5.12 NOISE

This section of the Draft Environmental Impact Report (DEIR) 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 City of Menifee General Plan; and provides mitigation to reduce noise impacts at noise-sensitive locations. This section of the DEIR evaluates the potential for implementation of the General Plan to result in noise impacts in the City and surrounding areas adjacent to the City. Noise calculations on which this analysis is based are included in Appendix H, *Noise Monitoring and Modeling Data.*

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, which, 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 unitless measure of sound on a logarithmic scale.

- **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); that 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.”

- **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

When an object vibrates, it radiates part of its energy as acoustical pressure in the form of a sound wave. Sound can be described in terms of amplitude (loudness), frequency (pitch), or duration (time). The human hearing system is not equally sensitive to sound at all frequencies. Therefore, to approximate the human, frequency-dependent response, the A-weighted filter system is used to adjust measured sound levels. The normal range of human hearing extends from approximately 0 dBA (the threshold of detection) to 140 dBA (the threshold of pain).

Unlike linear units such as inches or pounds, decibels are measured on a logarithmic scale 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 one hundred 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.

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.

Sound is generated from a source and the 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 or distance attenuation.

When sound is measured for distinct time intervals, the statistical distribution of the overall sound level during that period can be obtained. For example, L_{50} is the noise level that is exceeded 50 percent of the time. Similarly, the L_{02}, L_{08}, and L_{25} values are exceeded 2, 8, and 25 percent of the time or 1, 5, and 15 minutes per hour. The energy-equivalent sound level (L_{eq}) is the most common parameter associated with community noise measurements. The L_{eq} metric is a single-number noise descriptor of the energy-average sound level over a given period of time. Other values typically noted during a noise survey are the L_{min} and L_{max}. These values are the minimum and maximum root-mean-square (RMS) noise levels obtained over the stated measurement period.

Because community receptors are more sensitive to unwanted noise intrusion during the evening and nighttime hours, state law requires that, for planning purposes and to account for this increased receptiveness of noise, an artificial decibel increment is to be added to quiet-time noise levels to calculate the 24-hour CNEL noise metric.

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 the entire system, with prolonged noise exposure in excess of 75 dBA increasing body tensions, thereby affecting blood pressure and functions of the heart and the nervous system. Extended periods of noise exposure above 90 dBA results in permanent cell damage, which is the main driver for employee hearing protection regulations in the workplace. For community environments, the ambient or background noise problem is widespread and generally more concentrated in urban areas than in outlying, less-developed areas. Elevated ambient noise levels can result in noise interference (e.g., speech interruption/masking, sleep disturbance, disturbance of concentration) and cause annoyance. Since most people do not routinely work with decibels or A-weighted sound levels, it is often difficult to appreciate what a given sound pressure level (SPL) number means. 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.

Vibration Fundamentals

Vibration is an oscillatory motion through a solid medium in which the motion's amplitude can be described in terms of displacement, velocity, or acceleration. Vibration is normally associated with activities such as railroads or vibration-intensive stationary sources, but can also be associated with construction equipment such as jackhammers, pile drivers, and hydraulic hammers. Vibration displacement is the distance that a point on a surface moves away from its original static position. The instantaneous speed that a point on a surface moves is the velocity, and the rate of change of the speed is the acceleration. Each of these descriptors can be used to correlate vibration to human response, building damage, and acceptable equipment vibration levels. During project construction, the operation of construction equipment can cause groundborne vibration. During the operational phase of a project, receptors may be subject to levels of vibration that can cause annoyance due to noise generated from vibration of a structure or items within a structure. These types of vibration are best measured and described in terms of velocity and acceleration.

The three main types of waves associated with groundborne vibrations are surface or Rayleigh waves, compression or P-waves, and shear or S-waves.

- **Surface or Rayleigh waves** travel along the ground surface. They carry most of their energy along an expanding *cylindrical* wave front, similar to the ripples produced by throwing a rock into a lake. The particle motion is more or less perpendicular to the direction of propagation.

- **Compression or P-waves** are body waves that carry their energy along an expanding *spherical* wave front. The particle motion in these waves is longitudinal, in a push-pull motion. P-waves are analogous to airborne sound waves.

- **Shear or S-waves** are also body waves, carrying their energy along an expanding *spherical* wave front. Unlike P-waves, however, the particle motion is transverse, or perpendicular to the direction of propagation.

Vibration amplitudes are usually described in terms of either the peak particle velocity (PPV) or the RMS velocity. PPV is the maximum instantaneous peak of the vibration signal and RMS is the square root of the average of the squared amplitude of the signal. PPV is more appropriate for evaluating potential building damage, whereas RMS is typically more suitable for evaluating human response.

The units for PPV and RMS velocity are normally inches per second (in/sec). Often, vibration is presented and discussed in dB units in order to compress the range of numbers required to describe the vibration. In this study, all PPV and RMS velocity levels are in in/sec and all vibration levels are in dB relative to one microinch per second (abbreviated as VdB). Typically, groundborne vibration generated by human activities attenuates rapidly with distance from the source of the vibration. Even the more persistent Rayleigh waves decrease relatively quickly as they move away from the source of the vibration. Man-made vibration problems are, therefore, usually confined to relatively short distances (500 to 600 feet or less) from the source (FTA 2006).

Construction operations generally include a wide range of activities that can generate groundborne vibration. In general, blasting and demolition of structures generate the highest vibrations. Vibratory compactors or rollers, pile drivers, and pavement breakers can generate perceptible amounts of vibration at up to 200 feet. Heavy trucks can also generate groundborne vibrations, which can vary, depending on vehicle type, weight, and pavement conditions. Potholes, pavement joints, discontinuities, differential settlement of pavement, etc., all increase the vibration levels from vehicles passing over a road surface. Construction vibration is normally of greater concern than vibration from normal traffic

flows on streets and freeways with smooth pavement conditions. Trains generate substantial quantities of vibration due to their engines, steel wheels, heavy loads, and wheel-rail interactions.

Noise- and Vibration-Sensitive Receptors

Certain land uses are particularly sensitive to noise and vibration, including residential, school, and open space/recreation areas where quiet environments are necessary for enjoyment, public health, and safety. Sensitive land uses in the City and areas adjacent to the City boundaries includes residences, schools, churches, and recreational areas. Commercial and industrial uses are not considered noise- and vibration-sensitive uses for the purposes of this analysis.

Regulatory Framework

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

State

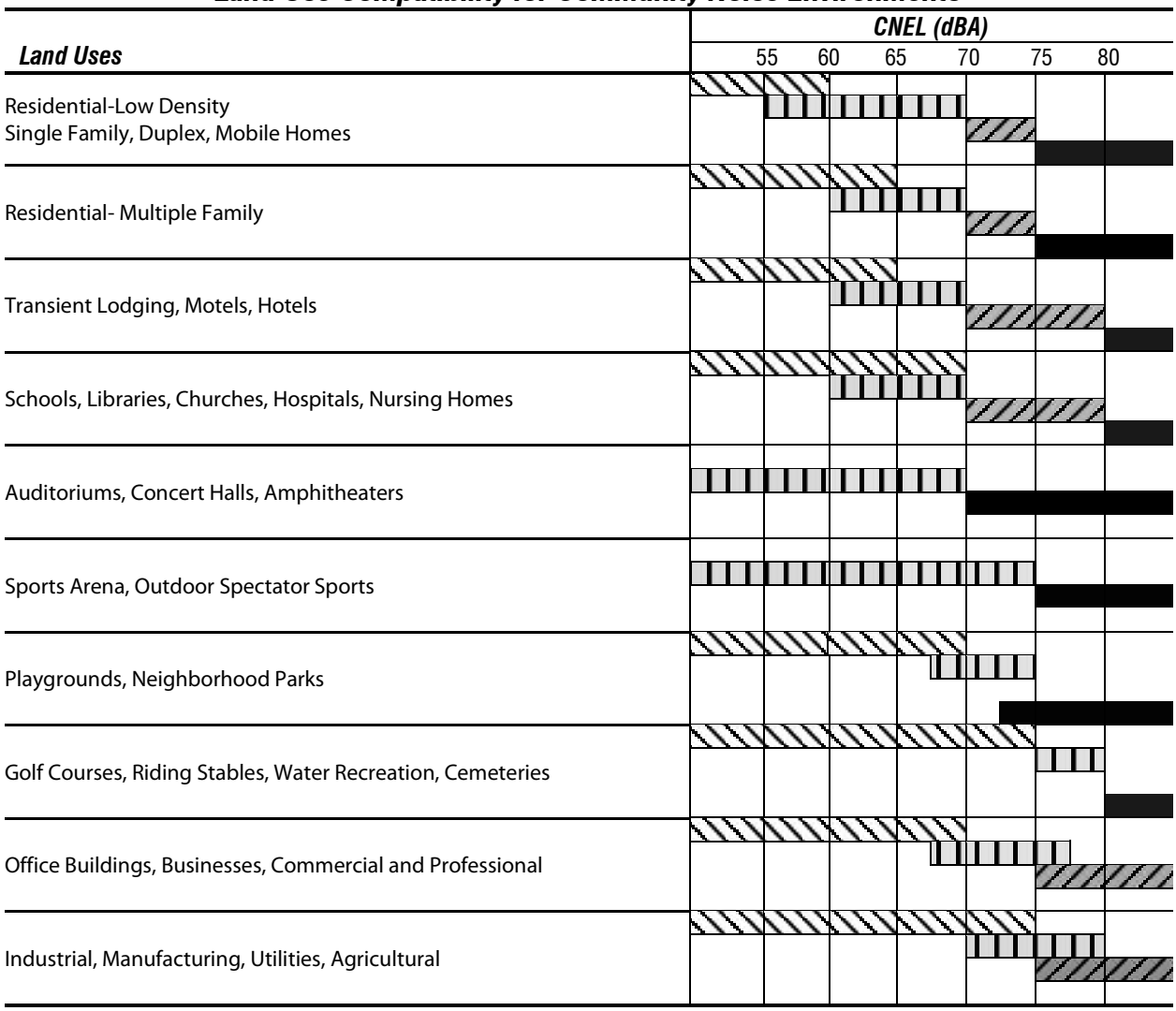
State of California Building Code

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.

State of California Land Use Compatibility Criteria

Table 5.12-3 presents a land use compatibility chart for community noise adopted by the State of California as part of its General Plan Guidelines. This table provides urban planners with a tool to gauge the compatibility of new land uses relative to existing and future noise levels. This table 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.

Table 5.12-3
Land Use Compatibility for Community Noise Environments



Normally Acceptable:
Specified land use is satisfactory based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.

Conditionally Acceptable:
New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and the needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.

Normally Unacceptable:
New construction or development should generally be discouraged. If new construction does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.

Clearly Unacceptable:
New construction or development generally should 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.

Riverside County

Since the City of Menifee was incorporated, it has been using the standards and policies included in the County of Riverside General Plan Noise Element. The City is in the process of adopting its first General Plan. The applicable County's noise regulations are discussed below.

Riverside County Airport Land Use Commission

The California Public Resources Code requires that the adoption or approval of any amendment to a general or specific plan affecting the property within an airport influence area (AIA), as defined by an airport land use compatibility plan, shall require review from the ALUC for determination of consistency with the Commission's Plan prior to their approval by the local jurisdiction. In general, consistency with the Commission's Plan is determined based on noise and safety compatibility issues.

The locations of CNEL contours are among the factors used to define compatibility zone boundaries and criteria. According to guidelines included in the Riverside County Airport Land Use Compatibility Plan (ALUCP), areas exposed to aircraft noise levels above 65 dBA CNEL are considered clearly unacceptable for new residential land uses, schools, libraries, and hospitals. For churches, auditoriums, concert halls, and amphitheaters, noise levels above 70 dBA CNEL are clearly unacceptable. These standards shall be based upon projected noise contours calculated based upon forecasted aircraft activity as indicated in an airport master plan, or that is considered by the Riverside County ALUC to be plausible.

The maximum, aircraft-related, interior noise level that shall be considered acceptable for land uses near airports is 45 dB CNEL in:

- Any habitable room of single- or multi-family residences;
- Hotels and motels;
- Hospitals and nursing homes;
- Churches, meeting halls, theaters, and mortuaries;
- Office buildings
- Schools, libraries, and museums

According to the Riverside County ALUC, when reviewed as part of a general plan or zoning ordinance amendment or as a major land use action, evidence that proposed structures will be designed to comply with the above criteria shall be submitted to the ALUC under the following circumstances:

- Any mobile home situated within an airport's 55-dB CNEL contour. (A typical mobile home has an average exterior-to-interior noise level reduction (NLR) of approximately 15 dB with windows closed)

- Any single- or multi-family residence situated within an airport's 60-dB CNEL contour. (Wood frame buildings constructed to meet 1990s standards for energy efficiency typically have an average NLR of approximately 20 dB with windows closed.)

- Any hotel or motel, hospital or nursing home, church, meeting hall, office building, mortuary, school, library, or museum situated with an airport's 65-dB CNEL contour.

City of Menifee

Noise Element

Policy N1. 3 of the County's General Plan Noise Element considers schools, hospitals, rest homes, long term care facilities, mental care facilities, residential uses, libraries, passive recreation uses, and places of worship as noise sensitive and discourage these uses in areas in excess of 65 dBA CNEL.

Policy N 2.3 sets exterior and interior noise standards from stationary noise sources to the levels listed in Table 5.12-4 below.

Table 5.12-4
Stationary Source Noise Standards for Residential Uses

Land Use	Interior Standards	Exterior Standards
10:00 PM to 7:00 AM 7:00 AM to 10:00 PM	40 L_{eq} (10 minute) 55 L_{eq} (10 minute)	45 L_{eq} (10 minute) 65 L_{eq} (10 minute)

Municipal Code

When the City of Menifee incorporated, the City adopted the County of Riverside Noise Ordinance (Ordinance No. 847). The City is in the process of updating its Municipal Code to adopt the stationary noise standards presented in Table 5.12-4 above into Section 9.09, which are consistent with the standards in the County of Riverside Municipal Code.

Construction Noise Hours

At the time of the preparation of this analysis, the City of Menifee is in the process of updating its noise ordinance. The proposed noise ordinance would exempt construction activities from the noise standards in the Noise Element and Municipal Code for private construction projects located one-quarter (1/4) of a mile or more from an inhabited dwelling.

Vibration Criteria

Vibration Annoyance

As discussed above, the City of Menifee adopted the County of Riverside noise standards. The County of Riverside Noise Element includes policies to restrict the placement of sensitive land uses such as hospitals, residential areas, concert halls, libraries, sensitive research operations, schools, and offices in proximity to vibration-producing land uses. Policy N15.3 prohibits exposure of residential dwellings to perceptible ground vibration from passing trains as perceived at the ground or second floor. Perceptible motion shall be presumed to be a motion velocity (PPV) of 0.01 inches/second over a range of 1 to 100 Hz.

Vibration-Related Structural Damage

The United States Department of Transportation's Federal Transit Administration (FTA) provides criteria to evaluate potential structural damage associated with vibration, and these FTA criteria are used in this analysis. 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 5.12-5.

Table 5.12-5
Groundborne Vibration Impact Criteria – Structural 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

Sensitive Receptors

Certain land uses are particularly sensitive to noise and vibration. These uses include residential, schools, 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.

Existing Noise Environment

The City of Menifee is impacted by a multitude of noise sources, many of them directly connected with major interstate commerce and intrastate thoroughfares that divide the City. Mobile sources of noise, especially cars and trucks, are the most common and significant sources of noise in most communities. In addition, a rail line operated by the Burlington Northern Santa Fe (BNSF) also contributes to the noise environment in the City. Other major transportation sources include Interstate 215 (I-215) and State Route 74 (SR-74). Secondarily, land uses throughout the City generate stationary-source noise. Figure 5.12-1, *Existing Noise Levels in Menifee from Surface Transportation*, shows noise levels from major roadway transportation sources.

Local Noise Monitoring Data

The Planning Center|DC&E conducted noise measurements at seven locations on Thursday, February 18, 2010, for a minimum period of 15 minutes at each location. The locations were selected based on the location of sensitive land uses in areas currently experiencing high levels of ambient noise and in areas that would experience the greatest change in noise levels due to planned development. The noise measurement locations are shown in Figure 5.12-2, *Noise Measurement Locations*. The results are presented in Table 5.12-6, *Noise Level Measurements,* and described below.

Table 5.12-6
Noise Level Measurements

Noise Monitoring Location[1]	L_{min}	L_{eq}	L_{max}
1-Antelope Road at Mesa Crest Way	56.0	69.5	79.5
2- Antelope Road Between Craig Avenue and Garbani Boulevard	57.7	68.7	76.7
3- Menifee Valley Middle School	36.2	45.4	67.6
4- Eastern Municipal Water District	42.9	46.1	61.2
5- Comwell Street and Bradley Road	54.8	66.3	81.6
6- Antelope Road at Ethanac Road	54.1	55.7	62.9
7- Pinacate Road at Palomar Road	48.8	68.2	81.2

[1] See Figure 5.12-1, Noise Measurement Locations.

Site 1. The sound level meter (SLM) was placed on the western side of Antelope Road approximately 150 feet from centerline of Interstate 215 (I-215) and 34 feet from centerline of Antelope Road. The primary source of noise was traffic on I-215; the secondary source of noise was traffic on Antelope Road. I-215 is a 4-lane divided freeway with a concrete median, and Antelope Road is a two-lane undivided arterial. Approximately 32 light duty vehicles were counted during the monitoring period.

Site 2. The SLM was placed approximately 80 feet to the west of the western edge of Antelope Road and approximately 100 feet from centerline of I-215. The primary noise source was from traffic on the I-215, and secondary noise sources included traffic on Antelope Road.

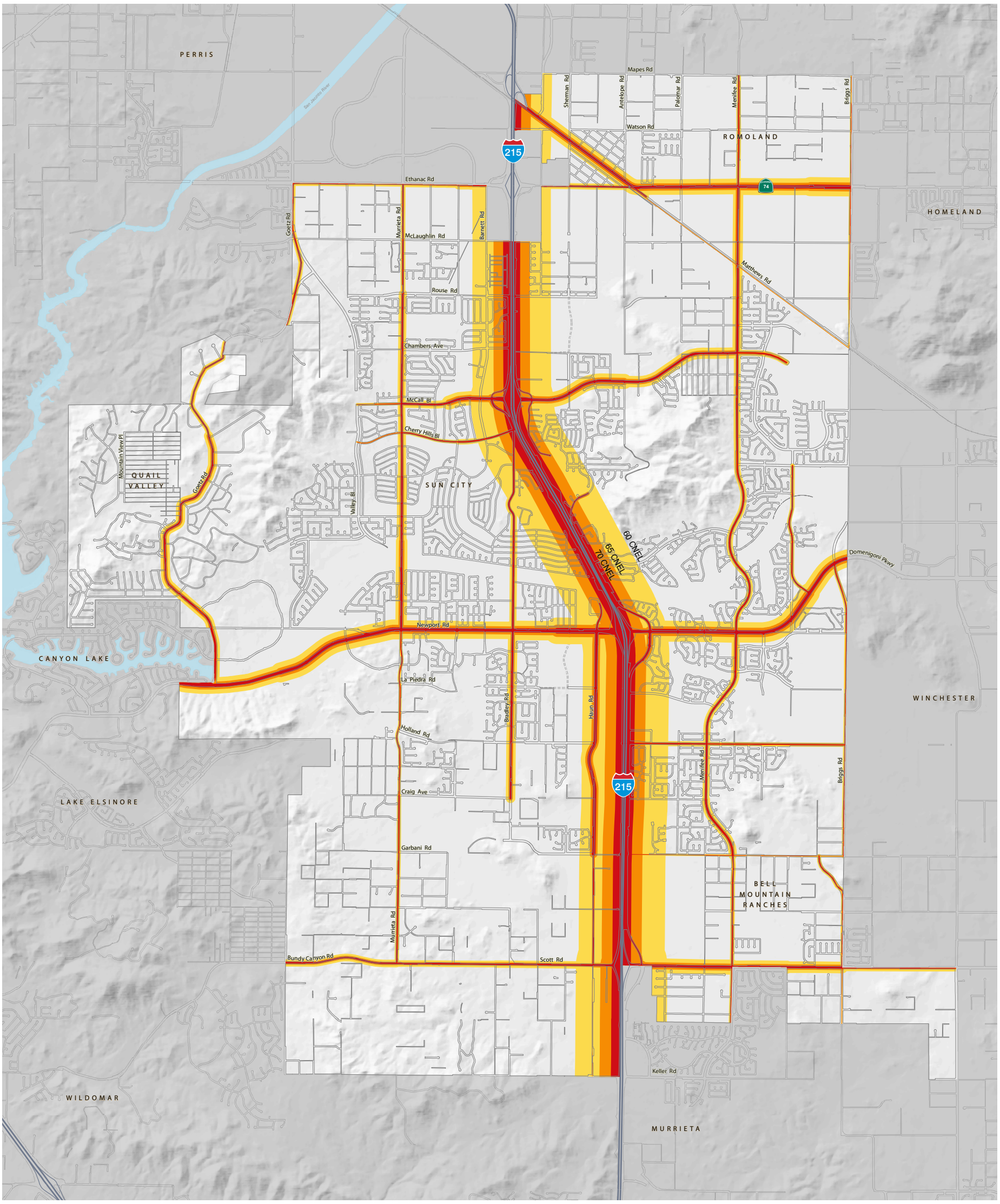
Site 3. The SLM was placed on the western boundary of Menifee Valley Middle School approximately 142 feet south from the southern edge of Garbani Road. The primary noise source in the area was traffic from Murrieta Road. Secondary noise sources include traffic on Garbani Road and noise from the students at Menifee Valley Middle School.

Site 4. The SLM was placed on Valley Boulevard approximately 34 feet east of the Eastern Municipal Water District premises. The primary noise was buzzing emanated from onsite generators. Secondary noise sources included the occasional EMWD pick-up trucks exiting and entering the facility through the entrance gate approximately 140 feet north of the SLM location.

Site 5. The sound level meter was placed near the drainage ditch approximately 169 feet west from the centerline of I-215 west of Bradley Road. The primary noise source was traffic traveling on I-215, secondary noise sources were from vehicles traveling on Bradley Road. Based on counts taken, there were 34 vehicle pass-bys on Bradley Road during the noise monitoring period.

Site 6. The sound level meter was on the west shoulder of Antelope Road, approximately 760 feet south of the T-intersection of Antelope Road and Ethanac Road. The primary noise sources were from the cement factory and the processing plant approximately 192 feet and 500 feet to the east, respectively. Noise from the cement plant included back-up warning bells from the loader operated onsite. Additional noise sources at the cement plant include release of compressed air, noise from egress and ingress of haul trucks, and loading of material onto a haul truck, a total of four trucks were observed during the measurement period. Noise from the processing plant to the south included general machinery noise.

Existing Noise Levels in Menifee from Surface Transportation



NOISE CONTOURS

- 60 - 65 CNEL
- 65 - 70 CNEL
- 70 + CNEL

0 1
Scale (Miles)

Source: The Planning Center|DC&E

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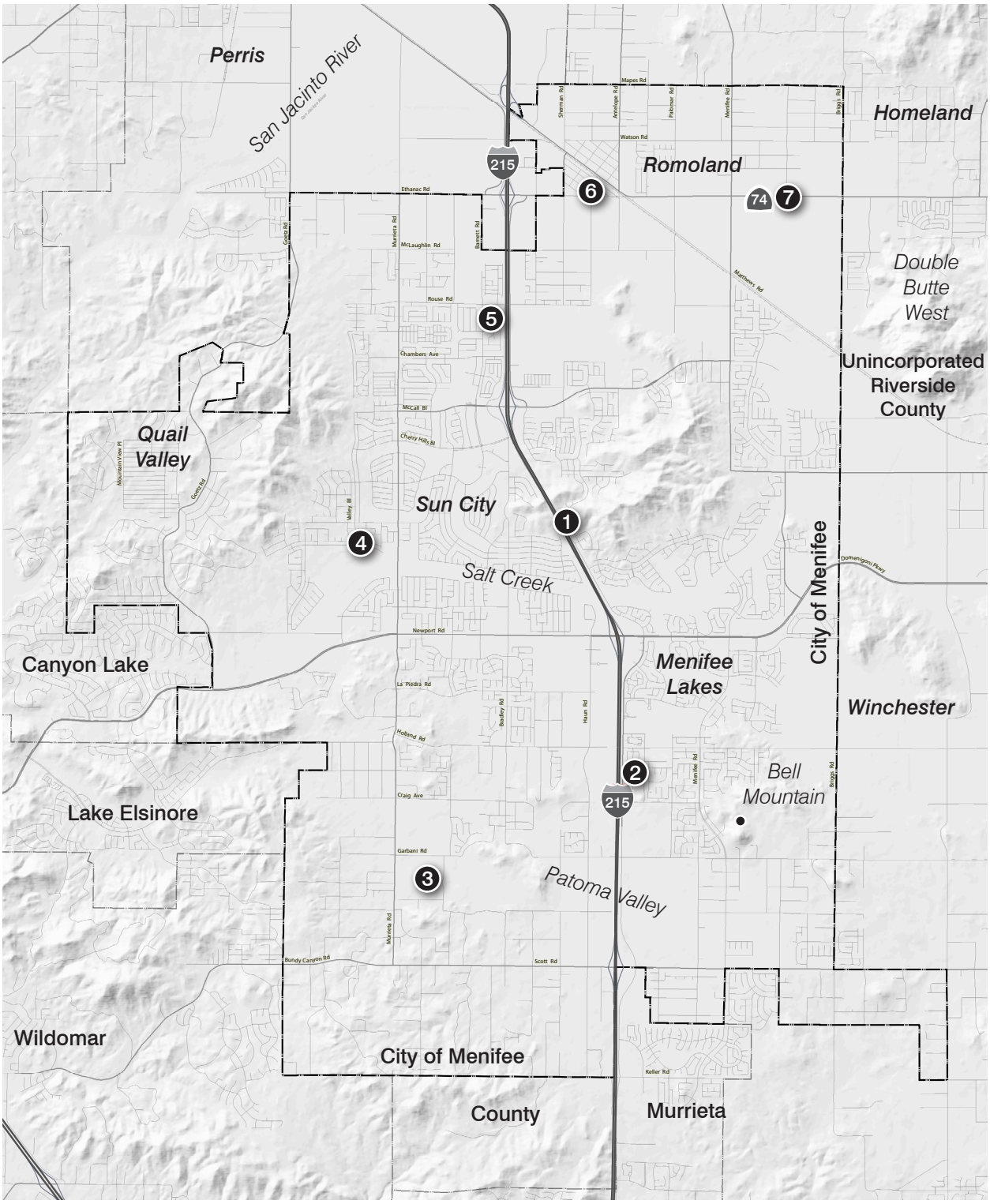
Noise Monitoring Locations



City Boundary

Noise Measurement Locations

0 1
Scale (Miles)

Source: Basemap from Google Earth

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Site 7. The SLM was placed approximately 45 feet from the centerline of State Route 74 (SR-74). The primary source of noise was traffic traveling in both directions on SR-74. Based on counts taken during the noise monitoring session, there were approximately 366 vehicle pass-bys during the monitoring period. In the eastbound direction the 162 trips consisted of approximately 139 light-duty vehicles (LDV), 5 medium-duty trucks (MDT), 10 heavy-duty trucks (HDT), and 8 school buses. In the westbound direction, the 204 trips consisted of approximately 190 LDV, 7 MDT, and 7 HDT.

As shown on Table 5.12-6, the average noise levels during the daytime at the locations where the short-term measurements were taken ranged from 45.4 to 69.5 dBA Leq. The detailed noise measurement outputs are included in Appendix H. During the noise monitoring and field reconnaissance, it was observed that the existing noise levels in the City are dominated mostly by transportation noise. The highest noise levels were observed in areas near the I-215, State Route 74 (SR-74), and major City roads.

On-Road Vehicles

The I-215 freeway and SR-74 are the major regional traffic thoroughfares that cross the City. The circulation network serving the City is essentially a grid system of roadways generally oriented in the north–south and east–west directions. Pinacate Road (SR-74), Newport Road, Bundy Canyon Road/Scott Road, and McCall Boulevard are the major east–west arterial roads in the City. The major north–south connectors are the I-215 Freeway, Murrieta Road, and Menifee Road. Figure 5.12-1shows the existing 65 dBA CNEL noise contours for surface transportation (vehicles and rail).

Train Noise

The San Jacinto Branch Line (SJBL) traverses the City of Menifee going east–west, parallel to Case Road. This line begins at the BNSF Main Line in the City of Perris, and its terminus is in the City of San Jacinto. Noise generated by the train traffic on the San Jacinto Line contributes to the ambient noise environment. Noise from trains on the San Jacinto Rail Line is generated by warning horns and crossing bells at at-grade crossings, and train noise. The SJBL in the portions in the City currently has about two freight trains traveling on it daily. These trains typically consist of three diesel locomotives and about 25 freight cars and travel at maximum speeds of 20 mph (Perris Valley Line EIR 2010). Warning bells and train horn noise are typically significant contributors to the noise environment. Trains are required by the Federal Railroad Administration to sound a warning horn at one-quarter mile from all at-grade crossings and at a maximum 110 dBA, as measured at 100 feet, except those that have established a Quiet Zone. A Quiet Zone is a segment of rail line where locomotive horns are not routinely sounded. There are no Quiet Zones established for the City of Menifee. At most crossings, warning bells generate sound levels that should not be more than 105 dBA and not less than 85 dBA. They typically operate between 30 to 60 seconds per normal through-train movement. Within City limits there are several grade crossings at minor local streets; Menifee Road is currently the only grade crossing that include warning bells and gates. The warning bells are active whenever a train is physically occupying the space where the railroad and roadway intersect.

Aircraft Noise

Portions of the City of Menifee are in the airport influence areas of the March Air Reserve Base, and the Perris Valley airports. A discussion for existing and potential future noise impacts for the March Air Reserve Base, the Perris Valley Airport, French Valley Airport is provided in the impact analysis below. Due to distance and type of operations, Hemet-Ryan Airport and the Skylark Field would not adversely affect land uses within the City and are not discussed in further detail.

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. Many processes and activities in cities produce noise, most notably the operation of commercial, warehousing, industrial uses, schools, and at-grade railroad crossings. Noise exposure within industrial facilities is controlled by federal and state employee health and safety regulations. Noise levels outside of industrial and other facilities are subject to local standards.

Most of the City's industrial land uses, business parks, and commercial areas are adjacent to the SR-74, Mathews Road, and I-215. 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 the City 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.

Vibration

The primary existing sources of vibration in the City are truck traffic and rail operations. Perceptible vibration levels can be caused by heavy trucks hitting discontinuities in the pavement from gaps and potholes. However, under normal conditions, with well-maintained asphalt, vibration levels are usually not perceptible beyond the road right-of-way. The screening distance for vibration from freight train operations is 600 feet from the centerline. As discussed previously, rail operations on the SJBL consist of two freight trains daily. A 25-car train at 20 miles per hour would last less than one minute; therefore, train passbys would have the potential to generate perceptible vibration levels at receptors within 600 feet of the railroad track for a few seconds twice a day. According to vibration measurements taken in the Perris Valley line just north of the SJBL, vibration levels did not exceed the FTA's thresholds for annoyance for residential uses for receptors beyond 100 feet from the tracks.

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.

Based on local noise criteria as established by the City the following would be considered significant:

- Noise generated by buildout of the proposed Land Use Plan would result in stationary (non-transportation) noise which exceeds the City's sound level standards (see Table 5.12-5) at noise-sensitive receptors.
- It is the policy of the City of Menifee to require new schools, hospitals, rest homes, long term care facilities, mental care facilities, residential uses, libraries, passive recreation uses, and places of worship developments to achieve an exterior noise environment of 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.

Based on applicable federal and local vibration criteria, the following would be considered significant:

- For vibration annoyance, a perceptible motion shall be presumed to be a motion velocity (PPV) of 0.01 inches/second over a range of 1 to 100 Hz.
- For vibration damage, the vibration criteria for structural damage according to the building category, as described in Table 5.12-5.

N-3 A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.

Based on local noise criteria as established in the policy plan and municipal code the following would be considered significant:

- Project-related traffic would increase the CNEL at any noise-sensitive receptor by an audible amount of 5 dBA. In community noise, an immediate 5 dB change in noise levels is considered readily perceptible.
- Noise generated by buildout of the proposed Land Use Plan would result in stationary (non-transportation) noise which exceeds the City's sound level standards (see Table 5.12-4) at noise-sensitive receptors.

N-4 A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.

Based on local noise criteria as established in the City of Menifee Municipal Code the following would be considered significant:

- Construction activities within ¼ mile from an inhabited dwelling occurring outside the hours allowed under the Municipal Code.
- Construction activities substantially elevating the ambient noise environment at noise-sensitive uses for a substantial period of time.

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, exposure of people residing or working in the project area to excessive noise levels.

Based on the Riverside County ALUCP, the following would be considered significant:

- For noise compatibility, noise levels would be potentially significant at:
    a. Any mobile home situated within an airport's 55-dB CNEL contour. (A typical mobile home has an average exterior-to-interior noise level reduction of approximately 15 dB with windows closed)

b. Any single- or multi-family residence situated within an airport's 60-dB CNEL contour. (Wood-frame buildings constructed to meet 1990s standards for energy efficiency typically have an average NLR of approximately 20 dB with windows closed.)

c. Any hotel or motel, hospital or nursing home, church, meeting hall, office building, mortuary, school, library, or museum situated with an airport's 65-dB CNEL contour.

- For noise compatibility, interior noise levels in habitable noise-sensitive areas exceed 45 dBA CNEL.

N-6 For a project within the vicinity of a private airstrip, exposure of people residing or working the project area to excessive noise levels.

5.12.3 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.

IMPACT 5.12-1 BUILDOUT OF THE PROPOSED LAND USE PLAN WOULD RESULT IN AN INCREASE IN TRAFFIC ON LOCAL ROADWAYS AND I-215 FREEWAY IN THE CITY OF MENIFEE, WHICH WOULD SUBSTANTIALLY INCREASE THE EXISTING NOISE ENVIRONMENT. [THRESHOLDS N-1 AND N-3]

Impact Analysis: The operational phases of individual projects that result from the Proposed Land Use Plan would generate noise from vehicular sources. Future development in accordance with General Plan would cause increases in traffic along local roadways. The increases would occur due to implementation of the proposed Land Use Plan, implementation of the circulation plan, and regional growth. A noise increase greater than 5 dBA is readily perceptible to the average human ear and is the level that is considered a substantial noise increase. If the future noise compared to existing conditions results in a 5 dB increase and the future noise level is in excess of 65 dBA CNEL, there would be a significant noise impact. Commercial and industrial areas are not considered noise sensitive and have much higher tolerances for exterior noise levels than noise-sensitive uses such as residences and schools.

The traffic noise levels were estimated using the Federal Highway Administration (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 H.

Tables 5.12-7 through 5.12-9 present the noise level increases on roadways over existing conditions at 100 feet from the centerline of each roadway segment for 2035, Post-2035 General Plan, and Post-2035 with Expanded EDC scenario. Table 5.12-7 shows that traffic noise increases along roadways at 2035 due to implementation of the proposed Land Use Plan, the implementation of the circulation plan, and regional growth would range from 0.0 to 18.0 dBA CNEL. The highest increase would occur along areas that are least developed, along roadways that would be improved with additional lanes and connections currently not implemented, bringing substantial pass-by traffic. Similarly, traffic noise increases for Post-2035 conditions over existing, as presented in Table 5.12-8, would range from 0.0 to 18.6 dBA CNEL, and traffic noise increases for Post-2035 Expanded EDC scenario over existing, as presented in Table 5.12-9, would range from 0.0 to 19.1 dBA CNEL. Increases over individual projects associated with

buildout of the proposed Land Use Plan would occur over a period of many years, and the increase in noise on an annual basis would not be readily discernible because traffic and noise would increase incrementally. Because substantial cumulative increases in the ambient noise environment would occur at existing uses from buildout of the Proposed Land Use Plan, impacts would be significant.

Table 5.12-7
2035 Traffic Noise

Roadway	Segment	Existing	2035	Increase
Goetz Road	**North of Ethanac Rd.**	**61.3**	**68.6**	**7.3**
Goetz Road	**South of Ethanac Rd.**	**61.5**	**69.6**	**8.1**
Goetz Road	North of Newport Rd.	65.1	65.1	0.0
Murrieta Road	North of Ethanac Rd.	56.1	62.2	6.0
Murrieta Road	South of Ethanac Rd.	60.9	64.5	3.6
Murrieta Road	North of McCall Bl.	64.2	64.2	0.0
Murrieta Road	Between McCall Bl. & Cherry Hills Bl.	63.8	65.2	1.4
Murrieta Road	South of Cherry Hills Bl.	64.2	64.2	0.0
Murrieta Road	North of Newport Rd.	66.5	69.8	3.3
Murrieta Road	South of Newport Rd.	58.2	64.9	6.7
Murrieta Road	**North of Scott Rd.**	**60.2**	**66.8**	**6.6**
Bradley Road	North of McCall Bl.	58.7	62.2	3.4
Bradley Road	Between McCall Bl. & Cherry Hills Bl.	66.9	67.7	0.8
Bradley Road	South of Cherry Hills Bl.	62.8	66.3	3.6
Bradley Road	North of Newport Rd.	63.5	66.0	2.5
Bradley Road	South of Newport Rd.	65.3	65.3	0.0
Encanto Road	South of Ethanac Rd.	57.4	61.2	3.8
Encanto Road	North of McCall Bl.	59.1	61.8	2.7
Encanto Road	South of McCall Bl.	61.2	61.2	0.0
Haun Road	North of Newport Rd.	62.3	62.3	0.0
Haun Road	South of Newport Rd.	68.9	69.1	0.2
Haun Road	North of Scott Rd.	61.6	64.3	2.7
Haun Road	South of Scott Rd	48.3	61.4	13.1
Antelope Road	North of Newport Rd.	63.7	63.7	0.0
Antelope Road	South of Newport Rd.	67.7	67.7	0.0
Antelope Road	North of Scott Rd.	63.6	66.3	2.7
Antelope Road	South of Scott Rd	67.3	67.3	0.0
Menifee Road	**North of Pinacate Rd. (SR-74)**	**60.6**	**70.1**	**9.5**
Menifee Road	**South of Pinacate Rd. (SR-74)**	**65.8**	**71.1**	**5.3**
Menifee Road	**North of McCall Bl.**	**65.4**	**71.8**	**6.4**
Menifee Road	**Between McCall Bl. & Simpson Rd**	**63.0**	**68.2**	**5.2**
Menifee Road	**North of Newport Rd.**	**62.7**	**68.4**	**5.6**
Menifee Road	South of Newport Rd.	64.3	68.7	4.4
Menifee Road	North of Holland Rd.	63.4	68.4	4.9

Table 5.12-7
2035 Traffic Noise

Roadway	Segment	Existing	2035	Increase
Menifee Road	South of Holland Rd.	63.1	66.1	3.0
Menifee Road	North of Garbani Rd.	64.3	66.0	1.7
Menifee Road	**South of Garbani Rd.**	**60.7**	**68.3**	**7.7**
Menifee Road	**North of Scott Rd.**	**60.4**	**68.5**	**8.1**
Menifee Road	**South of Scott Rd**	**60.5**	**69.7**	**9.2**
Lindenberger Road	North of Newport Rd.	60.4	63.0	2.5
Briggs Road	North of Pinacate Rd. (SR-74)	58.2	63.4	5.1
Briggs Road	South of Pinacate Rd. (SR-74)	59.9	64.8	4.9
Briggs Road	North of Scott Rd.	50.8	59.3	8.5
Briggs Road	South of Scott Rd	51.8	61.9	10.0
Ethanac/Pinacate Road (SR-74)	**West of Goetz Rd.**	**54.1**	**72.1**	**18.0**
Ethanac/Pinacate Road (SR-74)	**Between Goetz Rd & Murrieta Rd.**	**61.7**	**72.4**	**10.7**
Ethanac/Pinacate Road (SR-74)	**East of Murrieta Rd.**	**62.6**	**72.9**	**10.3**
Ethanac/Pinacate Road (SR-74)	**West of I-215 SB Ramp**	**65.1**	**73.6**	**8.5**
Ethanac/Pinacate Road (SR-74)	**Between I-215 SB Ramp & I-215 NB Ramp**	**63.5**	**73.4**	**9.9**
Ethanac/Pinacate Road (SR-74)	**Between I-215 NB Ramp & Encanto Dr.**	**62.8**	**73.9**	**11.1**
Ethanac/Pinacate Road (SR-74)	**East of Encanto Dr.**	**62.4**	**73.8**	**11.4**
Ethanac/Pinacate Road (SR-74)	**West of Menifee Rd.**	**68.5**	**73.5**	**5.0**
Ethanac/Pinacate Road (SR-74)	East of Menifee Rd.	69.0	73.5	4.5
Ethanac/Pinacate Road (SR-74)	West of Briggs Rd.	69.8	73.8	4.0
Ethanac/Pinacate Road (SR-74)	East of Briggs Rd.	69.5	73.7	4.2
McCall Boulevard	**West of Murrieta Rd.**	**57.4**	**62.9**	**5.5**
McCall Boulevard	East of Murrieta Rd.	63.9	66.4	2.5
McCall Boulevard	West of Bradley Rd.	67.9	69.7	1.8
McCall Boulevard	Between Bradley Rd & I-215 SB Ramp	69.9	71.4	1.5
McCall Boulevard	Between I-215 SB Ramp & I-215 NB Ramp	69.7	72.7	3.0
McCall Boulevard	Between I-215 NB Ramp & Encanto Dr.	69.7	72.7	3.0
McCall Boulevard	East of Encanto Dr.	68.3	71.7	3.4
McCall Boulevard	West of Menifee Rd.	66.3	69.9	3.6
McCall Boulevard	**East of Menifee Rd.**	**62.3**	**70.9**	**8.6**
Cherry Hills Boulevard	West of Murrieta Rd.	53.8	60.4	6.6
Cherry Hills Boulevard	East of Murrieta Rd.	59.4	59.4	0.0
Cherry Hills Boulevard	West of Bradley Rd.	61.6	61.6	0.0
Newport Road	West of Goetz Rd.	68.1	68.7	0.6
Newport Road	East of Goetz Rd.	68.9	71.1	2.2
Newport Road	West of Murrieta Rd.	70.1	71.4	1.3
Newport Road	East of Murrieta Rd.	69.6	72.0	2.4
Newport Road	West of Bradley Rd.	69.2	71.2	2.0
Newport Road	East of Bradley Rd.	70.0	72.1	2.1

Table 5.12-7
2035 Traffic Noise

Roadway	Segment	Existing	2035	Increase
Newport Road	West of Haun Rd.	72.0	72.5	0.6
Newport Road	Between Haun Rd. & I-215 SB Ramp	73.2	73.8	0.7
Newport Road	Between I-215 SB Ramp & I-215 NB Ramp	71.6	73.4	1.8
Newport Road	Between I-215 NB Ramp & Antelope Rd.	73.5	73.9	0.4
Newport Road	East of Antelope Rd.	70.4	71.7	1.2
Newport Road	West of Menifee Rd.	70.4	71.7	1.2
Newport Road	East of Menifee Rd.	70.3	70.3	0.0
Newport Road	West of Lindenberger Rd.	70.3	70.3	0.0
Newport Road	East of Lindenberger Rd.	69.3	69.3	0.0
Holland Road	West of Menifee Rd.	61.4	66.6	5.1
Holland Road	East of Menifee Rd.	59.9	64.1	4.2
Garbani Road	West of Menifee Rd.	55.4	64.8	9.5
Garbani Road	East of Menifee Rd.	52.7	64.1	11.3
Scott Road	**West of Murrieta Rd.**	**63.8**	**71.4**	**7.6**
Scott Road	**East of Murrieta Rd.**	**62.9**	**70.1**	**7.1**
Scott Road	**West of Haun Rd.**	**63.6**	**70.4**	**6.8**
Scott Road	**Between Haun Rd. & I-215 SB Ramp**	**65.3**	**70.5**	**5.2**
Scott Road	Between I-215 SB Ramp & I-215 NB Ramp	66.8	70.9	4.2
Scott Road	Between I-215 NB Ramp & Antelope Rd.	70.5	71.9	1.4
Scott Road	East of Antelope Rd.	68.3	70.5	2.3
Scott Road	West of Menifee Rd.	68.3	70.4	2.1
Scott Road	East of Menifee Rd.	67.3	71.4	4.1
Scott Road	West of Briggs Rd.	66.6	71.3	4.7
Scott Road	**East of Briggs Rd.**	**63.6**	**70.9**	**7.3**
I-215 Freeway	North of Ethanac Road (CA-74)	78.9	81.9	2.9
I-215 Freeway	Ethanac Road (CA-74) to McCall Boulevard	79.0	81.6	2.6
I-215 Freeway	McCall Boulevard to Newport Road	79.4	82.0	2.6
I-215 Freeway	Newport Road to Scott Road	79.6	81.5	1.9
I-215 Freeway	South of Scott Road	80.0	82.1	2.1

Note: Sound is shown in (dBA CNEL). Traffic Noise Model Calculations included in Appendix H.
Bold=Segment where a potential significant impact could occur.

Table 5.12-8
General Plan Buildout (Post-2035) Traffic Noise

Roadway	Segment	Existing	P-2035	Increase
Goetz Road	**North of Ethanac Rd.**	**61.3**	**69.3**	**8.0**
Goetz Road	**South of Ethanac Rd.**	**61.5**	**70.1**	**8.5**
Goetz Road	North of Newport Rd.	65.1	66.5	1.4
Murrieta Road	North of Ethanac Rd.	56.1	63.5	7.4
Murrieta Road	South of Ethanac Rd.	60.9	64.5	3.6
Murrieta Road	North of McCall Bl.	64.2	64.2	0.0
Murrieta Road	Between McCall Bl. & Cherry Hills Bl.	63.8	65.6	1.8
Murrieta Road	South of Cherry Hills Bl.	64.2	65.1	0.9
Murrieta Road	North of Newport Rd.	66.5	71.2	4.7
Murrieta Road	**South of Newport Rd.**	**58.2**	**67.0**	**8.7**
Murrieta Road	**North of Scott Rd.**	**60.2**	**67.5**	**7.4**
Bradley Road	North of McCall Bl.	58.7	62.9	4.2
Bradley Road	Between McCall Bl. & Cherry Hills Bl.	66.9	68.9	2.0
Bradley Road	**South of Cherry Hills Bl.**	**62.8**	**67.9**	**5.1**
Bradley Road	North of Newport Rd.	63.5	66.6	3.1
Bradley Road	South of Newport Rd.	65.3	66.9	1.7
Encanto Road	South of Ethanac Rd.	57.4	64.1	6.8
Encanto Road	**North of McCall Bl.**	**59.1**	**66.4**	**7.3**
Encanto Road	South of McCall Bl.	61.2	61.2	0.0
Haun Road	North of Newport Rd.	62.3	62.3	0.0
Haun Road	South of Newport Rd.	68.9	71.3	2.4
Haun Road	North of Scott Rd.	61.6	66.3	4.7
Haun Road	**South of Scott Rd**	**48.3**	**66.6**	**18.2**
Antelope Road	North of Newport Rd.	63.7	63.7	0.0
Antelope Road	South of Newport Rd.	67.7	67.7	0.0
Antelope Road	North of Scott Rd.	63.6	67.6	4.0
Antelope Road	South of Scott Rd	67.3	67.3	0.0
Menifee Road	**North of Pinacate Rd. (SR-74)**	**60.6**	**70.3**	**9.7**
Menifee Road	**South of Pinacate Rd. (SR-74)**	**65.8**	**72.2**	**6.5**
Menifee Road	**North of McCall Bl.**	**65.4**	**73.0**	**7.6**
Menifee Road	**Between McCall Bl. & Simpson Rd**	**63.0**	**70.2**	**7.2**
Menifee Road	**North of Newport Rd.**	**62.7**	**69.4**	**6.7**
Menifee Road	South of Newport Rd.	64.3	68.8	4.5
Menifee Road	North of Holland Rd.	63.4	68.2	4.8
Menifee Road	South of Holland Rd.	63.1	67.4	4.3
Menifee Road	North of Garbani Rd.	64.3	67.3	3.0
Menifee Road	**South of Garbani Rd.**	**60.7**	**67.7**	**7.0**
Menifee Road	**North of Scott Rd.**	**60.4**	**68.1**	**7.7**
Menifee Road	**South of Scott Rd**	**60.5**	**68.5**	**8.0**

Table 5.12-8
General Plan Buildout (Post-2035) Traffic Noise

Roadway	Segment	Existing	P-2035	Increase
Lindenberger Road	North of Newport Rd.	60.4	63.0	2.5
Briggs Road	North of Pinacate Rd. (SR-74)	58.2	63.4	5.1
Briggs Road	**South of Pinacate Rd. (SR-74)**	**59.9**	**65.6**	**5.8**
Briggs Road	North of Scott Rd.	50.8	59.3	8.5
Briggs Road	South of Scott Rd	51.8	63.9	12.1
Ethanac/Pinacate Road (SR-74)	**West of Goetz Rd.**	**54.1**	**72.7**	**18.6**
Ethanac/Pinacate Road (SR-74)	**Between Goetz Rd & Murrieta Rd.**	**61.7**	**73.4**	**11.7**
Ethanac/Pinacate Road (SR-74)	**East of Murrieta Rd.**	**62.6**	**73.9**	**11.3**
Ethanac/Pinacate Road (SR-74)	**West of I-215 SB Ramp**	**65.1**	**74.9**	**9.8**
Ethanac/Pinacate Road (SR-74)	**Between I-215 SB Ramp & I-215 NB Ramp**	**63.5**	**74.8**	**11.3**
Ethanac/Pinacate Road (SR-74)	**Between I-215 NB Ramp & Encanto Dr.**	**62.8**	**74.9**	**12.1**
Ethanac/Pinacate Road (SR-74)	**East of Encanto Dr.**	**62.4**	**74.7**	**12.3**
Ethanac/Pinacate Road (SR-74)	**West of Menifee Rd.**	**68.5**	**74.7**	**6.2**
Ethanac/Pinacate Road (SR-74)	**East of Menifee Rd.**	**69.0**	**74.8**	**5.8**
Ethanac/Pinacate Road (SR-74)	**West of Briggs Rd.**	**69.8**	**74.8**	**5.0**
Ethanac/Pinacate Road (SR-74)	**East of Briggs Rd.**	**69.5**	**74.6**	**5.1**
McCall Boulevard	**West of Murrieta Rd.**	**57.4**	**65.5**	**8.1**
McCall Boulevard	East of Murrieta Rd.	63.9	67.7	3.8
McCall Boulevard	West of Bradley Rd.	67.9	70.8	3.0
McCall Boulevard	Between Bradley Rd & I-215 SB Ramp	69.9	74.3	4.4
McCall Boulevard	Between I-215 SB Ramp & I-215 NB Ramp	69.7	74.3	4.6
McCall Boulevard	Between I-215 NB Ramp & Encanto Dr.	69.7	74.4	4.7
McCall Boulevard	East of Encanto Dr.	68.3	72.6	4.3
McCall Boulevard	West of Menifee Rd.	66.3	71.1	4.7
McCall Boulevard	**East of Menifee Rd.**	**62.3**	**71.9**	**9.5**
Cherry Hills Boulevard	West of Murrieta Rd.	53.8	56.1	2.3
Cherry Hills Boulevard	East of Murrieta Rd.	59.4	59.4	0.0
Cherry Hills Boulevard	West of Bradley Rd.	61.6	62.4	0.9
Newport Road	West of Goetz Rd.	68.1	71.0	2.9
Newport Road	East of Goetz Rd.	68.9	72.2	3.4
Newport Road	West of Murrieta Rd.	70.1	72.8	2.7
Newport Road	East of Murrieta Rd.	69.6	73.3	3.7
Newport Road	West of Bradley Rd.	69.2	72.7	3.5
Newport Road	East of Bradley Rd.	70.0	73.3	3.3
Newport Road	West of Haun Rd.	72.0	73.9	1.9
Newport Road	Between Haun Rd. & I-215 SB Ramp	73.2	75.5	2.3
Newport Road	Between I-215 SB Ramp & I-215 NB Ramp	71.6	74.8	3.2
Newport Road	Between I-215 NB Ramp & Antelope Rd.	73.5	74.6	1.0
Newport Road	East of Antelope Rd.	70.4	73.0	2.5

Table 5.12-8
General Plan Buildout (Post-2035) Traffic Noise

Roadway	Segment	Existing	P-2035	Increase
Newport Road	West of Menifee Rd.	70.4	72.8	2.3
Newport Road	East of Menifee Rd.	70.3	70.3	0.0
Newport Road	West of Lindenberger Rd.	70.3	70.9	0.6
Newport Road	East of Lindenberger Rd.	69.3	70.1	0.8
Holland Road	**West of Menifee Rd.**	**61.4**	**67.8**	**6.4**
Holland Road	**East of Menifee Rd.**	**59.9**	**66.1**	**6.3**
Garbani Road	**West of Menifee Rd.**	**55.4**	**66.8**	**11.4**
Garbani Road	**East of Menifee Rd.**	**52.7**	**65.8**	**13.1**
Scott Road	**West of Murrieta Rd.**	**63.8**	**72.7**	**8.9**
Scott Road	**East of Murrieta Rd.**	**62.9**	**72.0**	**9.0**
Scott Road	**West of Haun Rd.**	**63.6**	**72.2**	**8.6**
Scott Road	**Between Haun Rd. & I-215 SB Ramp**	**65.3**	**72.9**	**7.5**
Scott Road	**Between I-215 SB Ramp & I-215 NB Ramp**	**66.8**	**73.0**	**6.2**
Scott Road	Between I-215 NB Ramp & Antelope Rd.	70.5	73.1	2.6
Scott Road	East of Antelope Rd.	68.3	71.7	3.4
Scott Road	West of Menifee Rd.	68.3	71.5	3.3
Scott Road	East of Menifee Rd.	67.3	71.8	4.5
Scott Road	**West of Briggs Rd.**	**66.6**	**71.7**	**5.1**
Scott Road	**East of Briggs Rd.**	**63.6**	**71.0**	**7.4**
I-215 Freeway	North of Ethanac Road (CA-74)	78.9	82.1	3.1
I-215 Freeway	Ethanac Road (CA-74) to McCall Boulevard	79.0	82.1	3.1
I-215 Freeway	McCall Boulevard to Newport Road	79.4	82.3	2.9
I-215 Freeway	Newport Road to Scott Road	79.6	81.7	2.1
I-215 Freeway	South of Scott Road	80.0	82.4	2.4

Note: Sound is shown in (dBA CNEL). Traffic Noise Model Calculations included in Appendix H.
Bold=Segment where a potential significant impact could occur

Table 5.12-9
General Plan Buildout (Post-2035) Expanded EDC Scenario Traffic Noise

Roadway	Segment	Existing	Expanded EDC	Increase
Goetz Road	**North of Ethanac Rd.**	**61.3**	**69.3**	**8.0**
Goetz Road	**South of Ethanac Rd.**	**61.5**	**70.1**	**8.5**
Goetz Road	North of Newport Rd.	65.1	66.5	1.4
Murrieta Road	North of Ethanac Rd.	56.1	63.5	7.4
Murrieta Road	South of Ethanac Rd.	60.9	64.5	3.6
Murrieta Road	North of McCall Bl.	64.2	64.2	0.0

Table 5.12-9
General Plan Buildout (Post-2035) Expanded EDC Scenario Traffic Noise

Roadway	Segment	Existing	Expanded EDC	Increase
Murrieta Road	Between McCall Bl. & Cherry Hills Bl.	63.8	65.6	1.8
Murrieta Road	South of Cherry Hills Bl.	64.2	65.1	0.9
Murrieta Road	North of Newport Rd.	66.5	71.2	4.7
Murrieta Road	**South of Newport Rd.**	**58.2**	**67.0**	**8.7**
Murrieta Road	**North of Scott Rd.**	**60.2**	**67.8**	**7.6**
Bradley Road	North of McCall Bl.	58.7	62.9	4.2
Bradley Road	Between McCall Bl. & Cherry Hills Bl.	66.9	68.9	2.0
Bradley Road	**South of Cherry Hills Bl.**	**62.8**	**67.9**	**5.1**
Bradley Road	North of Newport Rd.	63.5	66.6	3.1
Bradley Road	South of Newport Rd.	65.3	66.9	1.7
Encanto Road	South of Ethanac Rd.	57.4	64.1	6.8
Encanto Road	**North of McCall Bl.**	**59.1**	**66.4**	**7.3**
Encanto Road	South of McCall Bl.	61.2	61.2	0.0
Haun Road	North of Newport Rd.	62.3	62.3	0.0
Haun Road	South of Newport Rd.	68.9	71.3	2.4
Haun Road	North of Scott Rd.	61.6	66.3	4.7
Haun Road	**South of Scott Rd**	**48.3**	**67.4**	**19.1**
Antelope Road	North of Newport Rd.	63.7	63.7	0.0
Antelope Road	South of Newport Rd.	67.7	67.7	0.0
Antelope Road	North of Scott Rd.	63.6	67.6	4.0
Antelope Road	South of Scott Rd	67.3	67.3	0.0
Menifee Road	**North of Pinacate Rd. (SR-74)**	**60.6**	**70.3**	**9.7**
Menifee Road	**South of Pinacate Rd. (SR-74)**	**65.8**	**72.2**	**6.5**
Menifee Road	**North of McCall Bl.**	**65.4**	**73.0**	**7.7**
Menifee Road	**Between McCall Bl. & Simpson Rd**	**63.0**	**70.2**	**7.2**
Menifee Road	**North of Newport Rd.**	**62.7**	**69.4**	**6.7**
Menifee Road	South of Newport Rd.	64.3	68.8	4.5
Menifee Road	North of Holland Rd.	63.4	68.2	4.8
Menifee Road	South of Holland Rd.	63.1	67.6	4.5
Menifee Road	North of Garbani Rd.	64.3	67.6	3.3

Table 5.12-9
General Plan Buildout (Post-2035) Expanded EDC Scenario Traffic Noise

Roadway	Segment	Existing	Expanded EDC	Increase
Menifee Road	**South of Garbani Rd.**	**60.7**	**67.7**	**7.0**
Menifee Road	**North of Scott Rd.**	**60.4**	**68.1**	**7.7**
Menifee Road	**South of Scott Rd**	**60.5**	**68.5**	**8.0**
Lindenberger Road	North of Newport Rd.	60.4	63.0	2.5
Briggs Road	North of Pinacate Rd. (SR-74)	58.2	63.4	5.1
Briggs Road	**South of Pinacate Rd. (SR-74)**	**59.9**	**65.6**	**5.8**
Briggs Road	North of Scott Rd.	50.8	59.3	8.5
Briggs Road	South of Scott Rd	51.8	63.9	12.1
Ethanac/Pinacate Road (SR-74)	**West of Goetz Rd.**	**54.1**	**72.7**	**18.6**
Ethanac/Pinacate Road (SR-74)	**Between Goetz Rd & Murrieta Rd.**	**61.7**	**73.4**	**11.7**
Ethanac/Pinacate Road (SR-74)	**East of Murrieta Rd.**	**62.6**	**73.9**	**11.3**
Ethanac/Pinacate Road (SR-74)	**West of I-215 SB Ramp**	**65.1**	**74.9**	**9.8**
Ethanac/Pinacate Road (SR-74)	**Between I-215 SB Ramp & I-215 NB Ramp**	**63.5**	**74.8**	**11.3**
Ethanac/Pinacate Road (SR-74)	**Between I-215 NB Ramp & Encanto Dr.**	**62.8**	**75.0**	**12.2**
Ethanac/Pinacate Road (SR-74)	**East of Encanto Dr.**	**62.4**	**74.7**	**12.3**
Ethanac/Pinacate Road (SR-74)	**West of Menifee Rd.**	**68.5**	**74.7**	**6.2**
Ethanac/Pinacate Road (SR-74)	**East of Menifee Rd.**	**69.0**	**74.8**	**5.8**
Ethanac/Pinacate Road (SR-74)	**West of Briggs Rd.**	**69.8**	**74.8**	**5.0**
Ethanac/Pinacate Road (SR-74)	**East of Briggs Rd.**	**69.5**	**74.6**	**5.1**
McCall Boulevard	**West of Murrieta Rd.**	**57.4**	**65.5**	**8.1**
McCall Boulevard	East of Murrieta Rd.	63.9	67.7	3.8
McCall Boulevard	West of Bradley Rd.	67.9	70.8	3.0
McCall Boulevard	Between Bradley Rd & I-215 SB Ramp	69.9	74.2	4.3
McCall Boulevard	Between I-215 SB Ramp & I-215 NB Ramp	69.7	74.3	4.6
McCall Boulevard	Between I-215 NB Ramp & Encanto Dr.	69.7	74.4	4.7
McCall Boulevard	East of Encanto Dr.	68.3	72.6	4.3
McCall Boulevard	West of Menifee Rd.	66.3	71.1	4.7
McCall Boulevard	**East of Menifee Rd.**	**62.3**	**71.9**	**9.5**
Cherry Hills Boulevard	West of Murrieta Rd.	53.8	56.1	2.3
Cherry Hills Boulevard	East of Murrieta Rd.	59.4	59.4	0.0
Cherry Hills Boulevard	West of Bradley Rd.	61.6	62.4	0.9
Newport Road	West of Goetz Rd.	68.1	71.5	3.4
Newport Road	East of Goetz Rd.	68.9	72.2	3.4
Newport Road	West of Murrieta Rd.	70.1	72.8	2.7

Table 5.12-9
General Plan Buildout (Post-2035) Expanded EDC Scenario Traffic Noise

Roadway	Segment	Existing	Expanded EDC	Increase
Newport Road	East of Murrieta Rd.	69.6	73.3	3.7
Newport Road	West of Bradley Rd.	69.2	72.7	3.5
Newport Road	East of Bradley Rd.	70.0	73.3	3.3
Newport Road	West of Haun Rd.	72.0	73.9	1.9
Newport Road	Between Haun Rd. & I-215 SB Ramp	73.2	75.5	2.3
Newport Road	Between I-215 SB Ramp & I-215 NB Ramp	71.6	74.8	3.2
Newport Road	Between I-215 NB Ramp & Antelope Rd.	73.5	74.6	1.0
Newport Road	East of Antelope Rd.	70.4	73.0	2.5
Newport Road	West of Menifee Rd.	70.4	72.8	2.3
Newport Road	East of Menifee Rd.	70.3	70.3	0.0
Newport Road	West of Lindenberger Rd.	70.3	70.9	0.6
Newport Road	East of Lindenberger Rd.	69.3	70.1	0.8
Holland Road	West of Menifee Rd.	61.4	67.8	6.4
Holland Road	**East of Menifee Rd.**	**59.9**	**66.1**	**6.3**
Garbani Road	**West of Menifee Rd.**	**55.4**	**66.8**	**11.4**
Garbani Road	**East of Menifee Rd.**	**52.7**	**65.8**	**13.1**
Scott Road	**West of Murrieta Rd.**	**63.8**	**72.9**	**9.1**
Scott Road	**East of Murrieta Rd.**	**62.9**	**72.2**	**9.2**
Scott Road	**West of Haun Rd.**	**63.6**	**72.2**	**8.6**
Scott Road	**Between Haun Rd. & I-215 SB Ramp**	**65.3**	**73.1**	**7.8**
Scott Road	**Between I-215 SB Ramp & I-215 NB Ramp**	**66.8**	**73.0**	**6.3**
Scott Road	Between I-215 NB Ramp & Antelope Rd.	70.5	73.2	2.7
Scott Road	East of Antelope Rd.	68.3	71.9	3.7
Scott Road	West of Menifee Rd.	68.3	71.7	3.4
Scott Road	East of Menifee Rd.	67.3	71.9	4.6
Scott Road	**West of Briggs Rd.**	**66.6**	**71.8**	**5.2**
Scott Road	**East of Briggs Rd.**	**63.6**	**71.2**	**7.6**
I-215 Freeway	North of Ethanac Road (CA-74)	78.9	82.1	3.1
I-215 Freeway	Ethanac Road (CA-74) to McCall Boulevard	79.0	82.1	3.1
I-215 Freeway	McCall Boulevard to Newport Road	79.4	82.3	2.9
I-215 Freeway	Newport Road to Scott Road	79.6	81.7	2.1
I-215 Freeway	South of Scott Road	80.0	82.4	2.4

Note: Sound is shown in (dBA CNEL). Traffic Noise Model Calculations included in Appendix H.
Bold=Segment where a potential significant impact could occur.

IMPACT 5.12-2: SENSITIVE LAND USES WOULD NOT BE EXPOSED TO SUBSTANTIAL LEVELS OF AIRCRAFT NOISE. [THRESHOLD N-5 AND N-6]

Impact Analysis: Aircraft overflights, takeoffs, and landings at airports and heliports in the region contribute to the ambient noise environment. Adoption or approval of any amendment to a general plan affecting the property within an airport influence area shall require review from the ALUC for determination of consistency with the Commission's Plan, which in general is determined based on noise and safety compatibility issues.

According to guidelines included in the Riverside County ALUCP, areas exposed to aircraft noise levels above 65 dBA CNEL are considered clearly unacceptable for new residential land uses, schools, libraries, and hospitals. For churches, auditoriums, concert halls, and amphitheaters, noise levels above 70 dBA CNEL are clearly unacceptable. In addition, the maximum, aircraft-related interior noise level that shall be considered acceptable for sensitive land uses near airports is 45 dBA CNEL.

The Perris Valley Airport and the March Air Reserve Base have portions of their AIA within or in the vicinity of City limits. The following discusses the airports that operate in the area that have the greatest potential to cause noise impacts related to aircraft overflights and ground operations due to proximity to the City, and the type of operation.

March Air Reserve Base

The March Air Reserve Base is an active military base that operates a wide range of military aircraft including fighters, tankers, and transport airplanes. The main tenant is the California Air National Guard; there is also civilian aircraft activity under a joint use agreement. Most operations are related to transport and refueling planes, and most activities occur during the daytime, but approaches and departure also occur in the evening and nighttime. According to the Air Installation Compatible Use Zone Study, the airport's 65 dBA CNEL is well outside the City of Menifee boundaries; however, the 60 dBA CNEL contour extends through a portion of the City limits, generally north of Watson Road and east of Sherman Road (Citizen's brochure for the March Air Reserve base, 2005). Affected land uses are low density residential uses. Since the future noise contours are outside the 65 dBA CNEL noise contour, implementation of the General Plan would not propose noise-sensitive uses that would be incompatible with operations of the March Air Reserve base.

Perris Valley

The Perris Valley Airport, located approximately one mile northwest of the City, is a specialized facility catering predominantly to skydivers and ultralight aircraft enthusiasts. The airport operator estimates that the airport services an annual total of 34,000 aircraft operations (averaging 94 operations per day), excluding ultralight aircraft flights. Twin-engine piston and turboprop aircraft account for approximately 80 percent of these operations.

According to the Perris Valley ALUCP (RCALUC 2010), portions of the AIA are located within City of Menifee limits, in the northwestern portion of the City. Affected land uses within the AIA would be EDC land uses, and residential land uses located north of Rouse Road and west of Barnett Road. However, the 60 dBA CNEL noise contours for future operations are outside City limits. Since the future noise contours are outside the 65 dBA CNEL noise contour, implementation of the General Plan would not propose noise-sensitive uses that would be incompatible with operations of the Perris Valley airport.

French Valley

French Valley Airport is in the unincorporated southwestern Riverside County community of French Valley and approximately two miles south of the City's southern limits. In 2008, French Valley Airport had 97,700 aircraft operations, an average of 268 per day, all of which were general aviation. (French Valley MND 2011). The AIA does not include areas within the City boundaries, and the 60 dBA CNEL airport noise contour for future average operations is well outside the City's boundaries (French Valley Airport Land Use Plan MND, Riverside County ALUC 2011).

Pines Airpark

The Pines Airpark is a privately owned and operated airstrip approximately 1.5 miles east of the eastern City boundary that operates general aviation planes. A review of aerial photography shows that the runway is not paved and there are no services. It is anticipated that because there seems to be minimal activity at that airpark and because of distance, the 60 dBA CNEL noise contour from Pines Airpark is located outside City of Menifee limits.

Heliports

There are no heliports for public use in the City of Menifee; however, the Southern California Edison San Jacinto Valley Service Center Heliport is an existing private heliport in the southeast corner of the intersection of Pinacate Road and Menifee Road. Helicopter operations in the City are not frequent. Use of helipads for emergency purposes generates noise during take-offs and landings in the immediate vicinity of the helipad. Unlike fixed-wing aircraft, helicopters produce noise not only from the engine but also from the relatively slowly turning main rotor. This sound modulation is called blade slap. According to the *Airport Land Use Compatibility Handbook* (Caltrans 2002), to a listener on the ground, helicopter noise is most audible as the aircraft approaches. Although single-event noise from helicopter overflights can substantially elevate noise levels, noise from emergency use of helipads is sporadic and short-term and contributes minimally to the ambient noise environment in the City.

The 60 and 65 dBA CNEL airport noise contours within the City are presented in Figure 5.12-3. In summary, no portions of the City are located with the 65 dBA CNEL noise contours of any airport. The General Plan Noise Element Policy N1.17 would prohibit new residential land uses within the 65 dB CNEL contours of any public-use or military airports, as defined by the Riverside County Airport Land Use Commission. Implementation of the General Plan would not expose noise-sensitive land uses to noise levels that are incompatible with aircraft noise. Aircraft overflights will be heard in the City, however, noise impacts would be less than significant.

The additional area that would be designated EDC under the Expanded EDC Scenario is outside the 60 CNEL noise contours for each of the four airports discussed above. Impacts would be similar for the Expanded EDC Scenario.

IMPACT 5.12-3: SENSITIVE LAND USES WOULD NOT BE EXPOSED TO SUBSTANTIAL LEVELS OF RAIL NOISE. [THRESHOLD N-1 AND N-3]

The San Jacinto Branch Line Commuter Rail (Perris Valley Line) Project is a 24-mile extension of the Metrolink 91 Line. The extension would begin at a junction with the BNSF line, north of the city of Riverside and turn southeast along the San Jacinto Branch Line. The terminus of the Line is in the City of Perris at Route 74 north of Ethanac Road in Perris, approximately 1,000 feet from the City of Menifee boundary. An Environmental Assessment (EA) for the Perris Valley Line project was prepared and certified with a Finding of No Significant Impact (FTA 2012).

An extension of the Perris Valley Line to San Jacinto would add passenger train activity along the rail line that crosses the northeastern portion of the City. Feasibility studies to provide commuter rail service have been prepared for an extension of the Perris Valley Line to San Jacinto, with train stations in Winchester, Hemet, and San Jacinto (Commuter Rail Feasibility Study, RCTC 2005). However, no detailed plans or environmental impact reports have been prepared at this time, and there is no anticipation of changes in activity of the existing freight operations in that line. Rail noise is considered less than significant.

The additional area that would be designated EDC under the Expanded EDC Scenario is several miles from the Perris Valley Line. Impacts would be similar for the Expanded EDC Scenario.

IMPACT 5.12-4 NOISE-SENSITIVE USES WOULD NOT BE EXPOSED TO ELEVATED NOISE LEVELS FROM TRANSPORTATION SOURCES. [THRESHOLDS N-1 AND N-3]

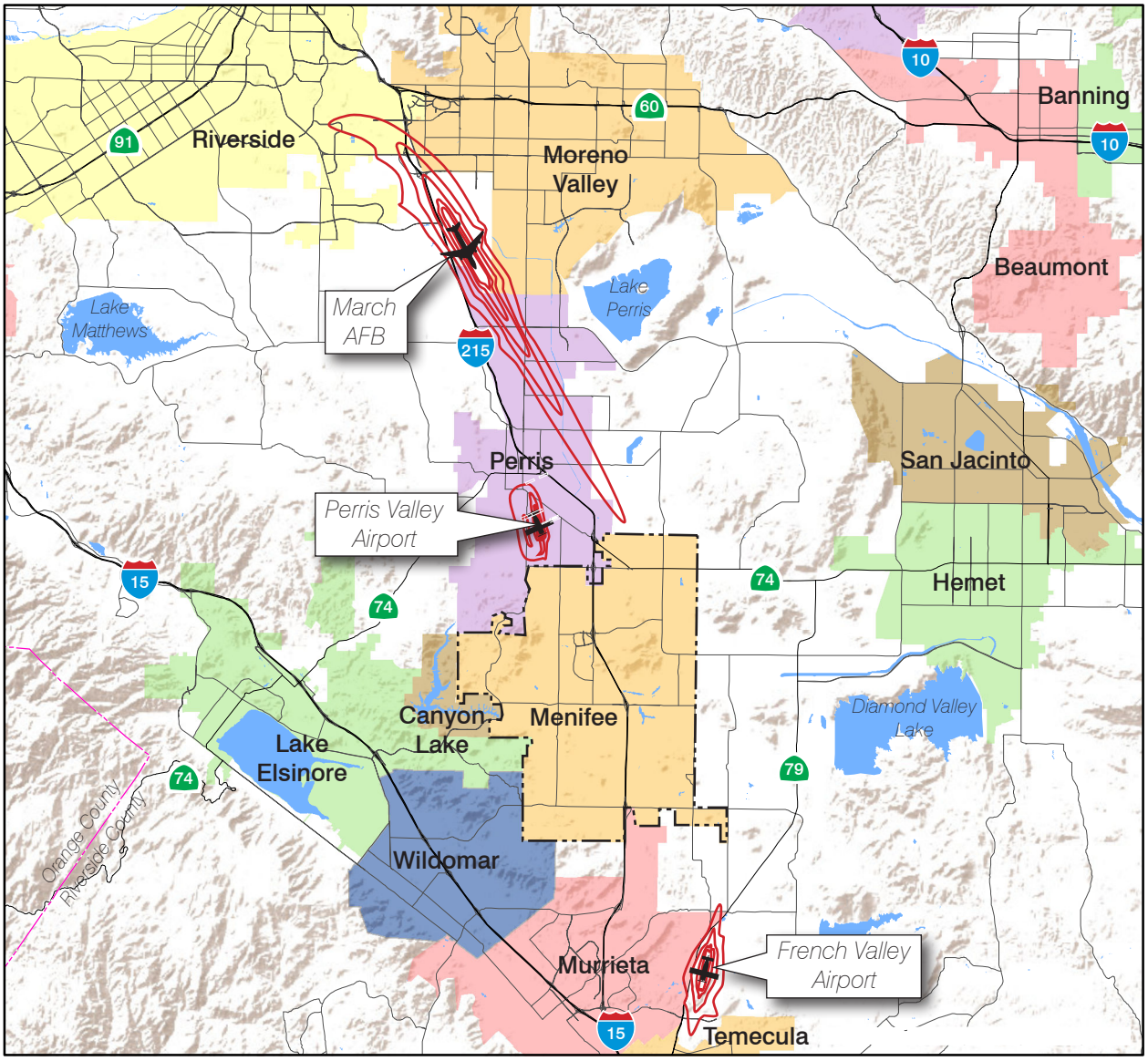
Impact Analysis: An impact could be significant if the proposed Land Use Plan designates noise-sensitive land uses in areas that would not exceed the noise compatibility criteria of the City. The City applies the state's Community Noise and Land Use Compatibility standards, summarized in Table 5.12-3, for the purpose of assessing the compatibility of new development with existing noise sources, such as vehicles. Goal N1 (see below in Section 5.12-6) includes several policies to protect noise-sensitive uses from excessive noise. The City discourages the siting of noise-sensitive uses in areas in excess of 65 dBA CNEL, and regulates stationary noise thru Policy N1.7 and the Municipal Code (see standards in Table 5.12-4). In addition, building interior of noise-sensitive structures such as residential and school classrooms are required to meet interior noise standards under the California Building Code and Title 21 of the California Code of Regulations.

As previously discussed in Impact Statements 5.12-1, 5.12-2 and 5.12-3, traffic, rail, and aircraft noise contours were calculated for long-range conditions. Figure 5.12-3, *Airport Noise Contours*, shows the future noise contours from aircraft, and Figure 5.12-4, *Future Noise Levels in Menifee from Surface Transportation*, shows the future noise contours from roadway traffic along major thoroughfares and rail within the City of Menifee at Post-2035 buildout conditions.

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. To ensure the compatibility of new development in the City, the Noise Element contains a number of policies to minimize potential impacts on sensitive land uses. As shown in Figure 5.12-4, noise-sensitive land uses adjacent to major roads and I-215 would be exposed to noise levels above 60 dBA CNEL, which is the normally compatible ambient noise level for the development of noise sensitive uses such as residential. Goal N1 includes several policies to protect noise-sensitive land uses from noise-exposure. Policy N1.2 requires new projects to comply with noise standards of local, regional, and state building code regulations. Policy N1.11 discourages the siting of noise-sensitive uses in areas in excess of 65 dBA CNEL without appropriate mitigation. Policy N1.17 prevents construction of new noise-sensitive land uses within the 65 dBA CNEL contours of any public-use or military airports. With implementation of General Plan's Noise Element policies to reduce noise impacts to sensitive uses, noise impacts from transportation sources to sensitive uses would be less than significant.

Impacts would be similar for the Expanded EDC Scenario.

Airport Noise Contours



Menifee City Boundary

Airport Noise Contours

0 4
Scale (Miles)

Source: March AFB 2005; Riverside County Airport Land Use Commission 2010, 2011

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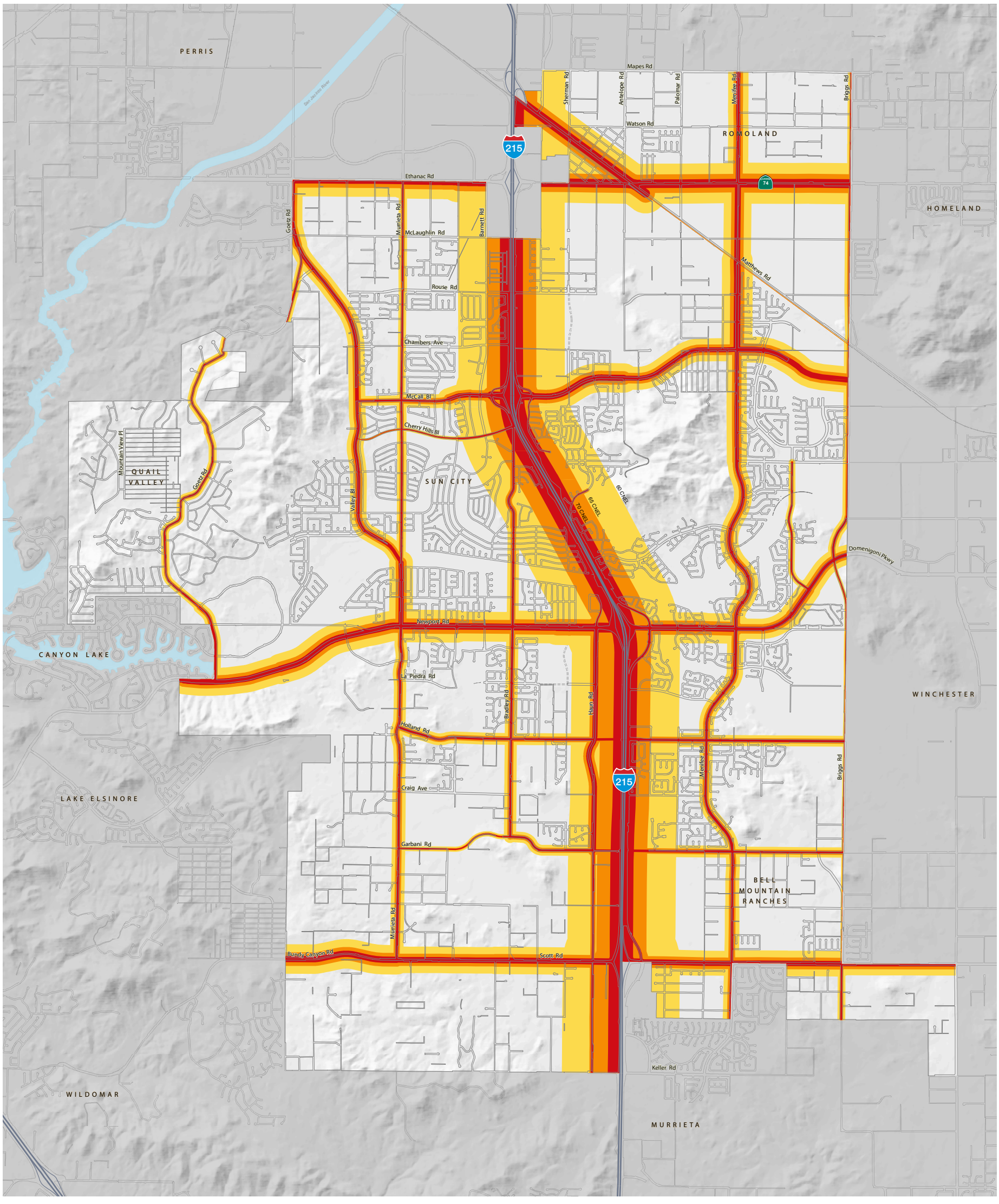
Future Noise Levels in Menifee from Surface Transportation



NOISE CONTOURS

- 60 - 65 CNEL
- 65 - 70 CNEL
- 70+ CNEL

0 1
Scale (Miles)

Source: The Planning Center|DC&E

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IMPACT 5.12-4 NOISE-SENSITIVE USES WOULD NOT BE EXPOSED TO ELEVATED NOISE LEVELS FROM STATIONARY SOURCES. [THRESHOLDS N-1 AND N-3]

Impact Analysis: Noise is regulated by numerous codes and ordinances across federal, state, and local agencies. In addition, the City regulates stationary-source noise through the Municipal Code. Buildout of the proposed Land Use Plan would result in an increase in residential, commercial, industrial, and institutional development within the City. The primary noise sources from residential, commercial, and institutional land uses are landscaping, maintenance activities, and air conditioning systems. In addition, future commercial uses may include loading docks. Noise generated by residential or commercial uses is generally short and intermittent, and these uses are not a substantial source of noise. The City of Menifee requires that noise from new stationary sources in the City comply with the City's Noise Ordinance, which limits the acceptable noise at the property line of the impacted property to reduce nuisances to sensitive land uses. The City Police or Code Enforcement Officer enforces the noise limitation of the Municipal Code. Consequently, stationary-source noise from these types of proposed land uses would not substantially increase the noise environment.

Industrial noise is less intermittent and can have moderate to high levels on a continual basis. As shown in Table 4-2, *Future Buildout Projections*, buildout of the City of Menifee would have a total of 41,555,921 square feet of non-residential uses, which would include 494,803 square feet of heavy industrial land uses. The proposed non-residential uses are mostly located along I-215 freeway, Matthews Road and the railroad line, and south of Ethnac Road (see Figure 3-6). The heavy industrial areas are centered around the railroad line and Matthew Road. The siting of new industrial developments may increase noise levels at nearby residential uses. This can be due to the continual presence of heavy trucks used for the pick-up and delivery of goods and supplies, or from the use of noisy equipment used in the manufacturing or machining process. Though vehicle noise on public roadways is exempt from local regulation, for the purposes of the planning process, it may be regulated as a stationary-source noise while operating on private property. Process equipment and the use of pneumatic tools could also generate elevated noise levels, but this equipment is typically housed within the facilities. To regulate stationary-source noise created by industrial machinery and tools from affecting sensitive land uses, the City of Menifee requires industrial operations to limit noise to no greater than the maximum allowable noise levels as described in the Municipal Code presented in Table 5.12-4. Several policies in the Noise Element would reduce noise spillover from noise-generating uses and protect noise-sensitive uses from excessive noise. Implementation of the Noise Element and compliance with the City's Municipal Code would result in noise levels that are acceptable to the City and would result in less than significant noise impacts from stationary sources.

The additional land that would be designated EDC in the Expanded EDC Scenario is next to land that would be designated EDC in the proposed General Plan. Impacts would be similar in the Expanded EDC Scenario.

IMPACT 5.12-5: CONSTRUCTION ACTIVITIES ASSOCIATED WITH BUILDOUT OF THE INDIVIDUAL LAND USES AND PROJECTS FOR IMPLEMENTATION OF THE GENERAL PLAN WOULD SUBSTANTIALLY ELEVATE NOISE LEVELS IN THE VICINITY OF NOISE-SENSITIVE LAND USES. [THRESHOLD N-4]

Impact Analysis: Implementation of the General Plan would result in construction of new residential, commercial, and industrial uses throughout the planning area. Two types of short-term noise impacts could occur during construction. First, the transport of workers and movement of materials to and from the site could incrementally increase noise levels along local access roads. The second type of short-term 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 5.12-10 lists typical construction equipment noise levels recommended for noise-impact assessments, based on a distance of 50 feet between the equipment and noise receptor.

Table 5.12-10
Construction Equipment Noise Levels

Construction Equipment	Typical Maximum Noise Level (dBA L_{max})[1]	Construction Equipment	Typical Noise Level (dBA L_{max})
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
[1] Measured 50 feet from the source.

As shown, construction equipment generates high levels of noise ranging from a maximum of 71 dBA to 101 dBA. Construction of individual developments associated with buildout of the Proposed Land Use Plan would temporally increase the ambient noise environment, and would have the potential to affect noise sensitive land uses in the vicinity of each individual project. The City of Menifee restricts the hours of construction activities that occurs within a ¼ mile of an inhabited dwelling to the least noise-sensitive portions of the day. Construction activities within ¼ mile of a sensitive uses are prohibited during the evening and nighttime hours, as provided in the Municipal Code. However, construction activities may occur outside of these hours if the City determines that the maintenance, repair, or improvement is necessary to maintain public services or cannot feasibly be conducted during normal business hours, or if construction activities comply with the stationary source noise standards of the Municipal Code.

Municipal Code regulations require construction noise to occur during daytime hours, which would reduce construction noise by limiting construction hours to the less sensitive hours of the day. Through the implementation of the General Plan Noise Element and enforcement of the Municipal Code, the proposed plan would minimize temporary or periodic impacts to ambient noise levels from construction

activities to the maximum extent feasible. Subsequent projects would be subject to separate, project-level CEQA review to identify and mitigate associated impacts. Therefore, implementation of the General Plan as it relates to construction noise would result in a less than significant noise impact. Impacts would be the same under the Expanded EDC Scenario.

IMPACT 5.12-6: BUILDOUT OF THE INDIVIDUAL LAND USES AND PROJECTS FOR IMPLEMENTATION OF THE GENERAL PLAN WOULD NOT EXPOSE SENSITIVE USES TO STRONG LEVELS OF GROUNDBORNE VIBRATION. [THRESHOLD N-2]

Impact Analysis:

Transportation-Related Vibration Impacts

On-Road Mobile-Source 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. Vibrations from trucks may be noticeable if there are any roadway imperfections such as potholes (FTA 2006). Because of setbacks, vibration-sensitive structures are not and will not be sited within five meters (approximately 16 feet) of the centerline of the nearest lane of I-215, or any major truck route. Potential for significant vibration impacts is less than significant.

Railroad Vibration Impacts

New vibration-sensitive land uses, including residential land uses, would be exposed to groundborne vibration from train operations along the BNSF. Vibration levels in the City from trains are dependent on specific site conditions such as geology and the condition of the railroad track and train wheels. In addition, wood-framed structures could amplify vibration levels felt by occupants by as much as 10 dB. As soil conditions have a strong influence on the levels of groundborne vibration, vibration levels from trains may be amplified. Vibration impacts from the BNSF are based on the potential for rail operations to cause perceptible levels of vibration. New vibration-sensitive land uses such as residential areas near the BNSF would have the potential to be impacted by perceptible levels of vibration from rail operations. Policy N1.14 requires new development within 100 feet of rail lines to demonstrate, prior to project approval, that vibration experienced by residents and vibration sensitive uses would not exceed guidelines from the Federal Transit Administration. Train operations are very limited within the SJBL that passes by the City to two freight trains daily. The level at which vibration becomes significant for residential uses during the daytime is 78 VdB. Vibration levels taken at the Perris Valley line, which is an extension of the same railroad line, measured no more than 78 VdB at 50 feet from the track (ATS Consulting 2006).There is no anticipation of changes in activity of the existing freight operations in that line. Because train operations already occur and are very limited at two trains per day, and vibration levels at 50 feet from the tracks are below the thresholds for residential uses, vibration impacts to existing and future uses would be less than significant.

Stationary-Related Vibration Impacts

The use of heavy equipment associated with heavy industrial operations can create elevated vibration levels in their immediate proximity. As shown in Figure 4-1, *Proposed Land Use Plan*, industrial and business park land uses are designated in the northeast portion of the City near the railroad line. In general, the majority of heavy industrial uses would not be immediately adjacent to vibration-sensitive uses. New residential areas and new industrial uses would have to be evaluated in terms of vibration impacts. Consequently, no significant vibration impacts would occur from vibration generated by industrial uses.

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, and 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 5.12-11 lists vibration levels for construction equipment.

Table 5.12-11
Vibration Levels for Construction Equipment

Equipment	Approximate Velocity Level at 25 Feet (VdB)	Approximate RMS[1] 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
[1] RMS velocity calculated from vibration level (VdB) using the reference of 1 microinch/second.

As shown in Table 5.12-11, vibration generated by construction equipment has the potential to be substantial. Future individual projects would be required to be reviewed under CEQA. The environmental review would evaluate potential impacts specific to each development and would include methods to reduce vibration during construction such as the use of smaller equipment, use of static rollers instead of vibratory rollers, and drilling piles as opposed to pile driving. Policy N 1.13 requires new development to minimize vibration impacts to adjacent uses during demolition and construction. Overall, vibration impacts related to construction would be short-term, temporary, and generally restricted to the areas in the immediate vicinity of active construction equipment. As such, implementation of these proposed

policies and actions would reduce construction-related vibration impacts to the maximum extent practicable, and vibration impacts from construction would be less than significant. Impacts would be similar for the Expanded EDC Scenario.

5.12.4 Existing Regulations and Standard Conditions

State

- California Code of Regulations, Title 21, Part 1, Public Utilities Code (Regulation of Airports)
- California Code of Regulations, Title 24, Part 2, California Building Code.

City of Menifee Municipal Code

Chapter 9.09 regulates and controls noise from incorporated areas of the City. The City has established noise standards as measured at the property line of the receiving property. This chapter also regulates the hours of construction noise.

Relevant General Plan Policies

Relevant Menifee General Plan policies are in the Noise Element and are listed in Appendix C of this EIR.

5.12.5 Level of Significance Before Mitigation

Upon implementation of regulatory requirements and standard conditions of approval, the following impact would be less than significant: 5.12-2, 5.12-3, 5.12-4, 5.12-5, 5.12-6, 5.12-7.

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

- Impact 5.12-1 Buildout of the Proposed Land Use Plan would result in an increase in traffic on local roadways in the City of Menifee, which would substantially increase the noise environment.

The above significance conclusions would be similar for the Expanded EDC Scenario.

5.12.6 Mitigation Measures

Impact 5.12-1

No feasible mitigation measures are available.

Mitigation Measures Considered

Implementation of the General Plan includes several policies to protect noise-sensitive uses from excessive noise. Although these policies could in certain cases reduce or prevent significant increases in ambient noise at sensitive land uses under implementation of the proposed plan, mitigation measures to implement these policies would not be universally feasible, and some of the most effect in noise-attenuation measures, including sound walls and berms, would be infeasible or inappropriate in a majority of locations where sensitive land uses already exist. Factors that would render these measures infeasible include but are not limited to cost, aesthetic considerations, and negative impacts to pedestrian and bicycle connectivity.

5.12.7 Level of Significance After Mitigation

No mitigation measures are available that would prevent noise levels along major transportation corridors from increasing as a result of substantial increase in traffic volumes. Impact 5.12-1 would remain significant and unavoidable for the proposed General Plan and for the Expanded EDC Scenario.