3.18 NOISE

EXECUTIVE SUMMARY

The County of Los Angeles retained a noise consultant, Mestre Greve Associates, to conduct a noise study for the County's proposed Area Plan and the City's proposed General Plan. This study evaluated existing noise conditions throughout the One Valley One Vision (OVOV) Planning Area, and projected future noise levels based upon growth and traffic projections developed through the OVOV planning process. Data used in the preparation of this section were based upon various state and federal sources, field measurements, and modeling of traffic data in the OVOV Planning Area. This section describes the environmental noise conditions within the OVOV Planning Area while focusing on the County's Planning Area. The County's Planning Area consists of unincorporated land outside the City's boundaries and the adopted Sphere of Influence (SOI) but within the OVOV Planning Area boundaries. The City's Planning Area consists of its incorporated boundaries and adopted SOI. Together the County and the City Planning Areas comprise the OVOV Planning Area.

Motor vehicles currently comprise the predominant noise source in the OVOV Planning Area; aircraft, industrial, and commercial activities are not significant noise sources. As development occurs within the OVOV Planning Area, significant construction noise would occasionally occur. There is also potential for significant vibration impacts during pile driving.

At buildout of the proposed Area Plan, 12 roadway segments within the County's Planning Area would experience a cumulative noise increase of 5 decibels (dB) or greater, which would be a significant mobile-source noise impact.

Future rail activity in the OVOV Planning Area would result in a moderate increase in the community noise equivalent level (CNEL) level by 2.4 dB and is not considered to be a substantial noise. The anticipated route of a high-speed rail line planned by the California High-Speed Rail Authority through the OVOV Planning Area is not known, and the type of train and corresponding noise levels have not been determined. Nonetheless, there is potential for significant noise and vibration impacts with operations of a high-speed rail system through the Valley.

California Noise Insulation Standards require that interior noise levels from exterior sources be reduced to 45 dB(A) (CNEL or L_{dn}) or less in any habitable room of a multi-residential use facility with doors and windows closed. However, exteriors of residences in transit-oriented development and in mixed use developments within the OVOV Planning Area would not necessarily meet the acceptable 65 dB(A) CNEL levels under the State Land Use Compatibility Guidelines for Noise, and perceptible vibrations

from low frequency noise (rail and music), which are difficult to mitigate, could be a source of annoyance for residents. As a result, a significant noise and vibration impact could occur in transit-oriented development and in mixed-use developments within the OVOV Planning Area.

Policies within the proposed Area Plan would reduce construction and operational noise impacts, however not to a level of less than significant. Mitigation is recommended to reduce construction vibration impacts during pile driving by using cast-in-drilled-hole piles. Cast-in-place pile driving generally produces noise levels approximately 10 to 15 dB lower than pile driving. Construction and operational noise impacts would, nonetheless, remain significant. Therefore, short-term construction noise impacts would be unavoidably significant for the duration of the construction activities. Short-term noise and vibration impacts from the pile driving would be unavoidably significant for the duration of the pile driving. Operational noise impacts would also remain significant and unavoidable.

FUNDAMENTALS OF ENVIRONMENTAL NOISE AND VIBRATION

Characteristics of Sound

Sound Level and Frequency

In this impact analysis, sound is described in terms of the sound pressure (amplitude) and frequency (similar to pitch). Sound pressure is a direct measure of the magnitude of a sound without consideration for other factors that may influence its perception. The range of sound pressures that occur in the environment is so large that it is convenient to express them as sound pressure levels on a logarithmic scale. The standard unit of measurement of sound is the decibel (dB), which describes the pressure of a sound relative to a reference pressure.

The frequency (pitch) of a sound is expressed as Hertz (Hz) or cycles per second. The normal audible frequency for young adults is 20 Hz to 20,000 Hz. Community noise, including aircraft and motor vehicles, typically range between 50 Hz and 5,000 Hz. The human ear is not equally sensitive to all frequencies, with some frequencies judged to be louder for a given signal than others. As a result, various methods of frequency weighting have been developed. The most common weighting is the A-weighted noise curve (dB(A)), which approximates the sensitivity of the human ear. In the A-weighted decibel, everyday sounds normally range from 30 dB(A) (very quiet) to 100 dB(A) (very loud). Examples of various sound environments, expressed in dB(A), are presented in **Figure 3.18-1, Typical Sound Level in A-Weighted Decibels**.

Propagation of Noise

Outdoor sound levels decrease as the distance from the source increases, and as a result of wave divergence, atmospheric absorption and ground attenuation. Sound radiating from a source in a homogeneous and undisturbed manner travels in spherical waves. As the sound wave travels away from the source, the sound energy is dispersed over a greater area decreasing the sound power of the wave. Spherical spreading of the sound wave reduces the noise level at a rate of 6 dB per doubling of the distance.

Atmospheric absorption also influences the levels received by the observer. The greater the distance traveled, the greater the influence of the atmosphere and the resultant fluctuations. Atmospheric absorption becomes important at distances of greater than 1,000 feet. The degree of absorption varies depending on the frequency of the sound, as well as the humidity and temperature of the air. For example, atmospheric absorption is lowest (i.e., sound carries farther) at high humidity and high temperatures. A schematic diagram of how weather including temperature gradients and wind can affect sound propagation is shown in **Figure 3.18-2, The Effects of Weather on Sound Propagation**. Turbulence and gradients of wind, temperature and humidity also play a significant role in determining the degree of attenuation. Certain conditions, such as inversions, can channel or focus the sound waves resulting in higher noise levels than would result from simple spherical spreading. Absorption effects in the atmosphere vary with frequency. The higher frequencies are more readily absorbed than the lower frequencies. Over large distances, the lower frequencies become the dominant sound as the higher frequencies are attenuated.

Duration of Sound

Annoyance from a noise event increases with increased duration of the noise event, i.e., the longer the noise event, the more annoying it is. The "effective duration" of a sound is the time between when a sound rises above the background sound level until it drops back below the background level. Psycho-acoustic studies have determined the relationship between duration and annoyance and the amount a sound must be reduced to be judged equally annoying for increased duration. Duration is an important factor in describing sound in a community setting.

Change in Noise

Under controlled laboratory conditions, listening to a steady unwavering pure tone sound that can be changed to slightly different sound levels, a person can just barely detect a sound level change of approximately one decibel for sounds in the mid-frequency region. When ordinary noises are heard, a young healthy ear can detect changes of 2 to 3 dB. A 5 dB change is readily noticeable while a 10 dB

change is judged by most people as a doubling or a halving of the loudness of the sound. It is typical in environmental documents to consider a 3 dB change as potentially discernable.

Masking Effect

The ability of one sound to limit a listener from hearing another sound is known as the masking effect. The presence of one sound effectively raises the threshold of audibility for the second sound. For a signal to be heard, it must exceed the threshold of hearing for that particular individual and exceed the masking threshold for the background noise.

The masking characteristics of sound depend on many factors including the spectral (frequency) characteristics of the two sounds, the sound pressure levels, and the relative start time of the sounds. Masking effect is greatest when the frequencies of the two sounds are similar or when low frequency sounds mask higher frequency sounds. High frequency sounds do not easily mask low frequency sounds.

Factors Influencing Human Response to Sound

Many factors influence sound perception and annoyance. These include not only physical characteristics of the sound but also secondary influences, such as sociological and external factors. Both acoustic and non-acoustic factors contribute to human response to noise. These factors are summarized in **Table 3.18-1, Factors that Affect Individual Annoyance to Noise**.

Table 3.18-1
Factors that Affect Individual Annoyance to Noise

Primary Acoustic Factors	• Sound level • Frequency • Duration
Secondary Acoustic Factors	• Spectral complexity • Fluctuations in sound level • Fluctuations in frequency • Rise-time of the noise • Localization of noise source
Non-Acoustic Factors	• Physiology • Adaptation and past experience • How the listener's activity affects annoyance • Predictability of when a noise will occur • Whether the noise is necessary • Individual differences and personality

Source: Mestre Greve Associates, One Valley One Vision (OVOV) Noise Element of the General Plan Technical Appendix (Laguna Niguel, California, February 16, 2009). Table 1.

Sound Rating Scales

Various rating scales approximate the human subjective assessment to the "loudness" or "noisiness" of a sound. Noise metrics have been developed to account for additional parameters, such as duration and cumulative effect of multiple events. Noise metrics are categorized as single event metrics and cumulative metrics, as summarized below.

Single Event Metrics

Single event metrics describe the noise from individual events, such as one aircraft flyover.

Frequency Weighted Metrics (dB(A))

In order to simplify the measurement and computation of sound loudness levels, frequency weighted networks have obtained wide acceptance. The A-weighting (dB(A)) scale has become the most prominent of these scales and is widely used in community noise analysis. Its advantages are that it has shown good correlation with community response and is easily measured. The metrics used in this study are all based upon the dB(A) scale.

Maximum Noise Level

Maximum Noise Level, or L_{max}, is the highest noise level reached during a noise event. For example, as an aircraft approaches, the sound of the aircraft begins to rise above ambient noise levels. The closer the aircraft gets the louder it is until the aircraft is at its closest point directly overhead. Then as the aircraft passes, the sound level decreases until it returns to ambient levels. Such a history of a flyover is plotted at the top of **Figure 3.18-3, Single and Cumulative Noise Metric Definitions**. It is this metric to which people generally instantaneously respond when an aircraft flyover or a loud vehicle like a truck or motorcycle passes by.

Single Event Noise Exposure Level

Single Event Noise Exposure Level (SENEL) or Sound Exposure Level (SEL) is computed from dB(A) sound levels, and is used to quantify the total noise associated with a single event, such as an aircraft overflight or a train pass-by. Within **Figure 3.18-3,** the shaded area, or the area within 10 dB of the maximum noise level, is the area from which the SENEL is computed. The SENEL value is the integration of all the acoustic energy contained within the event. Speech and sleep interference research can be assessed relative to SENEL data.

The SENEL metric takes into account the maximum noise level of the event and the duration of the event. Single event metrics are a convenient method for describing noise from individual aircraft events. This metric is useful in that airport noise models contain aircraft noise curve data based upon the SENEL metric. In addition, cumulative noise metrics such as L_{eq} (Equivalent Noise Level), CNEL (Community Noise Equivalent Level), and DNL (Day/Night Average Sound Level) can be computed from SENEL data.

Cumulative Metrics

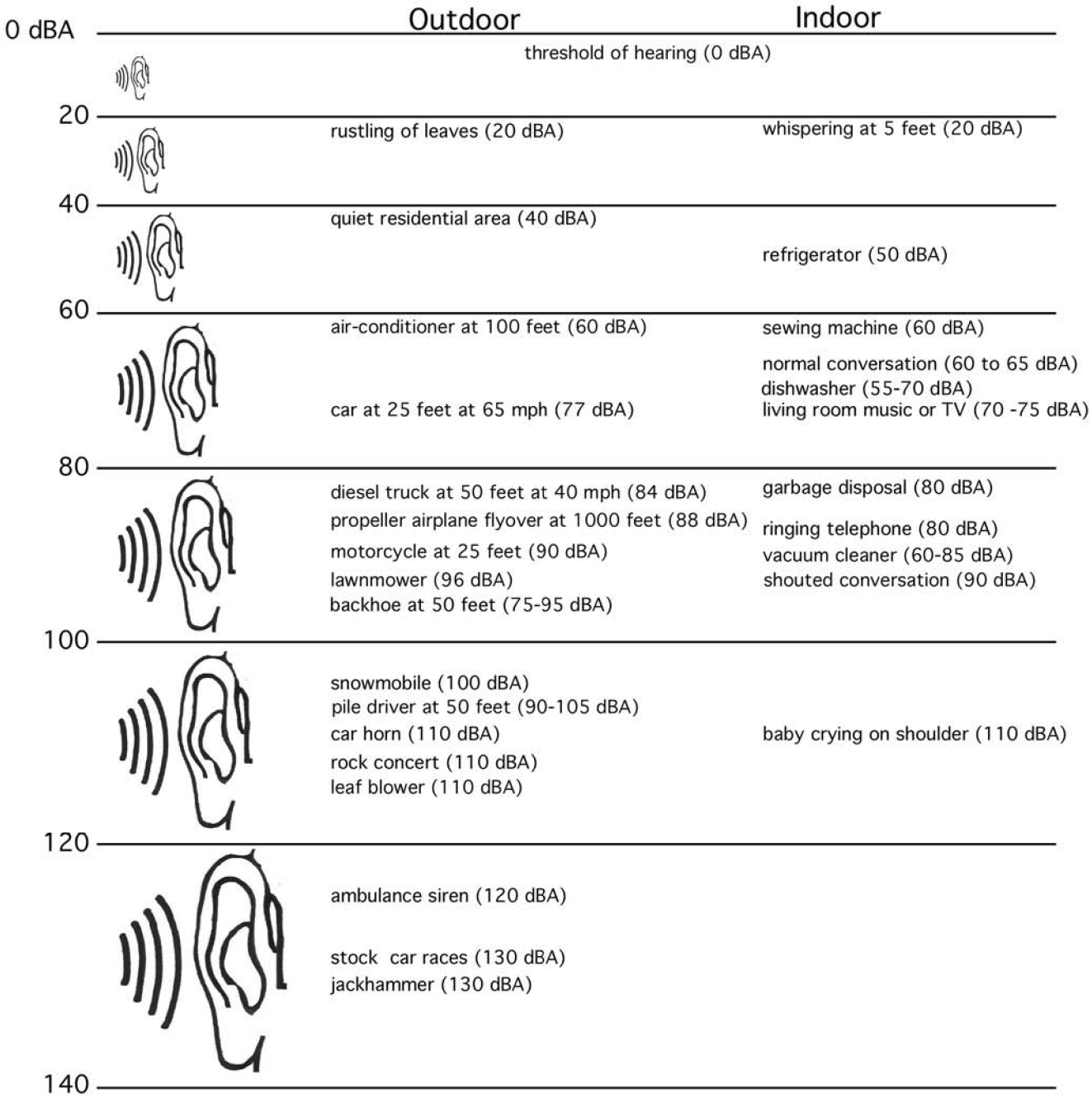
Cumulative metrics describe the noise in terms of the total noise exposure throughout the day, and incorporates the loudness of the noise, the duration of the noise, the total number of noise events and the time of day these events occur into one single number rating scale.

Equivalent Noise Level

Equivalent Noise Level (L_{eq}) is the sound level corresponding to a steady-state A-weighted sound level containing the same total energy as several SEL events during a given sample period. L_{eq} is the "energy" average noise level during the time period of the sample. It is based on the observation that the potential for noise annoyance is dependent on the total acoustical energy content of the noise. This is graphically illustrated in the middle graph of **Figure 3.18-3**. L_{eq} can be measured for any period, but is typically measured for 15 minutes, 1 hour, or 24-hours. L_{eq} for a 1 hour period is used by the Federal Highway Administration (FHWA) for assessing highway noise impacts. L_{eq} for 1 hour is called Hourly Noise Level (HNL) in the California Airport Noise Regulations and is used to develop Community Noise Equivalent Level values for aircraft operations.

Community Noise Equivalent Level

Community Noise Equivalent Level, or CNEL, is a 24-hour, time-weighted energy average noise level based on the A-weighted decibel. It is a measure of the overall noise experienced during an entire day. The term "time-weighted" refers to the penalties attached to noise events occurring during certain sensitive time periods. In the CNEL scale, 5 dB are added to measured noise levels occurring between the hours of 7:00 PM and 10:00 PM. Ten dB are added to measured noise levels occurring between the hours of 10:00 PM to 7:00 AM. These decibel adjustments are an attempt to account for the higher sensitivity to noise in the evening and nighttime hours, and the expected lower ambient noise levels during these time periods.



Sources: League For The Hard Of Hearing, www.lhh.org
Handbook of Noise Control, McGraw Hill, Edited byCyril Harris, 1979
Measurements by Mestre Greve Associates

SOURCE: Mestre Greve Associates, One Valley One Vision Noise Element of the General Plan - February 2009

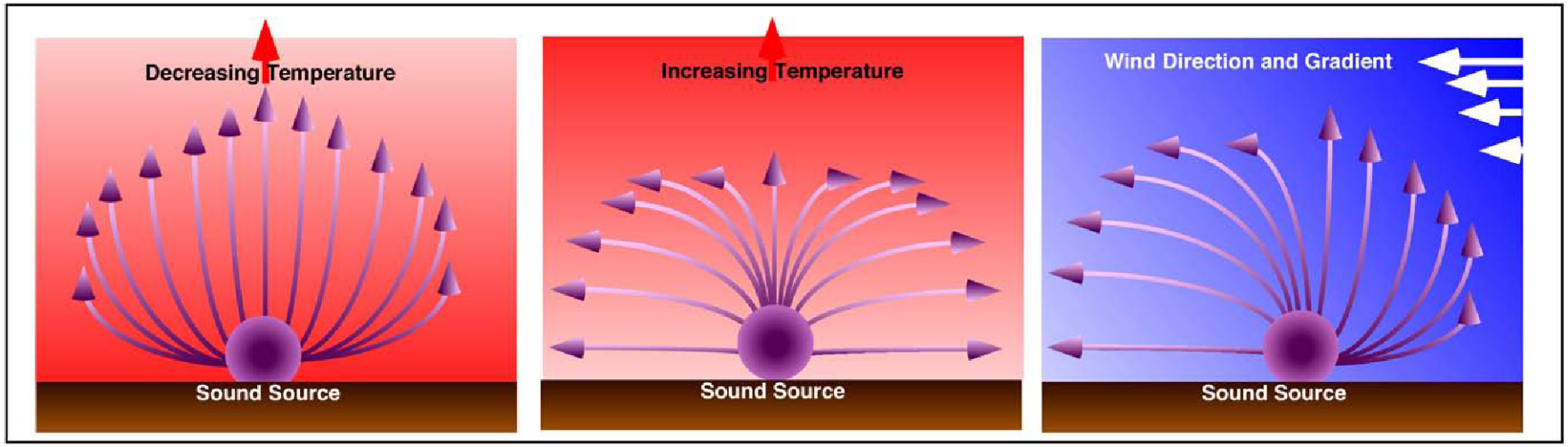
FIGURE **3.18-1**

Typical Sound Level in A-Weighted Decibels

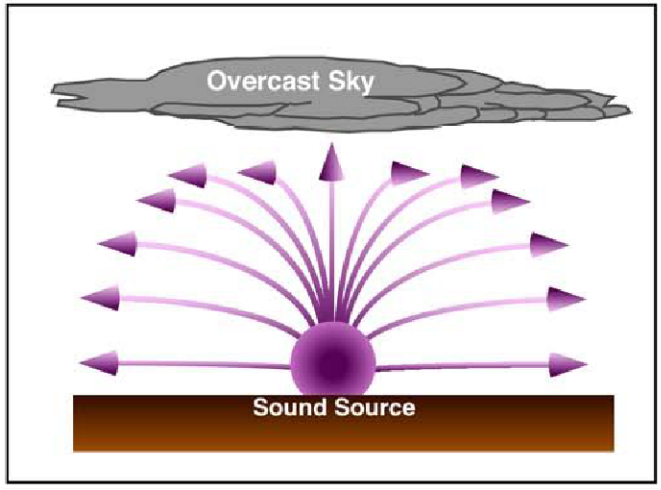
Refraction of sound in an atmosphere with a normal lapse rate. Sound rays are bent upwards.

Refraction of sound in an atmosphere with an inverted lapse rate. Sound rays are bent downward.

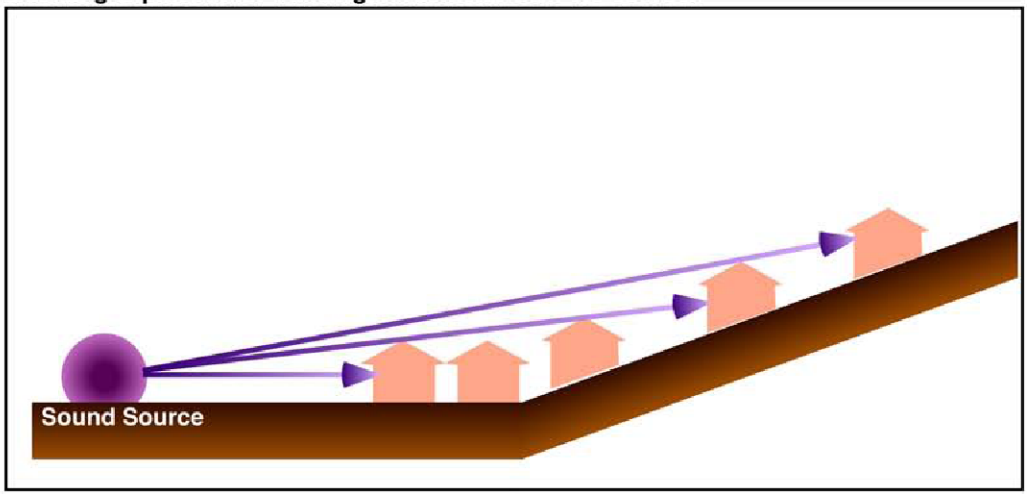
Refraction of sound in an atmosphere with a wind present. Sound rays are bent in the direction of the wind.



Refraction of sound in an atmosphere with overcast sky conditions. Sound rays are bent downward.



Propagation of sound over terrain. Ground absorption and shielding may be present for buildings at the same elevation as the source. No shielding is present for buildings which can 'see' the source.



Source: Adapted from Vancouver International Airport, Noise Management Report.

SOURCE: Mestre Greve Associates, One Valley One Vision Noise Element of the General Plan - February 2009

FIGURE **3.18-2**

The Effects of Weather on Sound Propagation

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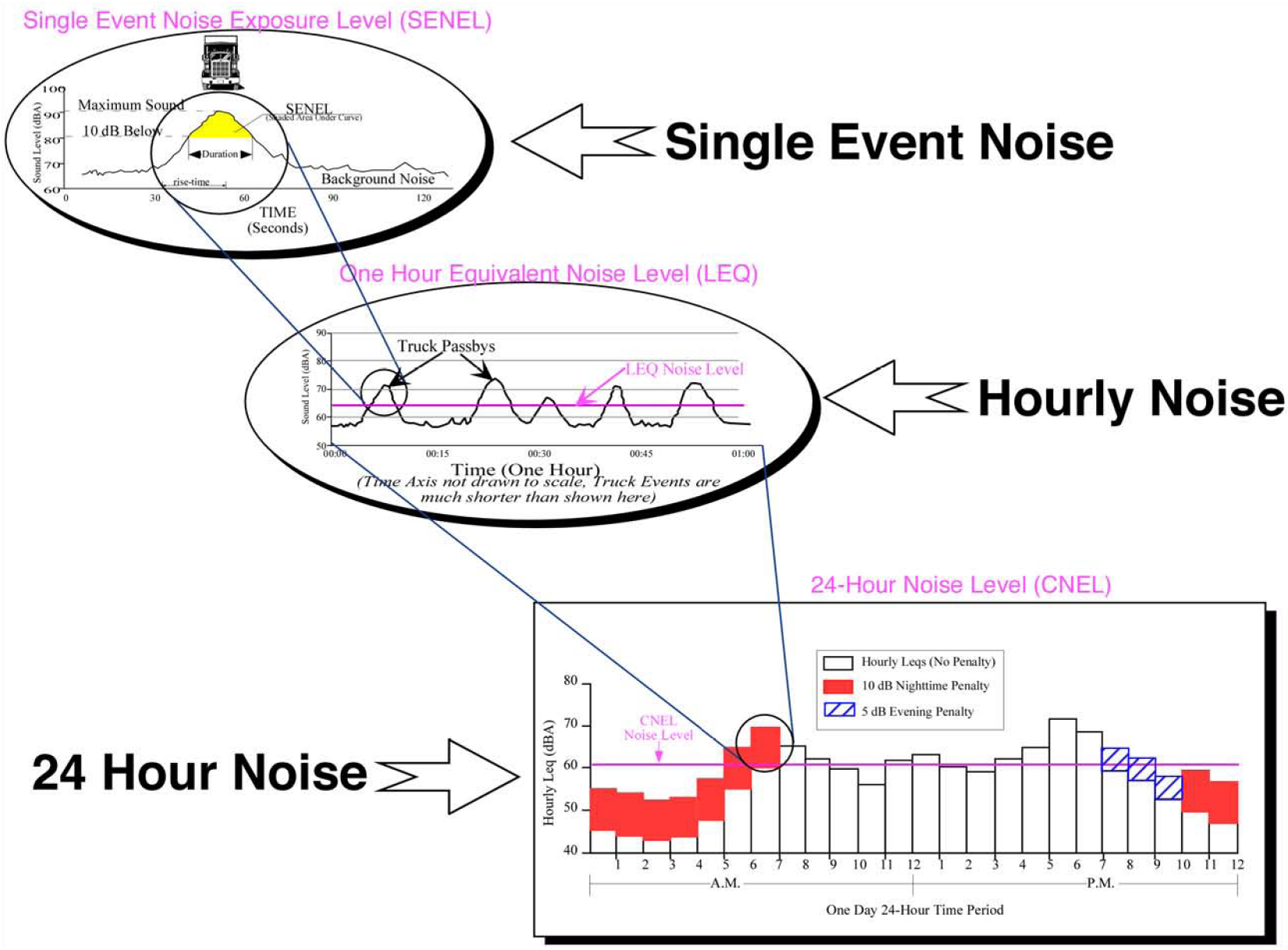


SOURCE: Mestre Greve Associates, One Valley One Vision Noise Element of the General Plan - February 2009

FIGURE **3.18-3**

Single and Cumulative Noise Metric Definitions

CNEL is graphically illustrated in the bottom of **Figure 3.18-3**. Examples of various noise environments in terms of CNEL are presented in **Figure 3.18-4, Examples of Typical Outdoor CNEL Levels**.

Day/Night Average Sound Level.

The Day/Night Average Sound Level (DNL) index is very similar to CNEL; however, it only adds 10 dB to the measured noise levels occurring between the hours of 10:00 PM to 7:00 AM. Typically, DNL is about 1 dB lower than CNEL, although the difference may be greater if there is an abnormal concentration of noise events in the 7:00 to 10:00 PM period.

L(%), L_{max} and L_{min}

L(%), L_{max} and L_{min} are statistical methods to account for variance in noise levels throughout a given measurement period. L(%) is a way of expressing the noise level exceeded for a percentage of time in a given measurement period. For example since 5 minutes is 25 percent of 20 minutes, L(25) is the noise level that is equal to or exceeded for 5 minutes in a 20-minute measurement period. L(%) is typically used in noise ordinances and municipal codes. L_{max} represents the loudest measured noise level. It only occurs for a fraction of a second; all other measured noise levels are less than L_{max}. L_{min} represents the quietest noise level during a noise measurement with all other measured noise levels greater than L_{min}.

Adverse Effects of Noise Exposure

Noise is known to have several adverse effects on humans, which has led to l laws and standards being set to protect public health and safety, and to ensure compatibility between land uses and activities. Adverse effects of noise on people include hearing loss, communication interference, sleep interference, physiological responses, and annoyance. Each of these potential noise impacts on people are briefly discussed in the following narrative. Please refer to the Mestre-Greve report in **Appendix 3.18** for additional discussion on this topic.

Hearing Loss

Hearing loss is generally not a community noise concern, even very near a major airport or a major freeway. The potential for noise induced hearing loss is more commonly associated with occupational noise exposures in heavy industry, very noisy work environments with long term exposure, or certain very loud recreational activities, such as target shooting, motorcycle or car racing, etc. The Occupational Safety and Health Administration (OSHA) identifies a noise exposure limit of 90 dB(A) for 8 hours per day to protect from hearing loss (higher limits are allowed for shorter duration exposures). Noise levels in neighborhoods, even in very noisy neighborhoods, are not sufficiently loud to cause hearing loss.

Communication Interference

Communication interference is one of the primary concerns in environmental noise problems. Communication interference includes speech interference and interference with activities such as watching television. Noise can also interfere with communications within school classrooms, as well as classroom activities. Normal conversational speech is in the range of 60 to 65 dB(A) and any noise in this range or louder may interfere with speech. There are specific methods of describing speech interference as a function of distance between speaker and listener and voice level. **Figure 3.18-5, Speech Interference and Noise Levels**, shows the relation of quality of speech communication with respect to various noise levels.

Sleep Interference

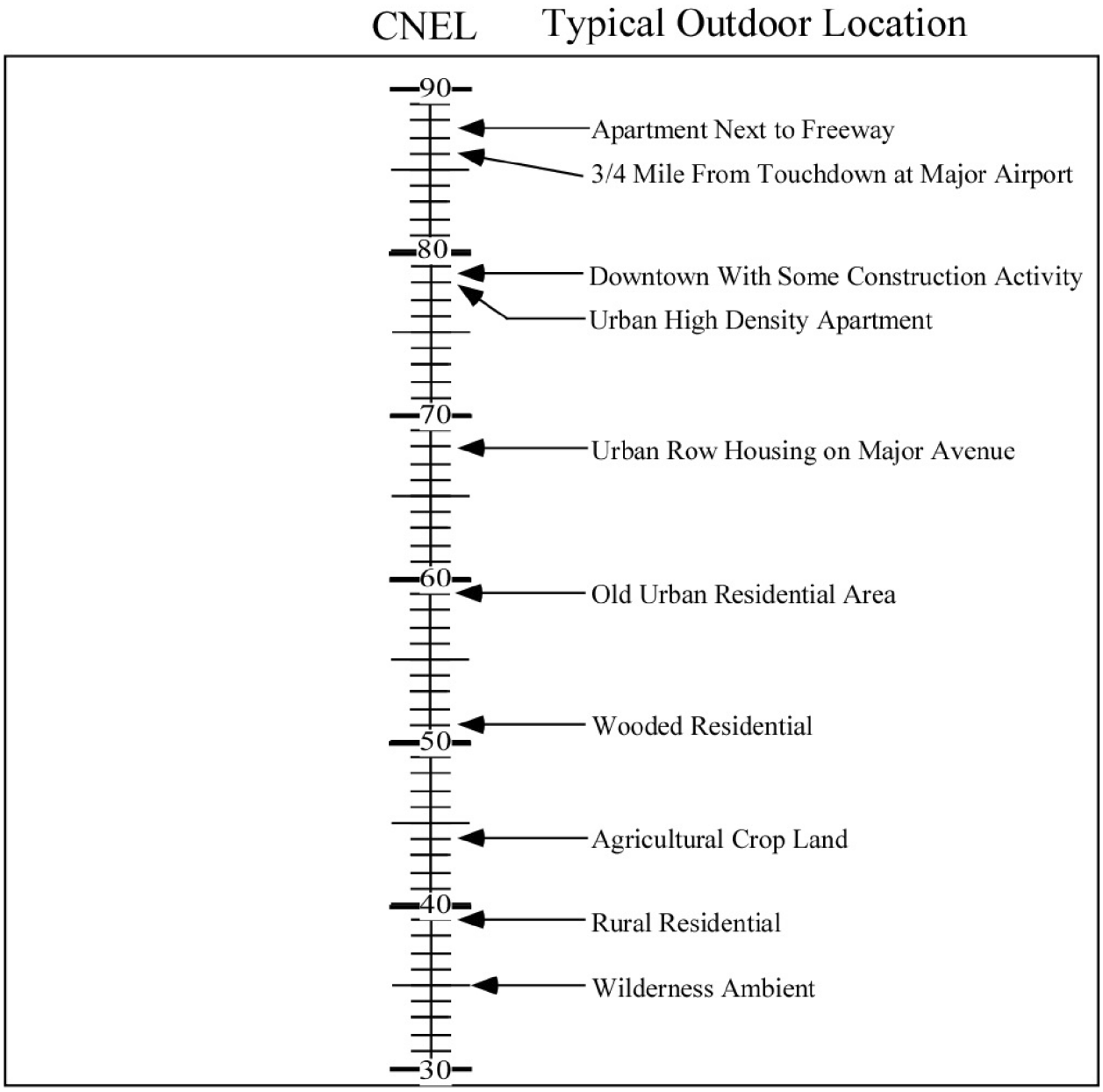
Noise can make it difficult to fall asleep, create momentary disturbances of natural sleep patterns by causing shifts from deep to lighter stages and cause awakening. Noise may even cause awakening that a person may or may not be able to recall.

Physiological Responses

Physiological responses are those measurable effects of noise on people that are realized as changes in pulse rate, blood pressure, etc. Studies to determine whether exposure to high noise levels can adversely affect human health have concluded that, while a relationship between noise and health effects seems plausible, there is no empirical evidence of the relationship.

Annoyance

Annoyance is the most difficult of all noise responses to describe. Annoyance is a very individual characteristic and can vary widely from person to person. Noise that one person considers tolerable can be unbearable to another of equal hearing capability. The level of annoyance depends both on the characteristics of the noise (including loudness, frequency, time, and duration), and how much activity interference (such as speech interference and sleep interference) results from the noise. However, the level of annoyance is also a function of the attitude of the receiver. Personal sensitivity to noise varies widely. It has been estimated that 2 to 10 percent of the population is highly susceptible to annoyance from any noise not of their own making, while approximately 20 percent are unaffected by noise. Attitudes may also be affected by the relationship between the person affected and the source of noise, and whether attempts have been made to abate the noise.

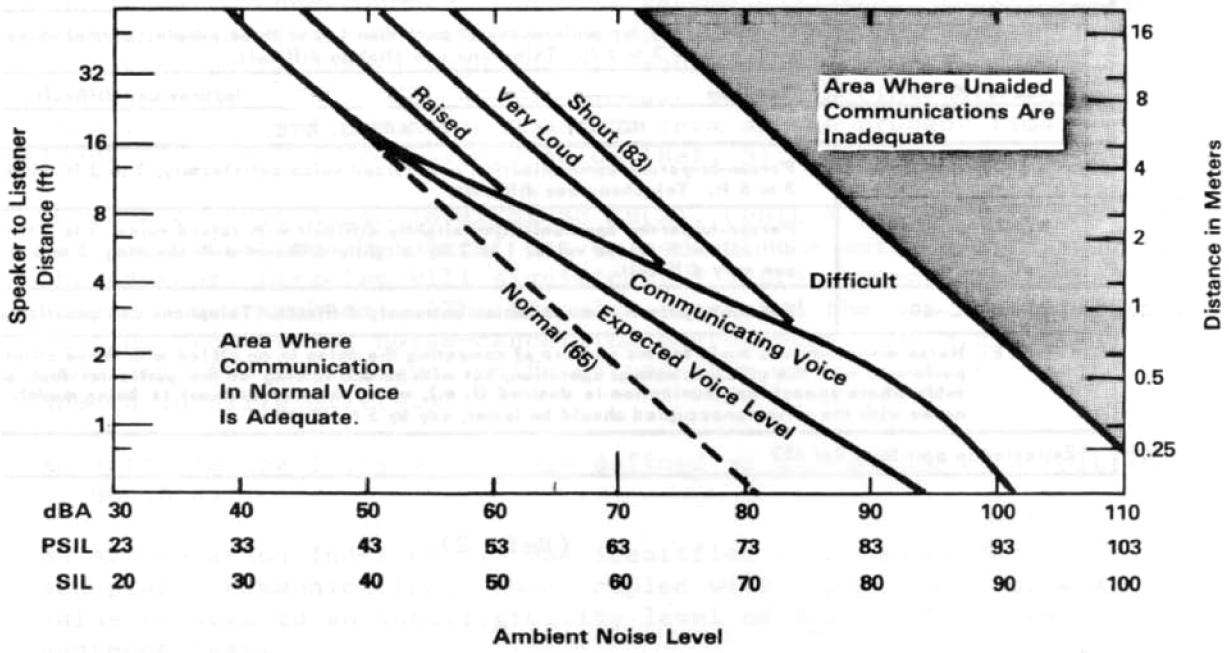


Source: Adapted from "Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare With an Adequate Margin of Safety", EPA, 1974

SOURCE: Mestre Greve Associates, One Valley One Vision Noise Element of the General Plan - February 2009

FIGURE **3.18-4**

Examples of Typical Outdoor CNEL Levels



Permissible Distance Between a Speaker and Listeners for Specified Voice Levels and Ambient Noise Levels

(The Levels in Parantheses Refer to Voice Levels Measured One Meter From the Mouth.)

SOURCE: Mestre Greve Associates, One Valley One Vision Noise Element of the General Plan - February 2009

FIGURE **3.18-5**

Speech Interference and Noise Levels

Vibration

Vibration consists of waves transmitted through solid material. Groundborne vibration propagates from the source through the ground to adjacent buildings by surface waves. Vibration may be comprised of a single pulse, a series of pulses, or a continuous oscillatory motion. The frequency of a vibrating object describes how rapidly it is oscillating, measured in Hertz (Hz). Most environmental vibrations consist of a composite, or "spectrum" of many frequencies, and are generally classified as broadband or random vibrations. The normal frequency range of most groundborne vibration that can be felt generally starts from a low frequency of less than 1 Hz to a high of about 200 Hz. Vibration is often measured in terms of the peak particle velocity (PPV) in inches per second (in/sec) because it best correlates with human perception.

Vibration energy attenuates as it travels through the ground, causing the vibration amplitude to decrease with distance away from the source. High-frequency vibrations reduce much more rapidly than low frequencies, so that in the far-field from a source, the low frequencies tend to dominate. Soil properties also affect the propagation of vibration. When ground-borne vibration interacts with a building, there is usually a ground-to-foundation coupling loss, but the vibration can also be amplified by the structural resonances of the walls and floors. Vibration in buildings is typically perceived as rattling of windows or of items on shelves, or the motion of building surfaces.

Groundborne vibration is generally limited to areas within a few hundred feet of certain types of construction activities, especially pile driving. Road vehicles rarely create enough groundborne vibration to be perceptible to humans unless the road surface is poorly maintained and there are potholes or bumps. If traffic, typically heavy trucks, induces perceptible vibration in buildings, such as window rattling or shaking of small loose items, then it is most likely an effect of low-frequency airborne noise or ground characteristics.

Human annoyance by vibration is related to the number and duration of events. The more events or the greater the duration, the more annoying it will be to humans. `

EXISTING CONDITIONS

Predominant Noise Sources in the OVOV Planning Area

Motor vehicle noise on freeways and other roadways are the primary noise sources in the OVOV Planning Area. The Southern Pacific Railroad, which runs from the southern portion of the OVOV Planning Area to the center of the City of Santa Clarita and then directly to the east, is also a significant

noise source. The Southern Pacific Railroad line handles two types of trains in the Santa Clarita area: Metrolink commuter rail and freight. Of the two, freight rail noise is the more dominant noise source. Based on 2008 train schedules, 24 Metrolink trains traverse Santa Clarita Valley each day. No precise numbers of daily freight trains could be provided; however, it was estimated that 12 freight trains pass through the County's Planning Area each day. Although the Agua Dulce Airport is located in the study area, sporadic airplane or helicopter operations over the County's Planning Area are not loud and consistent enough to be significant.

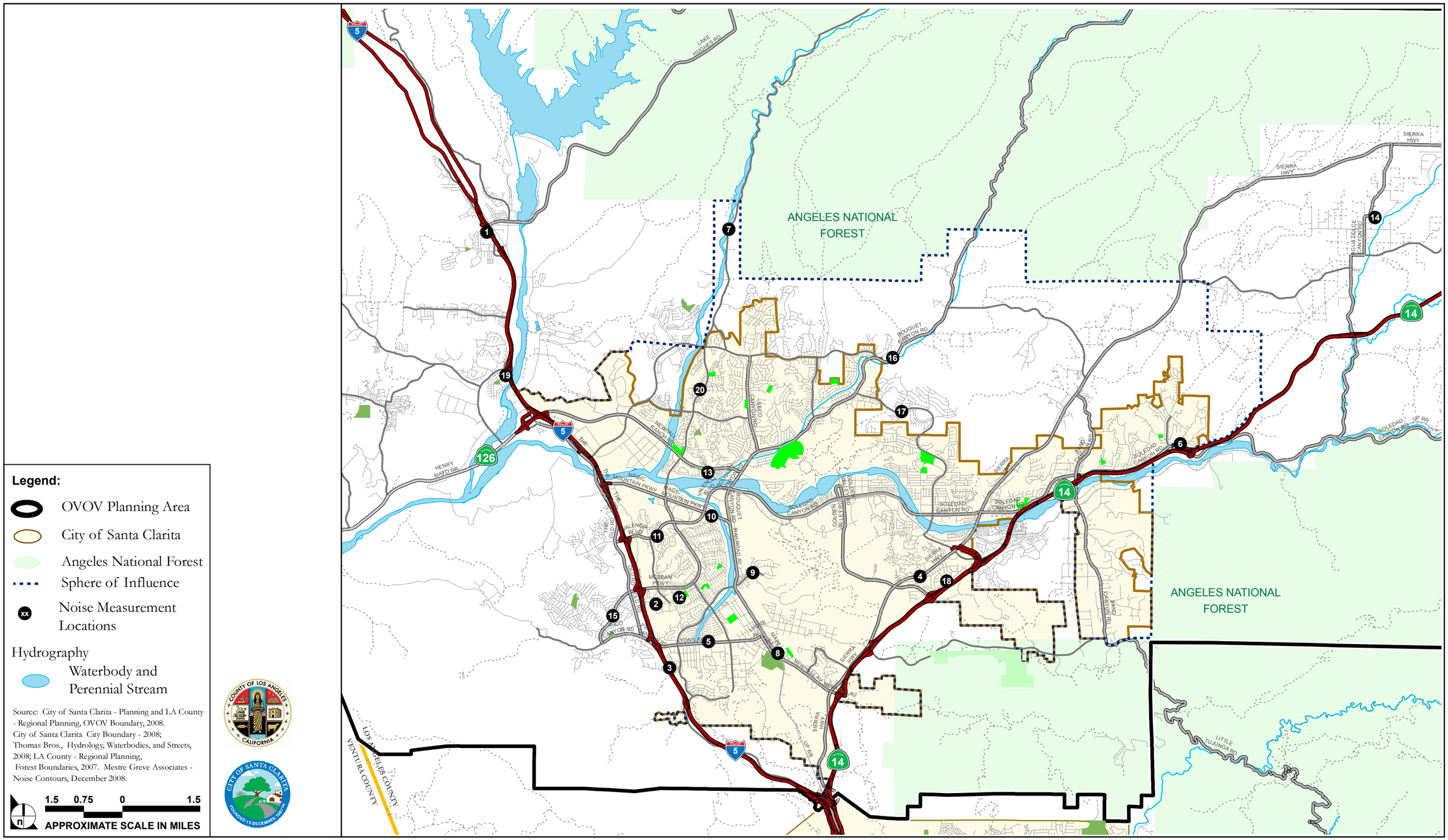
Noise Measurement Methodology

Short-term noise measurements were taken at 20 locations within the OVOV Planning Area (see **Figure 3.18-6, Noise Measurement Locations**). The measurement locations were based upon a review of noise complaints, discussions with City of Santa Clarita staff, and identification of major noise sources in the community and their proximity to noise-sensitive land uses. From a noise perspective, typical sensitive receptors include residences, schools, child care centers, places of worship, hospitals, long-term health care facilities, convalescent centers, and retirement homes. Each of these land use types currently occur within the County's Planning Area.

The measurements were taken on August 7 and 8, 2007, using a Bruel & Kjaer Type 2236 Sound Level Meter set at 5 feet above ground. The meter was calibrated every few hours. These noise measurement systems meet the American National Standards Institute "Type 1" specifications, which is the most accurate for community noise measurements. These noise measurements represent the specific period of monitoring and were done merely to provide a "snapshot" view of the noise environment. The noise measurement locations are depicted in **Figure 3.18-6**. Each monitoring location is described in the Mestre–Greve Associates report in **Appendix 3.18**.

Noise Survey Results

The results of the noise measurements are shown as L_{eq}, L_{max}, and L_{min} in **Figure 3.18-7, Short-Term Ambient Noise Measurement Results**. These figures also depict the dates and times of the measurements. The noise levels measured cover a wide range of noise exposure throughout the OVOV Planning Area (the majority of the locations in the City of Santa Clarita) and are not to be interpreted as an assessment of noise impacts at these locations.



SOURCE: Mestre Greve Associates, One Valley One Vision Noise Element of the General Plan - February 2009

FIGURE **3.18-6**

Noise Measurement Locations

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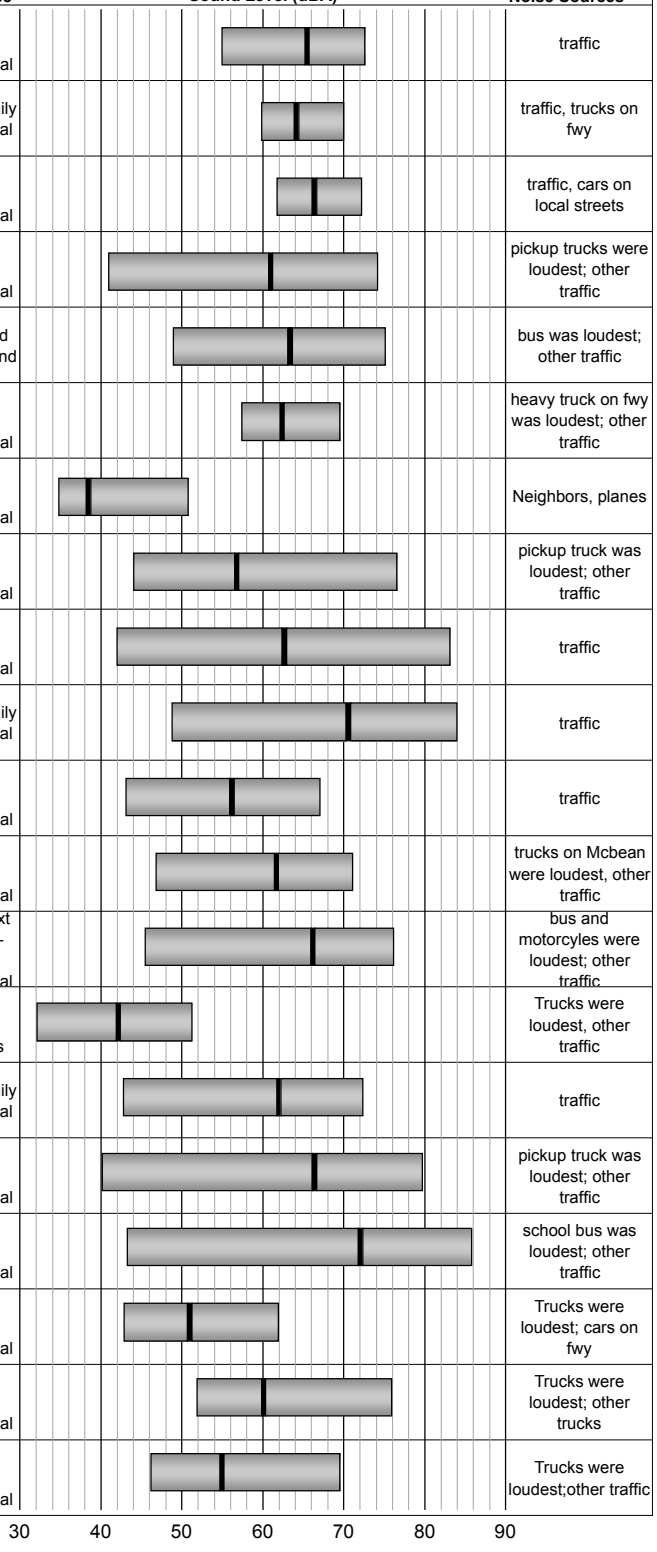
Graphic Summary of Short-Term Ambient Noise Measurement Results

Site	Location	Date	Time	Land Use	Noise Sources
1	End of Hunter Ln	8/8	9:45 a.m.	single family residential	traffic
2	End of Golfview Dr	8/7	1:44 p.m.	multi-family residential	traffic, trucks on fwy
3	Corner of Wabuska St and Hawkbryn Ave	8/7	12:20 p.m.	single family residential	traffic, cars on local streets
4	Playground next to Sierra Hwy	8/8	1:32 p.m.	single family residential	pickup trucks were loudest; other traffic
5	Park next to Lyons Ave	8/7	11:50 a.m.	Park and Playground	bus was loudest; other traffic
6	End of Fuji St	8/8	3:22 p.m.	single family residential	heavy truck on fwy was loudest; other traffic
7	San Francisquito Canyon Road	8/8	9:18 a.m.	single family residential	Neighbors, planes
8	Corner of 4th and Pine St	8/8	12:39 p.m.	single family residential	pickup truck was loudest; other traffic
9	Corner of Via Princessa and Sheffield Ln	8/7	12:50 p.m.	single family residential	traffic
10	Condo site off of Magic Mountain Pkwy	8/7	2:49 p.m.	multi-family residential	traffic
11	End of Mistletoe Ct	8/7	2:27 p.m.	single family residential	traffic
12	End of Quilla Rd	8/7	1:21 p.m.	single family residential	trucks on Mcbean were loudest, other traffic
13	Park on Newhall Ranch Rd	8/7	3:29 p.m.	Park next to multi-family residential	bus and motorcyles were loudest; other traffic
14	Cul-de-sac next to Sweetheart Ranch	8/8	2:34 p.m.	single family ranches	Trucks were loudest, other traffic
15	Condo Site next to Stevenson Ranch Pkwy	8/8	11:17 a.m.	multi-family residential	traffic
16	Corner of Shadow Valley Rd and Bouquet Canyon Rd	8/7	4:44 p.m.	single family residential	pickup truck was loudest; other traffic
17	Corner of Plum Canyon Rd and Golden Valley Rd	8/7	4:22 p.m.	single family residential	school bus was loudest; other traffic
18	End of Larkhaven Pl	8/8	1:52 p.m.	single family residential	Trucks were loudest; cars on fwy
19	End of Salem Ct	8/8	10:13 a.m.	single family residential	Trucks were loudest; other trucks
20	End of Robindale Ct	8/7	5:19 p.m.	single family residential	Trucks were loudest;other traffic



SOURCE: Mestre Greve Associates, One Valley One Vision Noise Element of the General Plan - February 2009

FIGURE **3.18-7**

Short-Term Ambient Noise Measurement Results

The cause of the loudest event is identified and the most predominant noise source(s) are identified. In almost all cases the major source of noise was motor vehicles, where buses and trucks created single event noise levels into the mid-80 dB(A) range. The quietest monitoring location was in a residential area in the back hills (this includes Site 7 located at the end of Stator Lane), where noise levels were often below 50 dB(A). In general, aircraft noise, industrial noise, and commercial noise sources did not appear to contribute significantly to the noise levels measured.

Existing Noise Contours

Roadway and rail noise contours for existing conditions are illustrated in **Figure 3.18-8, Existing (2007) Noise Contours,** (distances to contour values are shown in tabulated format in the Mestre Greve Associates report in **Appendix 3.18**). The noise contours for arterial roadways and highways were generated using a mathematical model developed by the FHWA (Traffic Noise Model, Version 2.5, April 14, 2004). The Traffic Noise Model (TNM) uses traffic volume, vehicle mix,[1] day/evening/night traffic distribution,[2] average vehicle speed, roadway geometry, and sound propagation path characteristics to predict hourly A-weighted L_{eq} values adjacent to a road. The vehicle mix and day/evening/night distributions are provided in the Mestre Greve Associates report in **Appendix 3.18**. Rail noise contours were based upon documents on existing rail operations in the Santa Clarita Valley: Multi-County Goods Movement Action Plan (April, 2008) and the draft 2008 Long Range Transportation Plan (LRTP) for the Metrolink system.

Noise contours in **Figure 3.18-8** are for the 60, 65, and 70 dB CNEL noise levels and represent lines of equal noise exposure. The 60 dB CNEL contour defines the Noise Referral Zone. This is the lowest noise level for which noise considerations should be included when making land use policy decisions.

The noise contours presented in **Figure 3.18-8** do not take intervening topography or structures into account. Variable terrain, the built environment, and intervening natural or constructed barriers have a very complex effect on the propagation of noise; therefore, the contours present a worst-case projection of existing noise levels. As a result, the contours should not used for site planning purposes.

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1 Vehicle mix is reported in terms of the number of automobiles, medium trucks, and heavy trucks, with heavy truck categories defined by the number of axels. For arterial roadways the vehicle mix data are obtained from data collected by the County of Orange during extensive surveys of 53 intersections within the County. Caltrans data for truck percentages for state and federal highways were used.

2 Vehicle distribution over the 24-hour day is defined as the percent of vehicles in the daytime (7:00 AM to 7:00 PM, evening (7:00 PM to 10:00 PM), and night (10:00 PM to 7:00 AM).

REGULATORY FRAMEWORK

Federal Requirements

Noise

There are no federal noise requirements or regulations that bear directly on local actions of the County. However, there are federal regulations that influence the audible landscape, especially for projects where federal funding is involved. The FHWA requires abatement of highway traffic noise for highway projects through rules in the Code of Federal Regulations (23 CFR Part 772), the Federal Transit Administration (FTA), and Federal Railroad Administration (FRA). Each agency recommends thorough noise and vibration assessments through comprehensive guidelines for any highway, mass transit, or high-speed railroad projects that would pass by residential areas. For housing constructed with assistance from the US Department of Housing and Urban Development, minimum noise insulation standards must be achieved (24 CFR Part 51, Subpart B).

The Federal Aviation Administration (FAA) has prepared guidelines for acceptable noise exposure in its Federal Aviation Regulations (FAR) Part 150 Noise Compatibility Planning program for airports. The program is aimed at balancing an airport's operational needs and its impact on the surrounding community. Its purpose is to reduce noise impacts on existing incompatible land use and to prevent the introduction of new incompatible land uses in the areas impacted by aircraft noise. It establishes standard noise methodologies and noise metrics, identifies land uses normally compatible with various levels of airport noise, and provides for voluntary development and submission of noise exposure maps and noise compatibility programs by airport operators.

Vibration

The Federal Transit Administration (FTA) has published guidelines for assessing the impacts of groundborne vibration associated with construction activities, which have been applied by other jurisdictions to other types of projects. The FTA measure of the threshold of architectural damage for non-engineered timber and mason buildings (e.g., residential units) is 0.2 in/sec PPV.[3] The threshold of perception of vibration is 0.01 in/sec PPV.

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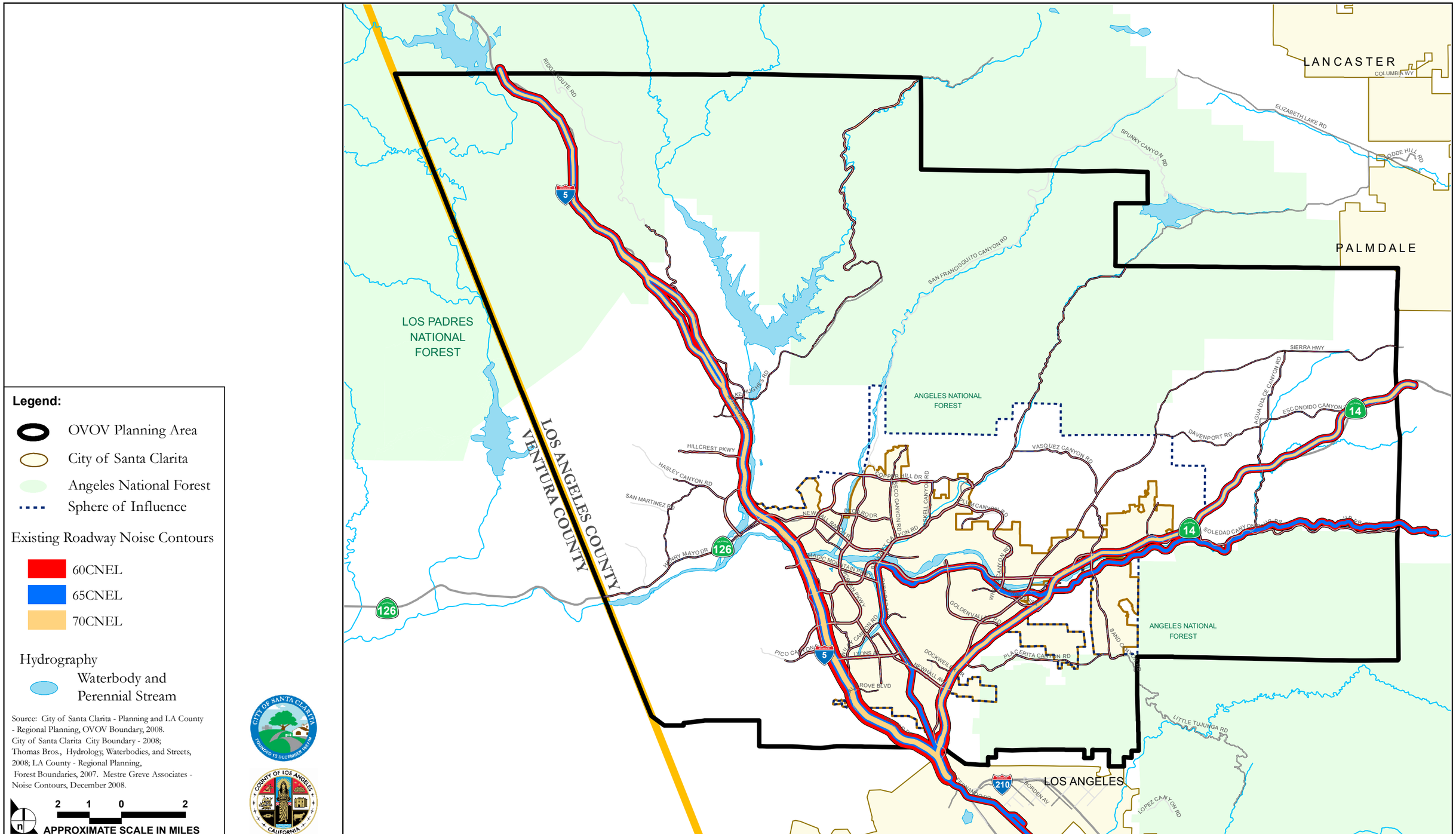
3 Federal Transit Administration, Office of Planning and Environment, *Transit Noise and Vibration Impact Assessment* FTA-VA-90-1003-06 (Washington, D.C., Federal Transit Administration, May 2006), p. 12-13.



Legend:

- OVOV Planning Area
- City of Santa Clarita
- Angeles National Forest
- Sphere of Influence

Existing Roadway Noise Contours

- 60CNEL
- 65CNEL
- 70CNEL

Hydrography

- Waterbody and Perennial Stream

Source: City of Santa Clarita - Planning and LA County - Regional Planning, OVOV Boundary, 2008. City of Santa Clarita City Boundary - 2008; Thomas Bros., Hydrology, Waterbodies, and Streets, 2008; LA County - Regional Planning, Forest Boundaries, 2007. Mestre Greve Associates - Noise Contours, December 2008.

2 1 0 2

APPROXIMATE SCALE IN MILES

SOURCE: City of Santa Clarita General Plan Update Noise Element - 2009

FIGURE **3.18-8**

Existing (2007) Noise Contours

Q:\PROJECTS\MASTER\OVOV\ExhibitMaps\NoiseElement\N-6ExistingNoise.mxd

There are no FHWA standards for traffic-related vibrations. The FHWA position is that highway traffic and construction vibrations pose no threat to buildings and structures.[4]

State Regulations

Noise

Title 24, California Code of Regulations

The California Noise Insulation Standards of 1988 (California Code of Regulations Title 24, Section 3501 et seq.) require that interior noise levels from exterior sources be reduced to 45 dB(A) or less in any habitable room of a multi-residential use facility (e.g., hotels, motels, dormitories, long-term care facilities, and apartment houses and other dwellings, except detached single-family dwellings) with doors and windows closed. Measurements are based on L_{dn}[5] or CNEL. Where exterior noise levels exceed 60 dB(A) L_{dn}/CNEL, an acoustical analysis is required to show that the proposed construction will reduce interior noise levels to 45 dB(A) L_{dn}/CNEL.

California Government Code Section 63502(g)

The State of California Department of Health Services, Environmental Health Division, has published *Guidelines for Noise and Land Use Compatibility* (the *State Guidelines*).[6] The *State Guidelines*, illustrated in **Figure 3.18-9, State Land Use Compatibility Guidelines for Noise**, indicate that residential land uses and other noise-sensitive receptors generally should locate in areas where outdoor ambient noise levels do not exceed 65 to 70 dB(A) (CNEL or L_{dn}). The Department of Health Services does not mandate application of this compatibility matrix to development projects; however, each jurisdiction is required to consider the *State Guidelines* when developing its general plan noise element and when determining acceptable noise levels within its community. The State Department of Housing and Community Development does require, however, that new multi-family units not be exposed to outdoor ambient noise levels in excess of 65 dB(A) (CNEL or L_{dn}), and that, if necessary, sufficient noise insulation be provided to reduce interior ambient levels to 45 dB(A) L_{dn}/CNEL. The US Environmental Protection Agency (US EPA) identified a maximum indoor noise level of 45 dB(A) as necessary to protect against

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4 California Department of Transportation, *Transportation Related Earthborne Vibrations (Caltrans Experiences)*, Technical Advisory, Vibration TAV-02-01-R9601 (Sacramento, California: California Department of Transportation, February 20, 2002), p. 10.

5 Like CNEL, L_{dn} is a 24-hour L_{eq} with 10 dB(A) added during the nighttime hours (10:00 PM to 7:00 AM). It is, therefore, less restrictive than CNEL.

6 These guidelines are also published in *State of California General Plan Guidelines*, Appendix C: Guidelines for the Preparation and Content of the Noise Element of the General Plan (Sacramento, California: Governor's Office of Planning and Research, October 2003).

sleep interference. Assuming a conservative structural noise insulation of 20 dB for typical dwellings, 45 dB(A) corresponds to an outdoor CNEL of 65 dB(A) as minimizing sleep interference.

Under the *State Guidelines*, an exterior noise level of 70 dB(A) L_{dn}/CNEL is typically the dividing line between an acceptable and unacceptable exterior noise environment for all noise-sensitive uses, including schools, libraries, places of worship, hospitals, day care centers, and nursing homes of conventional construction. Noise levels below 75 dB(A) L_{dn}/CNEL are typically acceptable for office and commercial buildings, while levels up to 80 dB(A) L_{dn}/CNEL are typically acceptable for industrial uses. In unacceptable interior noise environments, additional noise insulation features, such as extra batting or resilient channels[7] in exterior walls, double-paned windows, air conditioners to enable occupants to keep their windows closed without compromising their comfort, solid wood doors, and noise baffles on exterior vents, are typically needed to provide acceptable interior noise levels. The best type of noise insulation is based on detailed acoustical analyses that identify all practical noise insulation features and that confirm their effectiveness.

Vibration

There are no state standards for traffic-related vibrations. California Department of Transportation's (Caltrans) position is that highway traffic and construction vibrations generally pose no threat to buildings and structures.[8] For continuous (or steady-state) vibrations; however, Caltrans considers the architectural damage risk level to be somewhere between 0.2 and 2.0 inches/second.[9]

County of Los Angeles Noise Ordinance

Noise

Chapter 12.08 of Title 12 of the Los Angeles County Code, entitled "Noise Control Ordinance of the County of Los Angeles," as amended, identifies exterior noise standards for point noise sources, specific noise restrictions, exemptions, and variances for exterior point and stationary noise sources. Several of these are applicable to the proposed project and are discussed below.

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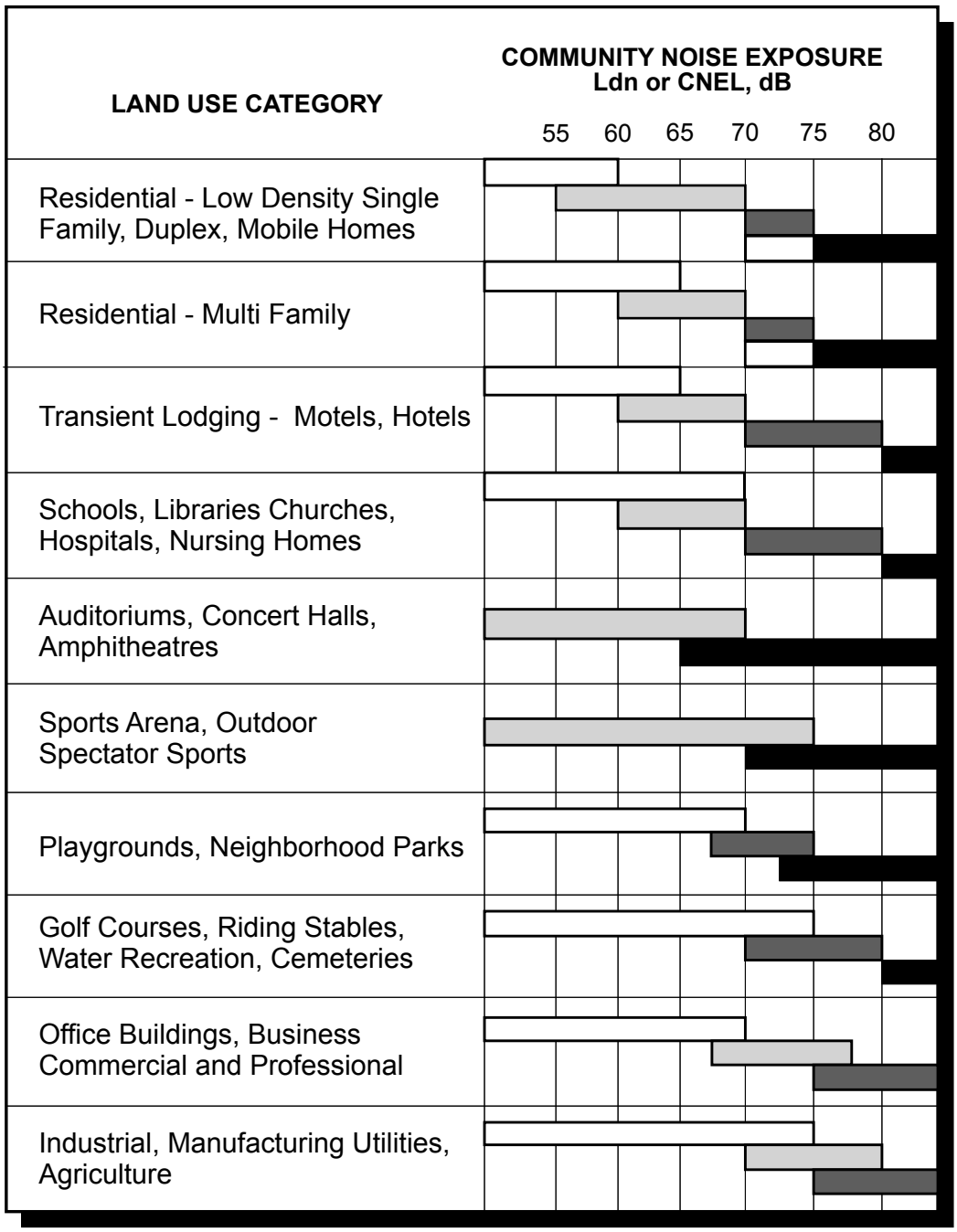
7 A resilient channel is a pre-formed section of sheet metal approximately 0.5-inch deep by 2.5-inches wide by 12-inches long that is installed between wallboard panels and framing to reduce sound transmission through walls. By preventing the wallboard from lying against the studs, the channel inhibits the transmission of sound through the framing.

8 California Department of Transportation, *Transportation Related Earthborne Vibrations (Caltrans Experiences)*, Technical Advisory, Vibration TAV-02-01-R9601 (Sacramento, California: California Department of Transportation, February 20, 2002), p. 10.

9 California Department of Transportation, *Transportation Related Earthborne Vibrations (Caltrans Experiences)*, Technical Advisory, Vibration TAV-02-01-R9601 (Sacramento, California: California Department of Transportation, February 20, 2002), p. 12.



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 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 or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise reduction features included in the design.

CLEARLY UNACCEPTABLE
New construction or development should generally not be undertaken.

SOURCE: California Governor's Office of Planning and Research, State of California General Plan Guidelines, Appendix C: Guidelines for the Preparation and Content of Noise Elements of the General Plan, October 2003.

FIGURE **3.18-9**

State Land Use Compatibility Guidelines for Noise

The County Noise Ordinance states that exterior noise levels caused by point noise sources shall not exceed the levels identified in **Table 3.18-2, County of Los Angeles Exterior Noise Standards for Stationary and Point Noise Sources**, or the ambient noise level,[10] whichever is greater, when the ambient noise level is determined without the noise source operating. The Noise Ordinance Section 12.08.400, also states that interior noise levels resulting from outside point or stationary sources within multi-family residential units shall not exceed 45 dB(A) L_{eq} between 7:00 AM and 10:00 PM, and 40 dB(A) L_{eq} between 10:00 PM and 7:00 AM.[11]

The County Noise Ordinance identifies specific restrictions regarding construction noise. The operation of equipment used in construction, drilling, repair, alteration or demolition work is prohibited between weekday hours of 7:00 PM to 7:00 AM and anytime on Sundays or legal holidays if such noise would create a noise disturbance across a residential or commercial real-property line.[12] The Noise Ordinance further states that 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 **Table 3.18-3, County of Los Angeles Construction Equipment Noise Restrictions**. All mobile and stationary internal-combustion-powered equipment and machinery are also required to be equipped with suitable exhaust and air-intake silencers in proper working order.

The County exempts all vehicles of transportation (with a few exceptions) that operate in a legal manner within the public right-of-way, railway, or air space, or on private property, from the standards of the Noise Ordinance. The County has no adopted ordinance regulating individual motor vehicle noise levels. These are regulated by the state.

While the County of Los Angeles has not formally adopted the State Land Use Compatibility Guidelines for Noise in its current Noise Element, the County defers to the guidelines in its environmental documents.

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10 The existing background noise level at the time of measurement or prediction.

11 This requirement is consistent with the California Noise Insulation Standards of 1988 (California Building Code Title 24, Section 3501 et seq.), which establishes inter-dwelling (between units in a building) and exterior sound transmission control measures. It requires that interior noise levels from the exterior source be reduced to 45 decibels (dB) or less in any habitable room of a multi-residential use facility (e.g., hotels, motels, dormitories, long-term care facilities, and apartment houses and other dwellings, except detached single-family dwellings. Measurements are based on a day/night average sound level (L_{dn}) or the community noise equivalent level (CNEL). Both L_{dn} and CNEL utilize averaging, not single-event exposure.

12 County of Los Angeles Ordinance No. 11743, Section 12.08.440. Noise disturbance is not defined in the noise ordinance. The County Health Officer has the authority to define and determine the extent of a noise disturbance on a case-by-case basis.

Table 3.18-2
County of Los Angeles Exterior Noise Standards for Stationary and Point Noise Sources

Noise Zone	Designated Noise Zone Land Use (Receptor Property)	Time Interval	Exterior Noise Level dB(A) L_{eq}[1]
I	Noise Sensitive Area[2]	Anytime	45
II	Residential Properties	10:00 PM to 7:00 AM	45
		7:00 AM to 10:00 PM	50
III	Commercial Properties	10:00 PM to 7:00 AM	55
		7:00 AM to 10:00 PM	60
IV	Industrial Properties	Anytime	70

Source: County of Los Angeles Ordinance No. 11743, Section 12.08.390.

[1] ***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; or, if the ambient L_{50} exceeds the forgoing 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 Standard 1 plus 5 dB(A); or, if the ambient L_{25} exceeds the forgoing 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 5 minutes in any hour. Standard No. 3 shall be the applicable noise level from Standard 1 plus 10 dB(A); or, if the ambient $L_{8.3}$ exceeds the forgoing level, then the ambient $L_{8.3}$ becomes the 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 1 minute in any hour. Standard No. 4 shall be the applicable noise level from Standard 1 plus 15 dB(A); or, if the ambient $L_{1.7}$ exceeds the forgoing 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 Standard 1 plus 20 dB(A); or, if the ambient L_0 exceeds the forgoing level, then the ambient L_0 becomes the exterior noise level for Standard No. 4.*

[2] *Not defined in the County Noise Ordinance. To be designated by the County Health Officer.*

Table 3.18-3
County of Los Angeles Construction Equipment Noise Restrictions

Residential Structures			
	Single Family Residential	**Multi-Family Residential**	**Semi-Residential/ Commercial[1]**
Mobile Equipment: Maximum noise levels for nonscheduled, intermittent, short-term operation (less than 10 days) of mobile equipment:			
Daily, except Sundays and legal holidays, 7:00 AM to 8:00 PM	75 dB(A) L_{eq}	80 dB(A) L_{eq}	85 dB(A) L_{eq}
Daily, 8:00 PM to 7:00 AM and all day Sunday and legal holidays	60 dB(A) L_{eq}	64 dB(A) L_{eq}	70 dB(A) L_{eq}
Stationary Equipment: Maximum noise level for repetitively scheduled and relatively long-term operation (periods of 10 days or more) of stationary equipment:			
Daily, except Sundays and legal holidays, 7:00 AM to 8:00 PM	60 dB(A) L_{eq}	65 dB(A) L_{eq}	70 dB(A) L_{eq}
Daily, 8:00 PM to 7:00 AM and all day Sunday and legal holidays	50 dB(A) L_{eq}	55 dB(A) L_{eq}	60 dB(A) L_{eq}
Business Structures			
		All Structures	
Mobile Equipment; Maximum noise levels for nonscheduled, intermittent, short-term operation of mobile equipment:			
Daily, including Sunday and legal holidays, all hours		85 dB(A) L_{eq}	

Source: County of Los Angeles Ordinance No. 11743, Section 12.08.440.

[1] *Refers to residential structures within a commercial area. This standard does not apply to commercial structures.*

Vibration

With respect to groundborne vibration caused by construction activities, Section 12.08.560 of the County's Noise Ordinance governs 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 inches/second over the range of 1 to 100 Hertz. (Ord. 11778 Section 2 [Art. 5 Section 501 (d)], 1978; Ord 11773 Section 2 [Art. 5 Section 501(s)], 1978.)*

Under Section 12.08.560, the project would result in a significant vibration impact if the vibration exceeds a motion velocity of 0.01 inch/second over the range of 1 to 100 Hertz.

THRESHOLDS OF SIGNIFICANCE

The following thresholds of significance are based on the Appendix G of the *State CEQA Guidelines*, the State Land Use Compatibility Guidelines for Noise, as well as the noise standards outlined in the County's Noise Ordinance.

Construction Thresholds

If construction noise levels within the County's Planning Area would be in violation of the County Noise Ordinance and County of Los Angeles Construction Equipment Noise Restrictions, a significant construction noise impact would occur.

If construction creates vibration at or beyond the property boundary that is in exceedance of the vibration perception threshold of 0.01 inch/second over the range of 1 to 100 Hertz, a significant vibration impact would occur.

Operational Thresholds

Stationary Source Noise Thresholds

County's Ordinance:

Should stationary source noise from activities within the unincorporated area of the County of Los Angeles exceed County of Los Angeles Exterior Noise Standards for Stationary and Point Noise Sources, a significant noise impact would occur.

Mobile Source Noise Thresholds

The proposed Area Plan would result in a significant mobile source noise impact if future development in the County's Planning Area would generate traffic that would cause exterior use areas to be exposed to continuous noise levels greater than those identified in the *State Land Use Compatibility Guidelines* (for land in unincorporated areas)[13] or the *City's Land Use Compatibility Guidelines* (for land within the City) for the affected land use

13 As previously stated, the County defers to the *State Land Use Compatibility Guidelines*.

Additionally, a significance threshold of 5 dB is used for a change in environmental noise that occurs slowly over a long period of time. Therefore, a significant mobile source noise impact would occur if a roadway link within the OVOV Planning Area experiences a sound level increase of 5 dB or greater at buildout of the Planning Area.

Noise generated by emergency vehicles is not under the control of the County. The County noise ordinance exempts emergency operations from noise regulation. The state has preempted local jurisdictions from controlling noise generated by emergency equipment. The use of sirens on police vehicles, ambulances, and fire trucks cannot be controlled by the County. Similarly, emergency flights of helicopters and airplanes cannot be controlled by the County. Therefore, there is no threshold of significance for emergency vehicles.

Interior Noise Thresholds

Should buildout of the proposed Area Plan cause interior noise levels from exterior sources to exceed 45 dB(A) L_{eq} between 7:00 AM and 10:00 PM, or 40 dB(A) L_{eq} between 10:00 PM and 7:00 (e.g., hotels, motels, dormitories, long-term care facilities, and apartment houses and other dwellings, except detached single-family dwellings) with doors and windows closed, a significant noise impact would occur.

IMPACT ANALYSIS

This impact analysis section evaluates the potential effects of the proposed Area Plan policies on noise within the County's Planning Area using the *State CEQA Guidelines* threshold of significance, the State Land Use Compatibility Guidelines for Noise, as well as the noise standards outlined in the County's Noise Ordinance.

Construction Impacts

Impact 3.18-1 **Potentially significant construction noise and vibration impacts could occur in unincorporated portions of the OVOV Planning Area during buildout.**

Noise

Construction noise would occur with the development of the proposed Area Plan. Usually, construction noise is of relatively short duration, lasting from a few days to a period of several months, and consists of one to four phases.

In general, the first and noisiest stage is site preparation, which usually involves existing structure removal, earth moving, compaction of soils and the removal of excess materials. High noise levels created during this phase would be associated with the operation of heavy-duty trucks, scrapers, graders, backhoes, and front-end loaders. When construction equipment is operating, noise levels can range from 73 to 96 dB(A) at a distance of 50 feet from individual pieces of equipment.

During the second stage of construction, foundation forms are constructed and concrete foundations are poured. Primary noise sources include heavy concrete trucks and mixers, cranes, and pneumatic drills. At 50 feet from the source, noise levels in the 70 to 90 dB(A) range are common. The third and fourth stages consist of interior and facade construction, and site cleanup. Primary noise sources associated with the third phase include hammering, diesel generators, compressors, and light truck traffic. Noise levels are typically in the 60 to 80 dB(A) range at a distance of 50 feet.

The final stages typically involves the use of trucks, landscape rollers and compactors, with noise levels in the 65 to 75 dB(A) range. Consequently, as development occurs within the OVOV Planning Area, noise levels within the County's Planning Area would occasionally be in violation of County Noise Ordinance and County of Los Angeles Construction Equipment Noise Restrictions

Implementation of **Policies N 1.1.1 to N 1.1.4**, **N 1.1.6, N 2.1.2**, **N 3.1.3**, and **N 3.1.4** would reduce construction source noise through development review and comment, implementation of adopted noise ordinance and code provisions, use of noise-absorbing barriers where appropriate, and regulating noise from construction activities near residential neighborhoods.

Vibration

Ground vibrations from construction activities very rarely reach the levels that can damage structures, but they can achieve the audible range and be felt in buildings very close to the site. The primary and most intensive vibration source associated with the proposed Area Plan would be the use of bulldozers and pile drivers during construction. These types of equipment can create intense noise that is disturbing and can result in ground vibrations.

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 to slight structural damage at the highest levels. Ground vibrations from construction activities rarely reach the levels that can damage structures, but they can achieve the audible and perceptible ranges in buildings close to the construction site. **Table 3.18-4, Vibration Source Levels for Construction Equipment**, lists vibration source levels for construction equipment.

As indicated in **Table 3.18-4**, pile drivers and large bulldozers are capable of producing approximately 1.5 and 0.09 in/sec respectively, at 25 feet. Existing and proposed land uses in and around the proposed Area Plan consist of uses considered to be sensitive. Depending on the location of operations of construction equipment near these areas, there the potential for construction activities, such as pile driving, to exceed the vibration perception threshold of 0.01 inch/second

Table 3.18-4
Vibration Source Levels for Construction Equipment

Equipment		in/sec at 25 feet
Pile driver (impact)	Upper Range	1.518
	Typical	0.644
Pile driver (vibratory)	Upper Range	0.734
	Typical	0.170
Clam shovel drop (slurry wall)		0.202
Hydromill (slurry wall)	In soil	0.008
	In rock	0.017
Large bulldozer		0.089
Caisson drilling		0.089
Loaded trucks		0.076
Jackhammer		0.035
Small bulldozer		0.003

Source: Office of Planning and Environment, Federal Transit Administration, Transit Noise and Vibration Impact Assessment (May 2006) FTA-VA-90-1003-06, 12-9.

Implementation of **Policies N 1.1.1 to N 1.1.4**, **N 1.1.6, N 2.1.2**, **N 3.1.3**, and **N 3.1.4** would reduce construction source noise through development review and comment, implementation of adopted noise ordinance and code provisions, use of noise-absorbing barriers where appropriate, and regulating noise from construction activities near residential neighborhoods.

Proposed Area Plan Policies

Policy N 1.1.1: Use the Noise and Land Use Compatibility Guidelines contained in Figure N 8, which are consistent with State guidelines, as a policy basis for decisions on land use and development proposals related to noise.

Policy N 1.1.2: Continue to implement the adopted Noise Ordinance and other applicable code provisions, consistent with state and federal standards, which establish noise impact thresholds for noise abatement and attenuation, in order to reduce potential health hazards associated with high noise levels.

Policy N 1.1.3: Include consideration of potential noise impacts in land use planning and development review decisions.

Policy N 1.1.4: Control noise sources adjacent to residential, recreational, and community facilities, and those land uses classified as noise sensitive.

Policy N 1.1.6: Provide development review comments on projects proposed by other agencies and special districts that may generate noise impacts affecting land uses within the Santa Clarita Valley, including any freeway and high-speed rail projects.

Policy N 2.1.2: Encourage the use of noise absorbing barriers, where appropriate.

Policy N 3.1.3: Through enforcement of the applicable Noise Ordinance, protect residential neighborhoods from noise generated by machinery or activities that produce significant discernable noise exceeding recommended levels for residential uses.

Policy N 3.1.4: Require that those responsible for construction activities develop techniques to mitigate or minimize the noise impacts on residences, and adopt standards that regulate noise from construction activities that occur in or near residential neighborhoods.

Effectiveness of Proposed Area Plan Policies

The proposed policies are designed to reduce construction source noise through development review and comment, implementation of adopted noise ordinance and code provisions, use of noise-absorbing barriers where appropriate, and regulating noise from construction activities near residential neighborhoods. Nonetheless, construction noise impacts under the proposed Area Plan could be in violation of the County Noise Ordinance and County of Los Angeles Construction Equipment Noise Restrictions, and a significant noise impact could occur.

None of the proposed policies address vibration impacts. In the event that construction creates vibration at or beyond the property boundary that is in exceedance of the vibration perception threshold of 0.01 inch/second over the range of 1 to 199 Hertz, a significant vibration impact would occur.

Plan to Plan Analysis

Both the existing and proposed Area Plans provide policies that would ensure for designed to minimize construction noise impacts through development review, implementation of noise ordinances and code provisions. However depending upon the location of sensitive land uses, construction activities could present significant noise issues in both the existing and proposed Plans. Vibration is not an issue that is discussed in either the existing or proposed Plan. Impacts to noise would be the same under both Plans.

Operational Impacts

Impact 3.18-2 **Future stationary noise levels would not exceed County of Los Angeles Exterior Noise Standards for Stationary and Point Noise Sources; new vehicular traffic and rail noise within the City of Santa Clarita would not cause a 5 dB or greater increase in the ambient noise environment.**

Buildout of the OVOV Planning Area could cause exterior use areas to be exposed to continuous noise levels greater than those identified in the *State Land Use Compatibility Guidelines* for the affected land use, which are used by the County of Los Angeles to determine noise impacts, and result in a potentially significant noise impact.

Stationary Source Noise

The primary sources of stationary noises in the County's Planning Area include Six Flags Magic Mountain and special events.

Six Flags Magic Mountain

Six Flags Magic Mountain is an amusement park located southwest of the I-5/SR-14 interchange. The park operates a large number of thrill rides, including 17 roller coasters, live entertainment, and periodic firework displays. The fireworks displays occur predominantly during the summer months and at Thanksgiving and Christmas. With the exception of the display on July 4, which typically lasts 15 minutes, the displays last between 1 and 2 minutes. All displays occur before 10:00 PM. Fireworks are an impulsive noise source, which means, under Section 12.08.190 of the County's Noise Ordinance, that it is of short duration, usually less than 1 second and of high intensity, with an abrupt onset and rapid decay. The noise levels and hours of operation around the park vary considerably depending on the time

of day, the day of the week, the presence of holidays, and the season of the year. The noise levels generated by park activities can be heard for a considerable distance around the park at certain times.

No applicable threshold of significance exists for the impact that the impulsive noise that the permitted fireworks displays would have on the project site. For some future residents along the eastern edge of the project, regular and visible short-term fireworks displays may be desirable. Noise from fireworks may be considered a nuisance by other residents, particularly if the displays are not visible from their residences.

Special Events

Special events, such as outdoor concerts, may be held on an irregular or regular basis. Control of noise sources on private property is not typically part of the Area Plan, but is rather under the purview of the County Code. The Los Angeles County Noise Ordinance, contained in Chapter 12.08 of the County Code, includes specific noise limits that cannot be exceeded at the property boundary. The limits vary depending on the time of day and land uses involved.

Mobile Source Noise

Traffic Noise

Traffic volumes would continue to increase in the OVOV Planning Area as it builds out, and traffic noise levels would increase correspondingly. The following analysis compares existing traffic noise levels along selected roadway segments with projected traffic noise levels under the existing Area Plan and General Plan and under the proposed Area Plan and General Plan. Of the 318 roadway links analyzed in the traffic report (**Appendix 3.2**), 27 roadway segments were determined to experience a cumulative noise increase of 5 dB or greater under the existing Area Plan and General Plan (see **Table 3.18-5, Sound Level Comparison: Existing Conditions and Existing Area Plan and General Plan Buildout Conditions**), and 29 roadway segments were determined to experience a cumulative noise increase of 5 dB or greater under the proposed Area Plan and General Plan (see **Table 3.18-6, Sound Level Comparison: Existing Conditions and OVOV Buildout Conditions**). Eighteen of these segments which are identified in both **Tables 3.18-5 and 3.18-6** are in unincorporated Los Angeles County, while the remaining are within the City of Santa Clarita. These segments included:

- Agua Dulce Canyon Road n/o Davenport Road
- Agua Dulce Canyon Road n/o SR-14
- Chiquito Canyon (Long Canyon) n/o SR-126

- Franklin e/o Wolcott Way
- Golden Valley Road s/o Plum Canyon
- Hasley Canyon Rd. w/o Del Valle Road
- Henry Mayo e/o Commerce Center
- Lake Hughes Road e/o Castaic
- Lake Hughes Rd. e/o Ridge Route
- Lost Canyon Road s/o Via Princessa
- Magic Mountain Parkway w/o The Old Road
- Pico Canyon Road w/o Stevenson Ranch Parkway
- Ridge Route Road n/o Lake Hughes Road
- San Martinez Grande Canyon n/o SR-126
- The Old Road n/o Hillcrest Parkway
- Valencia Pkwy w/o The Old Road
- Via Princessa n/o Lost Canyon Road
- Wolcott Way n/o SR-126

A cumulative noise level increase of 5 dB or greater is a significant noise impact. Buildout of the proposed Area Plan and General Plan would result in two or more roadways experiencing a noise level increase of 5 dB or greater when compared to buildout under the existing Area Plan and General Plan.

Table 3.18-5
Sound Level Comparison: Existing Conditions and Existing Area Plan and General Plan Buildout Conditions

Segment No.	Roadway Link	City/SOI/ County/	Existing Land Use[1]	Existing Noise Level	Existing General Plan and Area Plan Buildout Noise Level
2	Agua Dulce Cyn Rd n/o Davenport Rd.[3]	LA	Sparse Residential	63.5	69.8
3	Agua Dulce Cyn Rd. n/o SR-14[3]	LA	Open Space	83.9	86.7
4	Agua Dulce Cyn Rd. s/o SR-14[3]	LA	Open Space	83.8	86.6
8	Ave Stanford s/o Vanderbilt	SC	Commercial	NA	NA
29	Chiquito Cyn (Long Cyn) n/o SR-126[3]	LA	Open Space	NA	NA
41	Copper Hill Dr. e/o Haskell Cyn Rd.	SC/SOI	Residential	62.9	68.5
43	Davenport e/o Sierra Hwy	LA	Commercial	55.8	58.8
53	Dockweiler Dr. w/o Sierra Hwy	SC	Sparse Residential	59.7	66.7
55	Franklin e/o Wolcott Way[3]	LA	Open Space	NA	NA
57	Golden Valley Rd. s/o Plum Cyn[3]	SC/SOI	Residential	61.7	75.1
68	Hasley Cyn Rd. w/o Del Valle Rd.[3]	LA	Open Space	59.2	64.8
72	Henry Mayo Dr e/o Commerce Center	LA	Residential	62.9	68.2
77	Lake Hughes Rd. e/o Castaic[3]	LA	Mixed	65.5	72.3
78	Lake Hughes Rd. e/o Ridge Route[3]	LA	Commercial	60.4	68.1
84	Lost Cyn Rd n/o Jakes Way	LA	Residential	0	70.2
85	Lost Cyn Rd n/o Canyon Park	LA	Residential	0	68.5
87	Lost Cyn Rd s/o Via Princessa[3]	SC/LA	Residential	67.3	70.4
98	Magic Mtn Pkwy w/o The Old Road[3]	LA	Open Space	70.7	74.6
105	Magic Mtn Pkwy e/o Valencia	SC	Mixed	70.6	74.2
128	Newhall Ranch Rd. e/o Bouquet Cyn Rd	SC	Mixed	65.8	73.8
143	Pico Cyn Rd. w/o Stevenson Rnch Pkwy[3]	LA	Residential	63.5	73.3
161	Ridge Route Rd. n/o Lake Hughes Rd.[3]	LA	Mixed	64.3	72.9

Segment No.	Roadway Link	City/SOI/ County/	Existing Land Use[1]	Existing Noise Level	Existing General Plan and Area Plan Buildout Noise Level
162	Ridge Route n/o Castaic	LA	Commercial	64.3	63.4
172	San Martinez Grande Cyn n/o SR-126[3]	LA	Open Space	NA	NA
238	The Old Road n/o Hillcrest Pkwy[3]	LA	Mixed	68.5	71.1
254	Ave. Tibbitts s/o Newhall Ranch Rd.	SC	Commercial	62.3	68.1
262	Valencia Pkwy w/o The Old Road[3]	LA	Residential	69.1	73.7
276	Via Princessa e/o Oak Ridge	SC	Residential	NA	NA
279	Via Princessa w/o Rainbow Glen Dr.	SC	Residential	NA	NA
280	Via Princessa e/o Rainbow Glen Dr.	SC	Residential	NA	NA
283	Via Princessa n/o Lost Cyn Rd.[3]	LA	Residential	66.6	69.2
290	Wiley Cyn Rd e/o Orchard Village Rd.	SC	Residential	67.1	70.5
293	Wiley Cyn Rd s/o Lyons Ave	SC	Residential	61.2	65.1
294	Wiley Cyn Rd n/o Calgrove	SC	Residential	62.3	67.2
295	Wolcott Way n/o SR-126[3]	LA	Open Space	NA	NA

Table 3.18-6
Sound Level Comparison: Existing Conditions and OVOV Buildout Conditions

Segment No.	Roadway Link	City/SOI/ County/	Existing Land Use[1]	Existing Noise Level	OVOV Planning Area Buildout Noise Level	Cumulative Increase
2	Agua Dulce Cyn Rd. n/o Davenport Rd.[2]	LA	Sparse Residential	63.5	69.8	6.4
3	Agua Dulce Cyn Rd. n/o SR-14[2]	LA	Open Space	83.9	85.6	6.7
4	Agua Dulce Cyn Rd. s/o SR-14[3]	LA	Open Space	83.8	85.5	4.8
8	Ave Stanford s/o Vanderbilt	SC	Commercial	NA	NA	5.3
29	Chiquito Cyn (Long Cyn) n/o SR-126[2]	LA	Open Space	NA	NA	11.0
41	Copper Hill Dr. e/o Haskell Cyn Rd.	SC/SOI	Residential	62.9	68.2	5.3
43	Agua Dulce Cyn Rd. s/o SR-14[3]	LA	Commercial	55.8	59.7	4.0
53	Dockweiler Dr. w/o Sierra Hwy	SC	Sparse Residential	59.7	66.6	6.8
55	Franklin e/o Wolcott Way[2]	LA	Open Space	NA	NA	9.0
57	Golden Valley Rd. s/o Plum Cyn[2]	SC/SOI	Residential	61.7	75.1	7.8
68	Hasley Cyn Rd. w/o Del Valle Rd.[2]	LA	Open Space	59.2	65.6	6.4
72	Henry Mayo Dr e/o Commerce Center	LA	Residential	62.9	68.0	5.1
77	Lake Hughes Rd. e/o Castaic[2]	LA	Mixed	65.5	71.6	6.1
78	Lake Hughes Rd. e/o Ridge Route[2]	LA	Commercial	60.4	65.8	5.4
84	Lost Cyn Rd n/o Jakes Way	LA	Residential	0	71.3	NA
85	Lost Cyn Rd n/o Canyon Park	LA	Residential	0	68.5	NA
87	Lost Cyn Rd. s/o Via Princessa[2]	SC/LA	Residential	67.3	70.6	7.4
98	Magic Mtn Pkwy w/o The Old Road[2]	LA	Open Space	70.7	76.5	7.3
105	Magic Mtn Pkwy e/o Valencia	SC	Mixed	70.6	74.5	5.2
128	Newhall Ranch Rd. e/o Bouquet Cyn Rd.	SC	Mixed	65.8	74.1	8.3
143	Pico Cyn Rd. w/o Stevenson Rnch Pkwy[2]	LA	Residential	63.5	73.3	9.9
161	Ridge Route Rd. n/o Lake Hughes Rd.[2]	LA	Mixed	64.3	72.8	8.5

Segment No.	Roadway Link	City/SOI/ County/	Existing Land Use[1]	Existing Noise Level	OVOV Planning Area Buildout Noise Level	Cumulative Increase
162	Ridge Route n/o Castaic	LA	Commercial	64.3	66.4	2.0
172	San Martinez Grande Cyn n/o SR-126[2]	LA	Open Space	NA	NA	7.0
238	The Old Road n/o Hillcrest Pkwy[2]	LA	Mixed	68.5	67.7	6.4
254	Ave. Tibbitts s/o Newhall Ranch Rd.	SC	Commercial	62.3	69.2	5.4
262	Valencia Pkwy w/o The Old Road[2]	LA	Residential	69.1	73.8	5.8
276	Via Princessa e/o Oak Ridge	SC	Residential	NA	NA	5.6
279	Via Princessa w/o Rainbow Glen Dr.	SC	Residential	NA	NA	10.8
280	Via Princessa e/o Rainbow Glen Dr.	SC	Residential	NA	NA	7.2
283	Via Princessa n/o Lost Cyn Rd.[2]	LA	Residential	66.6	68.7	7.0
290	Wiley Cyn Rd. e/o Orchard Village Rd.	SC	Residential	67.1	71.0	5.7
293	Wiley Cyn Rd s/o Lyons Ave	SC	Residential	61.2	69.7	5.4
294	Wiley Cyn Rd n/o Calgrove	SC	Residential	62.3	67.2	4.3
295	Wolcott Way n/o SR-126[2]	LA	Open Space	NA	NA	7.8

Source: Mestre-Greve Associates, March 2009.
NA – existing traffic volumes were not available.
n/o = north of; s/o = south of; e/o = east of; w/o = west of
[1] *Land uses as observed from aerials and during land use surveys.*
[2] *These roadway segments are within unincorporated Los Angeles County; the remaining segments are within the City of Santa Clarita.*

Table 3.18-7, Sound Level Comparison: Existing Area Plan and General Plan vs. OVOV Buildout Conditions, compares future noise levels along the 29 roadway segments in the OVOV Planning Area. Compared to the existing General Plan and Area Plan, noise levels under the proposed General Plan and Area Plan would be less along eight roadway segments, greater along 12 segments, and unchanged along the remaining segments. The net increase or decrease in noise levels would be less than 3 dB and not perceptible to the human ear.

Future Rail Noise Along Existing Rail Lines

The Multi-County Goods Movement Action Plan prepared for Los Angeles County in April, 2008, and the draft 2008 Long Range Transportation Plan (LRTP) contain the most recent available data on existing and future planned rail operations in the Santa Clarita Valley.

Both Metrolink and freight trains utilize the railroad line. In future years both the operations of freight and Metrolink are expected to increase. According to the Multi-County Goods Movement Action Plan, the number of freight trains expected to use the Southern Pacific rail line from Los Angeles through the Santa Clarita Valley by 2025 ranges from 27 to 49 trains per day. The LRTP that shows proposed rail facilities and increased operations throughout its service area, including adding reverse commute service on the Antelope Valley line, expanding capacity on existing trains, and adding four Metrolink trains from Santa Clarita to Los Angeles.

Based on data from both of these documents, a moderate increase in the CNEL noise level of 2.4 dB is projected to occur by 2030. The noise increase was derived using the Wyle train noise model and imputing existing and future rail operations. Noise calculations are provided in the Mestre Greve report in **Appendix 3.18**. Existing and projected train noise contours shown on **Figure 3.18-8; Figure 3.18-10, Existing General Plan Projected Noise Contours;** and **Figure 3.18-11, OVOV Planning Area Noise Contours**. The projected level of rail noise increase would occur under either the existing Area Plan/General Plan or the proposed Area Plan/General Plan, and it is not considered to be a substantial noise increase that would adversely affect community noise levels.

Table 3.18-7
Sound Level Comparison: Existing Area Plan and General Plan vs. OVOV Buildout Conditions

Segment No.	Roadway Link	City/SOI/ County/	Existing Land Use[1]	Existing General Plan and Area Plan Buildout Noise Level	OVOV Planning Area Buildout Noise Level	Project Contribution
2	Agua Dulce Cyn Rd n/o Davenport Rd[2]	LA	Sparse Residential	69.8	69.8	0.0
3	Agua Dulce Cyn Rd n/o SR-14[2]	LA	Open Space	86.7	85.6	0.0
4	Agua Dulce Cyn Rd. s/o SR-14[3]	LA	Open Space	86.6	85.5	1.8
8	Ave Stanford s/o Vanderbilt	SC	Commercial	NA	NA	0.8
29	Chiquito Cyn (Long Cyn) n/o SR-126[2]	LA	Open Space	NA	NA	-0.3
41	Copper Hill Dr. e/o Haskell Cyn Rd	SC/SOI	Residential	68.5	68.2	-0.2
43	Agua Dulce Cyn Rd. s/o SR-14[3]	LA	Commercial	58.8	59.7	1.0
53	Dockweiler Dr. w/o Sierra Hwy	SC	Sparse Residential	66.7	66.6	-0.2
55	Franklin e/o Wolcott Way[2]	LA	Open Space	NA	NA	0.0
57	Golden Valley Rd s/o Plum Cyn[2]	SC/SOI	Residential	75.1	75.1	0.0
68	Hasley Cyn Rd w/o Del Valle Rd[2]	LA	Open Space	68.2	68.0	0.7
72	Henry Mayo Dr e/o Commerce Center	LA	Residential	72.3	71.6	-0.3
77	Lake Hughes Rd e/o Castaic[2]	LA	Mixed	68.1	65.8	-0.7
78	Lake Hughes Rd e/o Ridge Route[2]	LA	Commercial	70.2	71.3	-2.3
84	Lost Cyn Rd n/o Jakes Way	LA	Residential	68.5	68.5	1.1
85	Lost Cyn Rd n/o Canyon Park	LA	Residential	70.4	70.6	1.1
87	Lost Cyn Rd s/o Via Princessa[2]	SC/LA	Residential	74.6	76.5	-0.4
98	Magic Mtn Pkwy w/o The Old Road[2]	LA	Open Space	74.2	74.5	0.1
105	Magic Mtn Pkwy e/o Valencia	SC	Mixed	73.3	73.3	0.1
128	Newhall Ranch Rd e/o Bouquet Cyn Rd	SC	Mixed	72.9	72.8	0.3

Segment No.	Roadway Link	City/SOI/ County/	Existing Land Use[1]	Existing General Plan and Area Plan Buildout Noise Level	OVOV Planning Area Buildout Noise Level	Project Contribution
143	Pico Cyn Rd w/o Stevenson Rnch Pkwy[2]	LA	Residential	63.4	66.4	0.0
161	Ridge Route Rd n/o Lake Hughes Rd[2]	LA	Mixed	69.8	NA	-0.1
162	Ridge Route n/o Castaic	LA	Commercial	86.7	67.7	3.0
172	San Martinez Grande Cyn n/o SR-126[2]	LA	Open Space	NA	69.8	-1.5
238	The Old Road n/o Hillcrest Pkwy[2]	LA	Mixed	71.1	85.6	-0.3
254	Ave. Tibbitts s/o Newhall Ranch Rd	SC	Commercial	68.1	69.2	-0.4
262	Valencia Pkwy w/o The Old Road[2]	LA	Residential	73.7	73.8	0.1
276	Via Princessa e/o Oak Ridge	SC	Residential	NA	NA	-0.1
279	Via Princessa w/o Rainbow Glen Dr.	SC	Residential	NA	NA	0.2
280	Via Princessa e/o Rainbow Glen Dr.	SC	Residential	NA	NA	0.0
283	Via Princessa n/o Lost Cyn Rd[2]	LA	Residential	69.2	68.7	0.4
290	Wiley Cyn Rd e/o Orchard Village Rd	SC	Residential	70.5	71.0	0.3
293	Wiley Cyn Rd s/o Lyons Ave	SC	Residential	65.1	69.7	1.5
294	Wiley Cyn Rd n/o Calgrove	SC	Residential	67.2	67.2	1.0
295	Wolcott Way n/o SR-126[2]	LA	Open Space	NA	NA	0.0

Source: Mestre-Greve Associates, March 2009.
NA – existing traffic volumes were not available.
n/o = north of; s/o = south of e/o = east of; w/o = west of
[1] *Land uses as observed from aerials and during land use surveys.*
[2] *These roadway segments are within unincorporated Los Angeles County; the remaining segments are within the City of Santa Clarita.*

Legend:

- OVOV Planning Area
- City of Santa Clarita
- Angeles National Forest
- Sphere of Influence

Existing Roadway Noise Contours

- 60CNEL
- 65CNEL
- 70CNEL

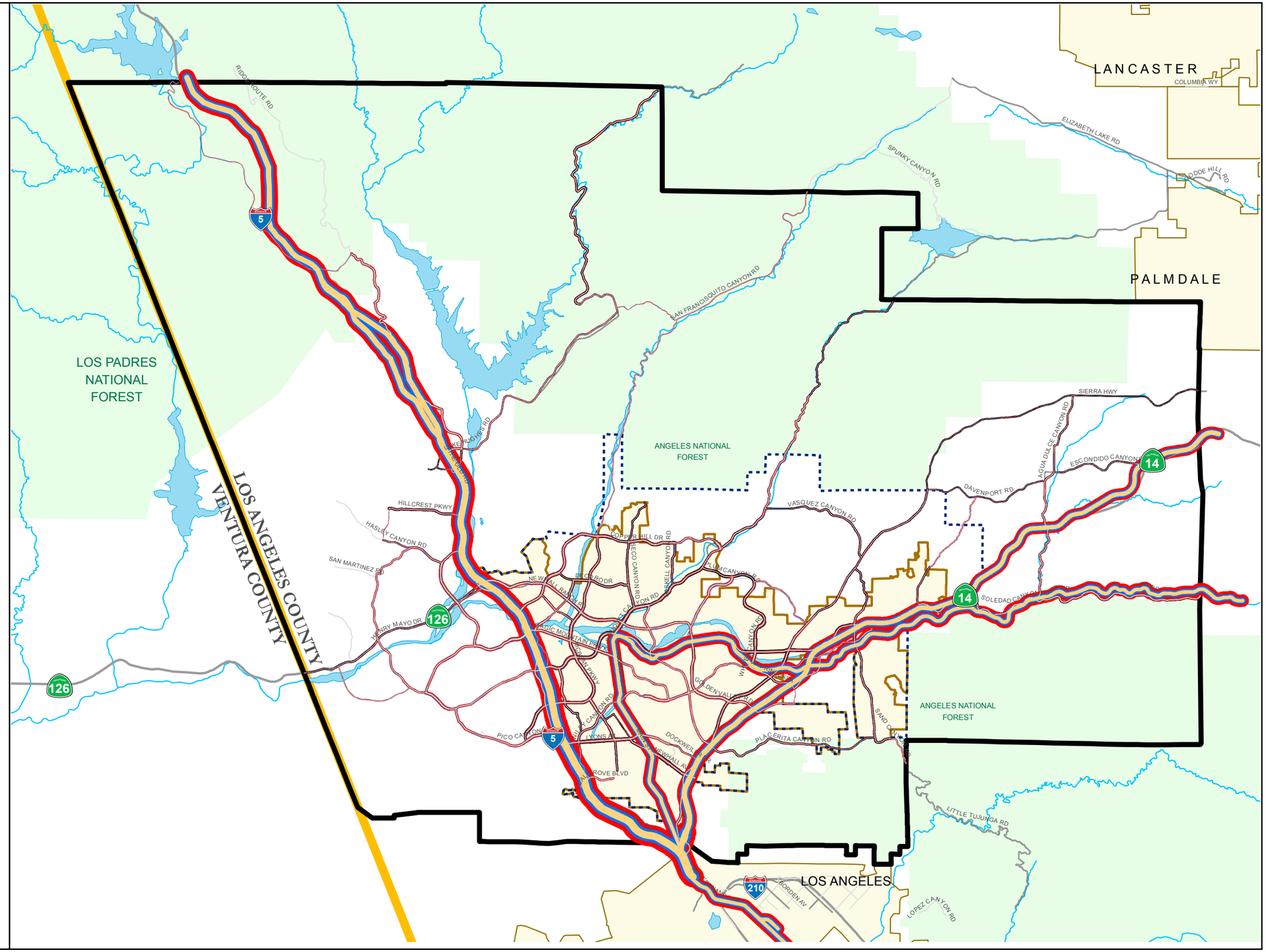
Hydrography

- Waterbody and Perennial Stream

Source: City of Santa Clarita - Planning and LA County - Regional Planning, OVOV Boundary, 2008. City of Santa Clarita City Boundary - 2008; Thomas Bros., Hydrology, Waterbodies, and Streets, 2008; LA County - Regional Planning, Forest Boundaries, 2007. Mestre Greve Associates - Noise Contours, December 2008.

2 1 0 2

APPROXIMATE SCALE IN MILES



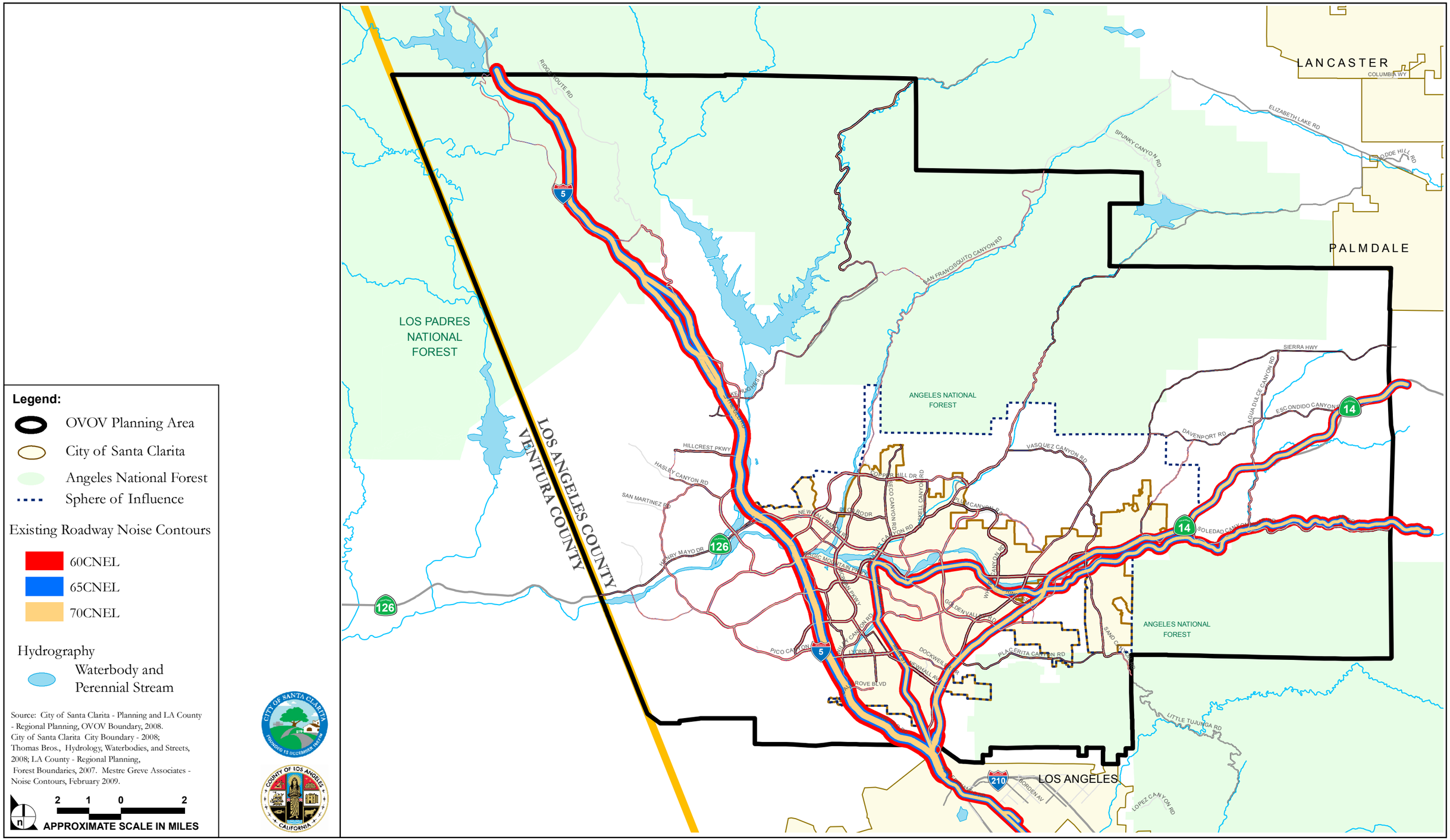
SOURCE: City of Santa Clarita General Plan Update Noise Element - 2009

FIGURE **3.18-10**

Existing General Plan Projected Noise Contours

112-023•08/09

Q:\PROJECTS\MASTER\OVOV\ExhibitMaps\NoiseElement\CurrentGPNoise.mxd



Legend:

- OVOV Planning Area
- City of Santa Clarita
- Angeles National Forest
- Sphere of Influence

Existing Roadway Noise Contours

- 60CNEL
- 65CNEL
- 70CNEL

Hydrography

- Waterbody and Perennial Stream

Source: City of Santa Clarita - Planning and LA County - Regional Planning, OVOV Boundary, 2008. City of Santa Clarita City Boundary - 2008; Thomas Bros., Hydrology, Waterbodies, and Streets, 2008; LA County - Regional Planning, Forest Boundaries, 2007. Mestre Greve Associates - Noise Contours, February 2009.

2 1 0 2

APPROXIMATE SCALE IN MILES

SOURCE: City of Santa Clarita General Plan Update Noise Element - 2009

FIGURE **3.18-11**

OVOV Planning Area Noise Contours

Q:\PROJECTS\MASTER\OVOV\ExhibitMaps\NoiseElement\N-7ProjectedNoise.mxd

Noise Impacts Along Potential Future Rail Lines

A high-speed rail line is being planned by the California High-Speed Rail Authority to connect northern and southern California. The anticipated route of this railway would run from Sacramento to Los Angeles, and would likely traverse the Santa Clarita Valley in the area of the Antelope Valley Freeway (SR-14) corridor. As the planning for this project proceeds, a separate EIR would be required to evaluate potential impacts of the proposed high-speed rail line, including noise impacts. At the time of this writing, the precise route of the future high-speed rail line through the OVOV Planning Area is not known, and the type of train and corresponding noise levels have not been determined. Therefore, no substantive planning in regard to future noise impacts from high-speed rail can be addressed in this impact analysis. Nonetheless, there is potential for significant noise and vibration impacts with operations of a high-speed rail system through the Valley.

Noise Impacts Associated with High Density Development Along Railroad Lines

As part of the OVOV strategy to encourage Transit-Oriented Development (TOD) in the Santa Clarita Valley, higher density residential housing, and mixed-use commercial districts that may contain residential uses, are planned in proximity to portions of the railroad currently used for freight and Metrolink passenger service. As previously noted, a moderate increase in the CNEL noise level of 2.4 dB is projected to occur along rail lines at buildout. This increase is not considered substantial and it would not adversely affect community noise levels.

Although the 24-hour CNEL noise scale is the best scale to use for environmental noise, it is not suited to calculate the annoyance and activity disruption of single event noises, such as a train pass-by. No applicable threshold of significance exists for the impact of these single event noises. While living close to a rail station in a mixed-use development may provide conveniences and be desirable for some, noise and vibration from intermittent rail pass-bys may be considered a nuisance by other residents who could be adversely affected.

Airport Noise Sources

The Agua Dulce Airport is located in the sparsely populated, unincorporated northeastern quadrant of the County's Planning Area. It is privately owned but is open to the public. The airport has a single 4,600 foot-long runway and serves general aviation aircraft only. A 65 CNEL noise contour has been generated for the airport by the County of Los Angeles (see **Figure 3.18-12, Agua Dulce Airport 65 dB CNEL Contour**). As shown, the noise contour barely extends past the ends of the runway and does not impact any existing residences.

Flight operations are not permitted at night. Furthermore, aircraft are not allowed to fly within 1,000 feet of a school located 1 mile southwest of the airport, and aircraft departing to the north on Runway 4 are to avoid flying over the homes 2,000 feet northeast of the end of the runway. Finally, touch and go practices are not permitted. All of these restrictions have a beneficial noise impact on the surrounding environment. The Agua Dulce Airport does not have a master plan; rather, the Los Angeles County Airport Land Use Plan (1991) covers all public airports in the County, with the exception of Fox Airfield. Under the adopted Airport Land Use Plan, no residences are permitted outside the 60 db(A) CNEL contour without ensuring that interior noise levels of 45 dB(A) CNEL or less can be achieved.[14]

Policies N 3.1.1 and **N 3.1.5** would ensure acceptable interior noise levels in residences, schools, childcare centers, senior housing, and other noise sensitive uses.

Policies C 2.3.3, C 2.4.2, LU 3.3.1, LU 4.1.3, LU 7.7.1, CO 2.3.3, CO 9.1.11, N 1.1.1, N 1.1.2, N 1.1.3, N 1.1.4, **N 1.1.6, N 3.1.1**, **N 3.1.2**, **N 31.3**, **N 3.1.6**, **N 3.1.7, N 3.1.8**, **N 3.1.9**, **N 4.1.1**, **N 4.1.2**, and **N 4.1.3** would ensure land use compatibility so that noise sensitive receptors are not adversely affected by stationary and mobile source noise, and that business centers, rather than noise sensitive uses, are placed along major transportation corridors.

Policies C 1.3.6, **C 2.2.6**, **N 2.1.1 to N 2.1.7** would reduce traffic noise by supporting alternative forms of transportation, promoting walkable neighborhoods and business districts, reducing the number of cars on roadways, and constructing sound barriers. **Policy C 1.3.5** would ensure that new development would not be adversely affected by airport noise. **Policy C 3.1.8** would minimize noise impacts for increases in rail service in the Valley. **Policies N 3.1.1** and **N 3.1.5**.would ensure acceptable interior noise levels in residences, schools, childcare centers, senior housing, and other noise sensitive uses.

Proposed Area Plan Policies

Policy LU 2.3.3: Manufacturing, processing of goods and materials, and warehousing should not be allowable uses in a mixed use development, although some light manufacturing and warehousing may be appropriate in second story units.

Policy LU 3.3.1: Identify areas subject to hazards from seismic activity, unstable soils, excessive noise, unhealthful air quality, or flooding, and avoid designating residential uses in these areas unless adequately mitigated.

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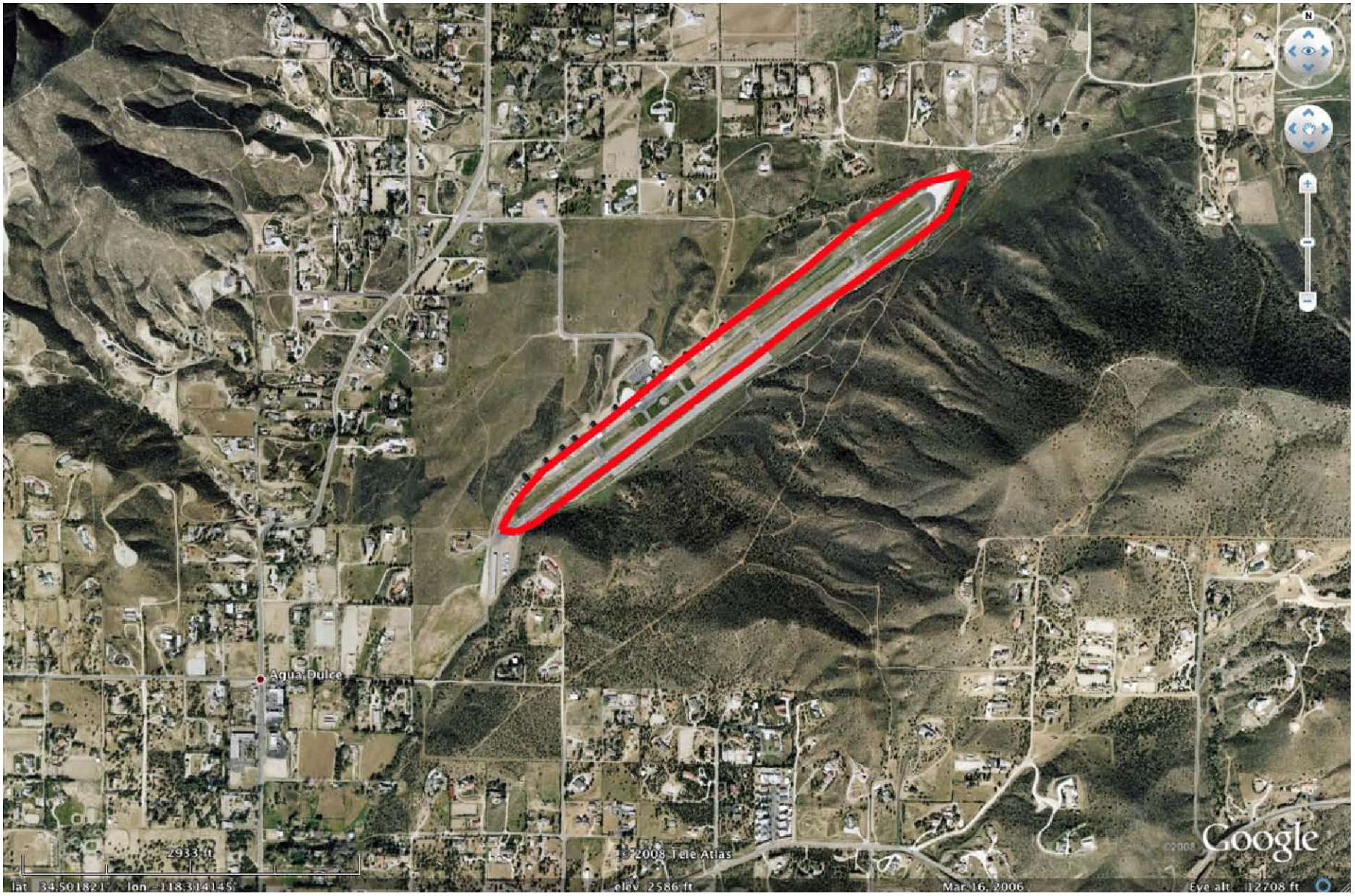
14 Los Angeles County Department of Regional Planning, *Los Angeles County Airport Land Use Plan*, (Los Angeles, California: Adopted December 19, 1991), pp. 12-13.



SOURCE: Mestre Greve Associates, One Valley One Vision Noise Element of the General Plan - February 2009

FIGURE **3.18-12**

Agua Dulce Airport 65 dB CNEL Contour

Policy LU 4.1.3: Direct business creation and expansion for larger companies within and adjacent to existing and planned business centers and major transportation corridors.

Policy LU 7.7.1: Maintain a suitable distance and/or provide buffering to separate aggregate mining and processing activities from nearby residential uses and other uses with sensitive receptors to noise and airborne emissions.

Policy C 1.3.5: Ensure consistency with the County's adopted Airport Land Use Plan as it pertains to the Agua Dulce Airport, in order to mitigate aviation-related hazards and protect airport operations from encroachment by incompatible uses.

Policy C 1.3.6: Support the expansion of Palmdale Regional Airport and the extension of multi-modal travel choices between the airport and the Santa Clarita Valley, in conformance with regional planning efforts.

Policy C 2.2.6: Within residential neighborhoods, promote the design of "healthy streets" which may include reduced pavement width, shorter block length, provision of on-street parking, traffic-calming devices, bike routes and pedestrian connectivity, landscaped parkways, and canopy street trees.

Policy C 2.3.3: When evaluating road widening projects, consider the impacts of additional traffic, noise, and fumes on adjacent land uses and use context-sensitive design techniques where appropriate.

Policy C 2.4.2: Establish adequate setbacks from major and secondary highways for sensitive receptors and sensitive uses, so as to minimize impacts on these individuals and uses from noise and air pollution caused by truck traffic.

Policy C 4.1.8: Minimize impacts to passenger rail service and the community from any proposed increase to freight rail service through the Valley.

Policy CO 2.3.3: Through the review process for any mining or mineral extraction proposal, ensure mitigation of impacts from mining and processing of materials on adjacent uses or on the community, including but not limited to air and water pollution, traffic and circulation, noise, and land use incompatibility.

Policy CO 9.1.11: Locate and design parks to address potential adverse impacts on adjacent development from noise, lights, flying balls, traffic, special events, and other operational activities and uses.

Policy N 1.1.5: Monitor and update data and information regarding current and projected noise levels in the planning area.

Policy N 2.1.1: Encourage owners of existing noise-sensitive uses, and require owners of proposed noise sensitive land uses, to construct sound barriers to protect users from significant noise levels, where feasible and appropriate.

Policy N 2.1.3: Where appropriate, coordinate with the California Department of Transportation (Caltrans) to ensure that sound walls or other noise barriers are constructed along Interstate 5 and State Route 14 in the immediate vicinity of residential and other noise sensitive developments, where setbacks and other sound alleviation devices do not exist.

Policy N 2.1.4: Reduce significant noise levels related to through-traffic in residential areas by promoting subdivision circulation designs to contain a hierarchy of streets that efficiently direct traffic to highways.

Policy N 2.1.5: Encourage employers to develop van pool and other travel demand management programs to reduce vehicle trip-generated noise in the planning area.

Policy N 2.1.6: Work with City of Santa Clarita Transit to improve and expand current public transit services and routes to reduce vehicle trips and resulting noise levels.

Policy N 2.1.7: Require vehicle owners to properly maintain their equipment to avoid generating excessive noise levels.

Policy N 3.1.1: Require that developers of new single-family and multi-family residential neighborhoods in areas where the ambient noise levels exceed 60 CNEL provide mitigation measures for the new residences to reduce interior noise levels to 45 CNEL, based on future traffic and railroad noise levels.

Policy N 3.1.2: Require that developers of new single-family and multi-family residential neighborhoods in areas where the projected noise levels exceed 65 CNEL provide mitigation measures (which may include noise barriers, setbacks, and site

design) for new residences to reduce outdoor noise levels to 65 CNEL, based on future traffic conditions. This requirement would apply to rear yard areas for single-family developments, and to private open space and common recreational and open space areas for multi-family developments.

Policy N 3.1.5: Require that developers of private schools, childcare centers, senior housing, and other noise sensitive uses in areas where the ambient noise level exceeds 65 dBA (day), provide mitigation measures for these uses to reduce interior noise to acceptable levels.

Policy N 3.1.6: Ensure that new residential buildings shall not be located within 150 feet of the centerline for Interstate 5.

Policy N 3.1.7: Ensure that design of parks, recreational facilities, and schools minimize noise impacts to residential neighborhoods.

Policy N 3.1.8: As a condition of issuing permits for special events, require event promoters to mitigate noise impacts to adjacent sensitive uses through limiting hours of operation and other means as appropriate, which may include notification to affected residents.

Policy N 3.1.9: Implement a buyer and renter notification program for new residential developments where appropriate, to educate and inform potential buyers and renters of the sources of noise in the area and/or new sources of noise that may occur in the future. As determined by the reviewing authority, notification may be appropriate in the following areas:

a. Within one mile of Six Flags Magic Mountain theme park, potential buyers and renters should receive notice that noise may occasionally be generated from this facility and that the frequency and loudness of noise events may change over time.

b. Within 1,000 feet of the railroad, potential buyers and renters should receive notice that noise may occasionally be generated from this facility and that the frequency and loudness of noise events may change over time.

c. Within 200 feet of commercial uses in mixed-use developments, potential buyers and renters should receive notice that the commercial uses within the mixed-use developments may generate noise in excess of levels typically found in residential areas, that the commercial uses may change over time,

and the associated noise levels and frequency of noise events may change along with the use.

d. Within 1,000 feet of the Saugus Speedway, in the event speedway operations are resumed in the future.

Policy N 4.1.1: Implement and enforce the applicable Noise Ordinance to control noise from commercial and industrial sources that may adversely impact adjacent residential neighborhoods and other sensitive uses.

Policy N 4.1.2: Require appropriate noise buffering between commercial or industrial uses and residential neighborhoods and other sensitive uses.

Policy N 4.1.3: Adopt and enforce standards for the control of noise from commercial and entertainment establishments when adjacent to residential neighborhoods and other sensitive uses.

Effectiveness of Proposed Area Plan Policies

The proposed policies would ensure land use compatibility so that noise sensitive receptors are not adversely affected by noise, and that business centers, rather than noise sensitive uses, are placed along major transportation corridors. The proposed policies would reduce traffic noise by supporting alternative forms of transportation, promoting walkable neighborhoods and business districts, reducing the number of cars on roadways, and constructing sound barriers. The policies would ensure that new development would not be adversely affected by airport noise and would minimize noise impacts for increases in rail service in the Valley. The policies would ensure acceptable interior noise levels in residences, schools, childcare centers, senior housing, and other noise sensitive uses. However, implementation of these policies would not reduce potential construction and operational Area Plan noise impacts under this criterion to less than significant.

Plan to Plan Analysis

Table 3.18-7, Sound Level Comparison: Existing General Plan and Area Plan vs. OVOV Buildout Conditions, compares future noise levels along the 29 roadway segments in the OVOV Planning Area. Compared to the existing General Plan and Area Plan, noise levels under the proposed General Plan and Area Plan would be less along eight roadway segments, greater along 12 segments, and unchanged along the remaining segments. As described in **Section 3.2, Transportation and Circulation**, buildout of the existing Area Plan would potentially increase the number of trip ends. The existing (2004) number of trip

ends was found to be 1,487,994 vehicle trips for the OVOV Planning Area. With buildout under the existing Plan, the amount of trip ends would total 3,207,093 for the OVOV Planning Area. The proposed OVOV buildout would generate 3,288,386 trip ends, an overall increase of 3 percent (increase for proposed Area Plan is due to an increase in total commercial square feet). Therefore, the existing Plan's impacts on noise would be less than those of the proposed Area Plan.

MITIGATION FRAMEWORK

Implementation of the following mitigation measure would not reduce noise and vibration from pile driving to less than significant but would help to reduce the impact.

MM 3.18-1 To reduce construction vibration impacts, to the extent feasible, cast-in-drilled-hole piles shall be used in lieu of pile driving.

Pile drilling is an alternate method of pile installation where a hole is drilled into the ground up to the required elevations and concrete is then cast into it. The estimated noise level of pile drilling at 50 feet is 80 to 95 dB(A) L_{eq} compared to 90 to 105 dB(A) L_{eq} of conventional pile driving.[15] Therefore, pile drilling generally produces noise levels approximately 10 to 15 dB lower than pile driving.

MM 3.18-2 Maintain adequate buffer distances from nearby residences to freeways, high traffic volume roads, railroads, airports, mining centers and other existing processing plants where the public may be affected by noise and particle emissions.

MM 3.18-3 The construction of residential developments should be limited to buildings with special filtration units or discouraged at distances of 1,500 feet or less from freeways, depending upon traffic volume.

MM 3.18-4 Sound barriers should be required of the owners of the proposed sensitive land uses adjacent to high noise sources, to protect the public from significant noise impacts.

MM 3.18-5 The California Department of Transportation should be contacted when residential projects, schools, hospitals, convalescent homes, and other sensitive land uses are to be built so that appropriate sound barriers or sound walls are constructed along Interstate 5 and State Route 14 regardless of setbacks or other sound attenuation.

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15 US Environmental Protection Agency, *Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances*, December 1971.

MM 3.18-6 The placement of telecommunication towers and antennas power boxes should comply with noise ordinances. All related equipment should be rated at 45 dB(A).

MM 3.18-7 Consider engineering controls or better alternative fuels for the control of greenhouse gases, particle matter, carbon print, criteria air pollutants and non regulated emissions associated with the construction and operational phases of future projects.

SIGNIFICANCE OF IMPACT WITH MITIGATION FRAMEWORK

It is not always possible to reduce construction noise impacts to below standards set forth in the County's Noise Ordinance; therefore, short-term construction noise impacts are unavoidably significant for the duration of the construction activities. Short-term noise and vibration impacts from the pile driving would be unavoidably significant for the duration of the pile driving.