitive land uses associated with Proposed Project could be exposed to elevated noise levels from mobile sources along roadways. [Thresholds N-1 and N-3]**

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**Impact Analysis:** Table 5.12-18, *Buildout Year Traffic Noise Levels and Contours*, shows the 65, 70, and 75 dBA CNEL noise contours of roadways within the Area Plan in future buildout year conditions.<sup>5</sup> For the purpose of assessing the compatibility of new development with the anticipated ambient noise, the County utilizes the State's Community Noise and Land Use Compatibility standards; previously summarized in Table 5.12-5. New sensitive land uses would have to demonstrate compatibility with the ambient noise levels. A potentially

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significant impact could occur if the Proposed Project designates noise-sensitive exterior land uses in areas where the ambient noise level exceeds 65 dBA CNEL. Likewise, interior noise levels in habitable noise-sensitive areas should not exceed 45 dBA CNEL.

**Table 5.12-18 Buildout Year Traffic Noise Levels and Contours**

Roadway	Segment	Buildout Year				
		ADT Volumes	CNEL (dBA @100ft)	Distance to CNEL Contour (Feet from Centerline)		
				65 (dBA CNEL)	70 (dBA CNEL)	75 (dBA CNEL)
Bouquet Canyon Rd	Elizabeth Lake Rd to Palmdale City Line	3,900	59.4	20	42	91
Avenue N-8	45th St W to 30th St W	5,000	59.3	19	41	89
40th St W	Avenue N to Avenue N-8	5,000	59.3	19	41	89
35th St W	Avenue N to Avenue N-8	5,000	59.3	19	41	89
Avenue O-8	30th St W to 20th St W	1,800	58.5	17	37	79
25th St W	Avenue O to Palmdale City Line	10,300	66.6	59	127	274
Avenue N-8	20th St W to Palmdale City Line	5,000	59.3	19	41	89
Avenue Q	60th St E to 75th St E	8,700	66.1	55	119	256
Avenue Q	80th St E to 90th St E	8,700	66.1	55	119	256
Avenue Q	90th St E to 120th St E	6,500	61.6	28	60	129
120th St E	Avenue L to Avenue Q	10,600	67.4	68	146	314
Avenue L	40th St E to 45th St E	12,000	68.0	73	158	341
Avenue L	50th St E to 80th St E	16,900	69.5	92	199	428
Avenue L	90th St E to 102nd St E	2,400	61.0	25	54	117
Avenue L	107th St E to 120th St E	2,400	61.0	25	54	117
10th St W	Palmdale City Line to Avenue O	34,400	73.7	178	382	824
10th St W	Auto Center Dr to Elizabeth Lake Rd	27,000	71.5	125	270	581
Avenue H	110th St W to 105th St W	4,400	61.1	25	55	118
Avenue H	97th St W to 92nd St W	4,400	61.1	25	55	118
Avenue H	80th St W to 70th St W	4,900	61.6	27	59	127
Avenue F	110th St W to Lancaster City Line	1,600	55.5	11	23	50
Avenue F	Lancaster City Line to 95th St W	3,700	59.2	19	41	88
Avenue F	95th St W to 70th St W	14,300	65.1	47	101	217
Avenue E	110th St W to Lancaster City Line	1,600	55.5	11	23	50
Avenue E	100th St W to 70th St W	14,300	65.1	47	101	217
100th St W	Lancaster Blvd to Avenue J	500	49.2	4	9	19
100th St W	Avenue D to Avenue D-8	7,700	61.1	26	55	119
100th St W	Avenue E to Avenue F	8,400	61.5	27	58	126
80th St W	Lancaster City Line to Lancaster City Line	5,800	64.4	42	91	195
Avenue K-8	52nd St W to 50th St W	800	52.5	7	15	32
70th St E	Lancaster City Line to Avenue K-8	1,200	57.5	15	32	68
70th St E	Avenue K-12 to Avenue L	1,400	58.2	16	35	76
100th St E	Avenue J to Avenue J-8	600	54.5	9	20	43
100th St E	Lancaster City Line to Avenue L	2,300	60.3	23	49	105
Avenue L	55th St W to 40th St W	11,300	64.5	43	93	200
Avenue G	25th St W to Division St	18,700	69.5	92	199	428
Avenue H	Division St to 40th St E	16,400	68.9	84	182	392
50th St E	Avenue K-4 to Avenue L	7,100	65.3	48	104	224
Elizabeth Lake Rd	Johnson Rd to Portal Pass Rd	10,400	66.9	62	134	288
Amargosa Creek Rd	Portal Pass Rd to Johnson Rd	5,000	59.3	19	41	89

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Table 5.12-18 Buildout Year Traffic Noise Levels and Contours

Roadway	Segment	Buildout Year				
		ADT Volumes	CNEL (dBA @100ft)	Distance to CNEL Contour (Feet from Centerline)		
				65 (dBA CNEL)	70 (dBA CNEL)	75 (dBA CNEL)
Avenue M	Elizabeth Lake Rd to 80th St W	5,000	59.3	19	41	89
110th St W	Johnson Rd to Avenue M	5,000	59.3	19	41	89
Johnson Rd	Elizabeth Lake Rd to 110th St W	7,600	62.3	31	66	142
San Francisquito Canyon Rd	Angeles National Forest to Elizabeth Lake Rd	4,200	59.7	21	45	96
Portal Pass Rd	Elizabeth Lake Rd to Ritter Ranch Rd	5,000	59.3	19	41	89
Ritter Ranch Rd	Portal Pass Rd to Bouquet Canyon Rd	5,000	59.3	19	41	89
87th St W	Ritter Ranch Rd to Elizabeth Lake Rd	5,000	59.3	19	41	89
Avenue L-8	10th St W to SR 14	4,800	60.5	23	50	109
Avenue L-8	SR 14 to 30th St W	500	49.2	4	9	19
Avenue L-8	60th St W to 80th St W	4,300	60.1	22	47	101
Davenport Road	Sierra Highway to Agua Dulce Canyon Road	3,700	61.4	27	58	124
Agua Dulce Canyon Road	Soledad Canyon Road to Sierra Highway	8,300	62.7	33	70	151
Escondido Canyon Road	Agua Dulce Canyon Rd to SCV Planning Boundary	4,100	59.6	20	44	94
W Avenue J	90th Street E to 100th Street E	2,000	56.5	13	27	58
W Avenue J	100th Street E to 110th Street E	1,300	54.6	9	20	44
W Avenue J	110th Street E to 140th Street E	1,000	53.5	8	17	37
W Avenue J	140th Street E to 150th Street E	1,500	55.3	10	22	48
W Avenue J	150th Street E to 170th Street E	1,800	56.0	12	25	55
W Avenue J	170th Street E to 200th Street E	3,300	58.7	18	38	82
Lancaster Road	Pine Canyon Road to W Avenue I	9,400	62.0	29	63	136
Lancaster Road	W Avenue I to 190th Street W	2,400	56.1	12	25	55
Lancaster Road	190th Street W to 170th Street W	3,300	57.5	15	31	68
Lancaster Road	170th Street W to 110th Street W	6,200	61.5	27	58	125
Lancaster Road	110th Street W to 90th Street W	3,700	59.2	19	41	89
Lancaster Road	90th Street W to 70th Street W	5,500	60.9	25	54	115
Lancaster Road	70th Street W to 60th Street W	4,100	59.7	20	44	95
170th Street E	Avenue T to Avenue W	9,800	63.4	36	78	169
170th Street E	Avenue W to 165th Street	5,300	60.7	24	52	112
Elizabeth Lake Road	Johnson Road to San Francisquito Canyon Road	3,500	58.9	18	39	85
Elizabeth Lake Road	San Francisquito Canyon Rd to Bouquet Canyon Rd	7,000	65.2	48	103	221
Elizabeth Lake Road	Bouquet Canyon Road to Godde Hill Road	10,000	63.5	37	79	171
E Avenue P	15th Street E to 20th Street E	20,900	71.3	122	264	568
E Avenue P	20th Street E to 25th Street E	20,800	71.3	122	263	566
E Avenue P	25th Street E to 30th Street E	7,400	66.8	61	132	284
E Avenue P	30th Street E to 40th Street E	4,900	65.0	47	100	216
E Avenue P	40th Street E to 47th Street E	4,700	64.4	42	91	196
E Avenue P	47th Street E to 70th Street E	4,700	64.4	42	91	196
200th Street E	E Avenue G to E Avenue J	5,100	61.7	28	61	130
E Palmdale Boulevard	90th Street E to 95th Street E	13,400	68.0	73	158	341
E Palmdale Boulevard	95th Street E to 100th Street E	15,300	68.6	80	173	372

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Table 5.12-18 Buildout Year Traffic Noise Levels and Contours

Roadway	Segment	Buildout Year				
		ADT Volumes	CNEL (dBA @100ft)	Distance to CNEL Contour (Feet from Centerline)		
				65 (dBA CNEL)	70 (dBA CNEL)	75 (dBA CNEL)
E Palmdale Boulevard	100th Street E to 105th Street E	14,400	68.3	77	166	358
E Palmdale Boulevard	105th Street E to 110 Street E	14,300	68.3	77	165	356
W Avenue G	SR-14 Antelope Valley Freeway to 15th Street W	15,200	68.6	80	173	373
W Avenue G	15th Street W to 10th Street W	15,600	68.7	82	176	379
W Avenue G	10th Street W to Sierra Highway	18,700	69.5	92	199	428
W Avenue G	Sierra Highway to Division Street	13,500	68.1	74	160	344
E Avenue O	145th Street E to 150th Street E	11,700	67.4	67	145	311
E Avenue O	150th Street E to 170th Street E	5,200	63.9	39	84	181
E Avenue O	170th Street E to 175th Street E	3,800	62.5	32	68	147
E Avenue O	175th Street E to 180th Street E	5,700	64.3	42	90	193
E Avenue O	180th Street E to 200th Street E	6,200	64.7	44	95	204
E Avenue O	200th Street E to 210 Street E	2,100	60.0	21	46	99
E Avenue O	210 Street E to 240th Street E	700	55.2	10	22	48
W Avenue L	Rancho Vista Road to 45th Street W	8,600	63.3	36	77	166
W Avenue L	45th Street W to 40th Street W	11,300	64.5	43	93	200
Pearblossom Highway (SR-138)	70th Street E to E Avenue T 8	33,900	72.5	146	315	679
Pearblossom Highway (SR-138)	E Avenue T 8 to 82nd Street E	33,900	72.5	146	315	679
Pearblossom Highway (SR-138)	82nd Street E to 87th Street E	24,800	71.1	119	256	551
Pearblossom Highway (SR-138)	87th Street E to 96th Street E	26,700	71.4	125	269	579
Pearblossom Highway (SR-138)	96th Street E to 106th Street E	30,600	72.0	137	294	634
Pearblossom Highway (SR-138)	106th Street E to 116th Street E	27,000	71.5	126	271	584
Pearblossom Highway (SR-138)	116th Street E to 126th Street E	26,800	71.1	119	257	553
Pearblossom Highway (SR-138)	126th Street E to 131st Street E	31,400	70.8	114	245	528
Pearblossom Highway (SR-138)	131 Street E to 170th Street E	21,100	68.0	74	159	343
Fort Tejon Road	87th Street E to Mount Emma Road	10,200	63.6	37	81	174
Fort Tejon Road	Mount Emma Road to 96th Street	12,200	64.4	42	91	196
Fort Tejon Road	96th Street to 106th Street	12,500	64.5	43	92	199
Fort Tejon Road	106th Street to 131 Street E	7,200	65.3	49	105	226
SR-14	North of Avenue D/SR-138	65,910	79.9	456	982	2,116
SR-14	South of Avenue D/SR-138	99,241	81.7	599	1,290	2,780
SR-14	South of SR-138/High Desert Cor.	98,897	80.9	529	1,140	2,456
High Desert Corridor	East of 125th Street E	64,728	79.0	399	859	1,851
SR-14	North of Avenue D/SR-138	65,910	79.9	456	982	2,116
SR-14	South of Avenue D/SR-138	99,241	81.7	599	1,290	2,780
SR-14	South of SR-138/High Desert Cor.	98,897	80.9	529	1,140	2,456

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**Table 5.12-18 Buildout Year Traffic Noise Levels and Contours**

Roadway	Segment	Buildout Year				
		ADT Volumes	CNEL (dBA @100ft)	Distance to CNEL Contour (Feet from Centerline)		
				65 (dBA CNEL)	70 (dBA CNEL)	75 (dBA CNEL)
SR-138	Between I-5 and 300th Street W	95,819	82.9	729	1,570	3,383
SR-138	Between 300th St W and 190th St W	50,948	80.2	478	1,030	2,220
Avenue D/SR-138	Between 190th Street W and SR-14	49,489	80.1	469	1,011	2,177
I-5 Freeway	North of SR-138	124,012	85.5	1,084	2,336	5,032
I-5 Freeway	South of SR-138	125,412	85.6	1,092	2,353	5,070

Note: Calculations included in Appendix E.

As discussed in Impact Statement 5.12-2, the County’s General Plan Noise Element has several goals and policies to minimize noise impacts to the extent feasible. Specific measures would be required during specific, project-level assessments to ensure that future land uses are compatible to their noise environment. Any siting of new noise-sensitive land uses within a noise environment that exceeds the normally acceptable land use compatibility criterion represents a potentially significant impact and would require a separate noise study through the development review process to determine the level of impacts and required mitigation. Without mitigation, this would be a significant impact.

**Impact 5.12-4: The Proposed Project could create elevated levels of groundborne vibration and groundborne noise; both in the short-term (construction) and the long-term (operations). [Threshold N-2]**

***Impact Analysis:***

#### Transportation-Related Vibration Impacts

Caltrans has studied the effects of propagation of vehicle vibration on sensitive land uses and notes that “heavy trucks, and quite frequently buses, generate the highest earthborn vibrations of normal traffic.” Caltrans further notes that the highest traffic-generated vibrations are along freeways and state routes. Their study finds that “vibrations measured on freeway shoulders (five meters from the centerline of the nearest lane) have never exceeded 0.08 inches per second, with the worst combinations of heavy trucks. This level coincides with the maximum recommended safe level for ruins and ancient monuments (and historic buildings).” Typically, trucks do not generate high levels of vibration because they travel on rubber wheels and do not have vertical movement, which generates ground vibration. Thus, transportation routes<sup>6</sup> within Antelope Valley are not expected to generate excessive vibration.

#### Railroad Vibration Impacts

Vibration levels in Antelope Valley from trains are dependent on site-specific conditions such as geology and the condition of the railroad track and train wheels. Although it is not proposed at this time, if modifications

<sup>6</sup> Including freeways, highways, major and minor arterials, and most other heavily traveled local roadways.

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of existing rail tracks are planned, vibration would be addressed in the environmental review for each individual rail improvement project.

As groundborne vibration is associated with any given train pass-by, but then subsides once the train has passed, any increases in number of train movements would only create additional occurrences of pass-by vibration, but not increased amplitudes of vibration levels. Thus, any potential increase in rail traffic would not increase the maximum vibration levels at nearby uses and such potential increases in the frequency of daily rail trips would not result in the generation of excessive vibration.

Implementation of the Proposed Project may add new sensitive uses in areas adjacent to existing and future railroad lines. These developments may result in placing residential or other sensitive uses near the railroad lines which could result in excessive groundborne vibration from train operations. The extent of the exposure to vibration depends on site-specific conditions, location of buildings, and size and design of the proposed buildings. Further specific, project-level review would be required as future developments are proposed.

#### **Industrial Vibration Impacts**

The use of heavy equipment associated with industrial operations can create elevated vibration levels in its immediate proximity. Soil conditions have a strong influence on the levels of groundborne vibration and, as a result, vibration typically dissipates rapidly with distance away from the source. Further specific, project-level review would be required as future developments are proposed.

#### **Construction Vibration Impacts**

Construction operations can generate varying degrees of ground vibration, depending on the construction procedures and equipment. Operation of construction equipment generates vibrations that spread through the ground and diminish with distance from the source. The effect on buildings in the vicinity of the construction site varies depending on soil type, ground strata, and receptor-building construction. The results from vibration can range from no perceptible effects at the lowest vibration levels, to low rumbling sounds and perceptible vibrations at moderate levels, to slight structural damage at the highest levels. Vibration from construction activities rarely reaches the levels that can damage structures, but can achieve the audible and perceptible ranges in buildings close to the construction site. Table 5.12-19 lists vibration levels for construction equipment.

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**Table 5.12-19 Vibration Levels for Construction Equipment**

Equipment	Approximate Velocity Level at 25 Feet (VdB)	Approximate RMS <sup>1</sup> Velocity at 25 Feet (in/sec)
Pile Driver (impact) Upper Range	112	1.518
Pile Driver (impact) Lower Range	104	0.644
Pile Driver (sonic) Upper Range	105	0.734
Pile Driver (sonic) Lower Range	93	0.170
Large Bulldozer	87	0.089
Caisson Drilling	87	0.089
Jackhammer	79	0.035
Small Bulldozer	58	0.003
Loaded Trucks	86	0.076
FTA Criteria – Human Annoyance (Daytime)	78	—
FTA Criteria – Structural Damage	—	0.200

Source: FTA 2006

<sup>1</sup> Root Mean Square (RMS) velocity calculated from vibration level (VdB) using the reference of 1 microinch/second.

As shown in Table 5.12-19, vibration generated by construction equipment has the potential to be substantial, since it has the potential to exceed the FTA Criteria for human annoyance of 78VdB<sup>7</sup> and structural damage of 0.200 in/sec. However, groundborne vibration is almost never annoying to people who are outdoors, so it is usually evaluated in terms of indoor receivers (FTA 2006). Vibration impacts may occur from construction equipment associated with development in accordance with the Proposed Project. However, compliance with the Section 12.08.560 Vibration of the County Code will reduce any potential vibration impacts to a less than significant level.

**Impact 5.12-5: The proximity of future Antelope Valley developments to an airport or airstrip would not result in exposure of future resident and/or workers to airport-related noise. [Thresholds N-5 and N-6]**

**Impact Analysis:** Buildout of the Proposed Project would involve new development and redevelopment on parcels within the plan areas of adopted Airport Land Use Compatibility Plans (ALUCPs), including the comprehensive Los Angeles County ALUCP and the ALUCP for the General William J. Fox Airfield. As discussed previously, the airport 65 dBA CNEL noise level contours for the General William J. Fox Airfield are contained within the City of Lancaster and do not reach the Plan Area. The 65 dBA CNEL noise level contours for the Palmdale Regional Airport do extend to areas proposed to be zoned as agricultural and manufacturing. These are not considered noise-sensitive uses. Future development under the Proposed Project would be required to be consistent with any applicable ALUCP constraints pertaining to nearby developments. Furthermore, compliance with policies included in the General Plan Noise Element would ensure that development would not conflict with airport land use plans. Therefore, as the Area Plan anticipates development of uses that are not noise-sensitive, and with review by the Los Angeles County Airport Land Use Commission, future development under

<sup>7</sup> VdB is an abbreviation for vibration decibels, and is references as  $1 \times 10^{-6}$  inches per second.

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the Proposed Project would be consistent with adopted ALUCPs and there would be no significant noise exposure impacts relative to airport or airstrip noise levels.

### 5.12.5 Cumulative Impacts

Cumulative projects in SCAG’s North Los Angeles County Subregion would have the potential to result in a cumulative noise impact if they would, in combination with regional growth in the immediate area, create excessive community noise levels. The traffic noise levels predicted for buildout conditions and evaluated in Impacts 5.12-2 and 5.12-3 above are based on cumulative traffic conditions that take into account cumulative development in the region. Therefore, these impact discussions inherently incorporate the cumulative scenario by default. Further, cumulative projects under the buildout of the Proposed Project would be required to comply with the applicable land use compatibility classification or they would not be approved without a general plan amendment. Therefore, the Proposed Project would not contribute to a significant cumulative noise impact above and beyond what has already been identified above.

### 5.12.6 Existing Regulations and Standard Conditions

#### Federal

- FAR Part 150
- Public Law 96 193
- FAA Advisory Circular Number 150 5020 2, entitled “Noise Assessment Guidelines for New Helicopters”

#### State

- California Code of Regulations, Title 21, Part 1, Public Utilities Code (Regulation of Airports)
- California Code of Regulations, Title 24, Part 11, California Green Building Standards Code.
- California Office of Noise Control. Guidelines for the Preparation and Content of Noise Elements of the General Plan. February 1976.

#### County of Los Angeles

- Los Angeles County General Plan Noise Element
- Los Angeles County Code of Ordinances, Sections:
  - Title 26, Chapter 12, Section 1207, Sound Transmission
  - Title 12, Chapter 12.08
  - Title 12, Chapter 12.12
  - Title 13, Division 4, Chapter 13.45

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#### 5.12.7 Level of Significance Before Mitigation

Upon implementation of regulatory requirements and standard conditions of approval, the following impacts would be less than significant: 5.12-1 (construction noise), 5.12-3 (siting of noise sensitive land uses), 5.12-4 (vibration), and 5.12-5 (airport-related noise).

Without mitigation, the following impacts would be **significant** or **potentially significant**:

- **Impact 5.12-2** Buildout of the proposed land use plan would result in an increase in traffic on local roadways in Antelope Valley, which would substantially increase the existing ambient noise environment.

#### 5.12.8 Mitigation Measures

##### Impact 5.12-2

Compliance with the County's Noise Element and County Code would reduce traffic noise impacts to existing and proposed noise sensitive uses to the extent feasible. No additional feasible mitigation measures are available to further reduce impacts. Residential land uses comprise the majority of existing sensitive uses within Project Area that would be impacted by the increase in traffic generated noise levels. Construction of sound barriers would be inappropriate for residential land uses that face the roadway as it would create aesthetic and access concerns. Furthermore, for individual development projects, the cost to mitigate off-site traffic noise impacts to existing uses (such as through the construction of sound walls and/or berms) may often be out of proportion with the level of impact.

#### 5.12.9 Level of Significance After Mitigation

##### Impact 5.12-2

Buildout of the Proposed Project would result in an increase in traffic on local roadways in the Project Area, which would substantially increase the existing ambient noise environment. No feasible mitigation measures are available to further reduce traffic noise impacts to existing noise sensitive receptors. Therefore, Impact 5.12-2 would remain significant and unavoidable.

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