4.5 NOISE

1. SUMMARY

Construction of the proposed project would require site preparation, grading, and the construction of roadways, infrastructure, and buildings. Each of these construction activities typically involves the use of heavy-duty equipment, all of which could expose off-site residents and other noise sensitive receptors to temporary but significant noise impacts. Section 11.44.080 of the City of Santa Clarita Noise Ordinance prohibits construction operations to occur within 300 feet of residentially zoned properties during early morning, evening, and nighttime hours, and all hours on Sundays and major holidays.

Construction impacts also include vibration impacts. Since ground-borne vibration could be generated during construction in excess of the Federal Transit Administration vibration standards, impacts to sensitive uses (residential) within the project site would remain significant and unavoidable. Off-site vibration impacts would be less than significant.

After the project is built out, future traffic on the proposed roadway extensions through the site and on existing local roadways would generate noise in the region. However, the incremental traffic increase due to the proposed project during the interim (2015) year would have a less than significant impact on noise-sensitive receptors located adjacent to or near to the affected roadways. The project also would result in the generation of stationary point noise sources. The new retail, restaurant, office, and residential uses, as well as the Metrolink station, on the proposed project site could introduce various stationary noise sources, including electrical and mechanical air conditioning. These same noise sources currently occur near the project site and contribute to the ambient noise levels that are experienced in all similarly developed areas in the vicinity. Noise levels generated by these sources would not exceed the City's Noise Ordinance or the normally acceptable noise levels identified in the City's Land Use Compatibility Guidelines due to their intermittent nature. Impacts from point noise sources would be less than significant.

The project would not cause an increase in railroad noise as commuter rail and freight trains already utilize the tracks adjacent to the project site and traverse the project area. Therefore, because the project would not result in an increase in noise levels associated with the railroad, the project impacts would be less than significant to on- and off-site noise-sensitive land uses.

As the proposed project is a transit-oriented development, which would include a Metrolink Station and Bus Transfer Station, noise measurements were taken at the Jan Heidt Newhall Metrolink Station (Jan Heidt Station). This station is similar to the proposed Vista Canyon Metrolink Station and, therefore, would experience similar noise levels as trains enter and exit the station. Noise monitoring at the Jan Heidt Station indicated maximum noise levels of 69 dB(A) CNEL measured at approximately 60 feet from the tracks. The closest off-site residential homes to *the proposed Vista Canyon Metrolink station are located in Fair Oaks Ranch, approximately 300 feet from the station platforms.*

Exterior (outdoor) noise level up to 70 dB(A) CNEL/L_{dn} is considered conditionally acceptable for residential land uses without any special noise insulation requirements because interior noise levels will be reduced to acceptable levels (to at least 45 dB(A) CNEL/L_{dn}) through conventional construction, closed windows, and fresh air supply systems or air conditioning. Exterior noise levels from 70 dB(A) to 75 dB(A) CNEL are considered acceptable only if the buildings provide additional noise insulation features, such as window upgrades and increased building insulation to achieve a 45 dB(A) CNEL interior noise level. There are no proposed residential units within the Vista Canyon project that would be located in areas with exterior noise levels in excess of 70 dB(A).

Proposed residential units within Planning Areas 1 and 2 of the project would be located as close as 300 feet from the railroad tracks. Residential units within Planning Area 3 are located as close as 120 feet from the railroad tracks. However, in light of noise measurements conducted on and off site along the railroad tracks as part of this EIR and the distance from the proposed project's residential units to the railroad tracks, noise impacts from the railroad tracks would be less than significant.

Exterior noise levels up to 75 dB(A) CNEL are considered conditionally acceptable for office and commercial uses. Exterior noise levels up to 80 dB(A) CNEL are considered conditionally acceptable for industrial uses. Commercial uses within Planning Area 2 of the proposed project would be located as close as 160 feet of the railroad tracks. Based on noise measurements conducted on and off site along the railroad tracks as part of this EIR, noise impacts from the railroad tracks to these uses would be less than significant.

Traffic associated with the proposed project would also contribute to cumulative noise increases in the region. Future traffic on the proposed roadway extensions through the site and on existing local roadways would generate noise in the region. The cumulative traffic increase during the cumulative (2030) year would have a less than significant impact on noise-sensitive receptors located adjacent to or near to the affected roadways both on and off site. However, the cumulative traffic increase on State Route 14 (SR-14) would result in a cumulatively considerable increase in noise and would have a significant impact on noise-sensitive receptors located adjacent to or near to portions of SR-14

2. INTRODUCTION

This section discusses the ambient noise environment in the project area and evaluates the potential noise impacts associated with implementation of the proposed project. The potential noise impacts are compared with significance criteria established by the City of Santa Clarita, as well as the *State California Environmental Quality Act (CEQA) Guidelines*. Supporting technical data are found in **Appendix 4.5**.

a. Characteristics of Sound

(1) Introduction to Noise

Noise is usually defined as unwanted sound that is an undesirable byproduct of society's normal day-to-day activities. Sound becomes unwanted when it interferes with normal activities, when it causes actual physical harm, and/or when it has adverse effects on health. Noise is measured on a logarithmic scale of sound pressure level known as a decibel (dB). The human ear does not respond uniformly to sounds at all frequencies; for example, it is less sensitive to low and high frequencies than medium frequencies, which more closely correspond with human speech. In response to the sensitivity of the human ear to different frequencies, the A-weighted noise level (or scale), which corresponds better with people's subjective judgment of sound levels, has been developed. This A-weighted sound level, referenced in units of dB(A), is measured on a logarithmic scale such that a doubling of sound energy results in a 3 dB(A) increase in noise level. In general, changes in a community noise level of less than 3 dB(A) are not typically noticed by the human ear.[1] Changes from 3 to 5 dB(A) may be noticed by some individuals who are extremely sensitive to changes in noise. A greater than 5 dB(A) increase is readily noticeable, while the human ear perceives a 10 dB(A) increase in sound level to be a doubling of sound.

Noise sources occur in two forms: (1) point sources, such as stationary equipment or individual motor vehicles; and (2) line sources, such as a roadway with a large number of point sources (motor vehicles). Sound generated by a point source typically diminishes (attenuates) at a rate of 6 dB(A) for each doubling of distance from the source to the receptor at acoustically "hard" sites and 7.5 dB at acoustically "soft" sites.[2] For example, a 60 dB(A) noise level measured at 50 feet from a point source at an acoustically hard site would be 54 dB(A) at 100 feet from the source and 48 dB(A) at 200 feet from the source. Sound generated by a line source typically attenuates at a rate of 3 dB(A) and 4.5 dB(A) per doubling of distance from the source to the receptor for hard and soft sites, respectively.[3]

Sound levels also can be attenuated by man-made or natural barriers (e.g., sound walls, berms, ridges), as well as elevational differences, as illustrated in **Figure 4.5-1, Noise Attenuation by Barriers and Elevation Differences**.

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1 Federal Highway Administration, *Highway Noise Fundamentals*, (1980) 81.

2 Federal Highway Administration, *Highway Noise Fundamentals*, (1980) 97. Examples of "hard" or reflective sites include asphalt, concrete, and hard and sparsely vegetated soils. Examples of acoustically "soft" or absorptive sites include soft, sand, plowed farmland, grass, crops, heavy ground cover, etc.

3 Federal Highway Administration, *Highway Noise Fundamentals*, (1980) 97.

Solid walls and berms may reduce noise levels by 5 to 10 dB(A) depending on their height and distance relative to the noise source and the noise receptor.[4] Sound levels may also be attenuated 3 to 5 dB(A) by a first row of houses and 1.5 dB(A) for each additional row of houses.[5] The minimum noise attenuation provided by typical structures in California is provided in **Table 4.5-1, Outside-to-Inside Noise Attenuation**.

Table 4.5-1
Outside-to-Inside Noise Attenuation (dB(A))

Building Type	Open Windows	Closed Windows
Hotels/Motels	17	25
Residences	17	25
Schools	17	25
Churches	20	30
Hospitals/Convalescent Homes	17	25
Offices	17	25
Theaters	20	30

Source: Gordon, C.G., W.J. Galloway, B.A. Kugler, and D.L. Nelson. NCHRP Report 117: Highway Noise: A Design Guide for Highway Engineers. Washington, D.C.: Transportation Research Board, National Research Council, 1971.

(2) Sound Rating Scales

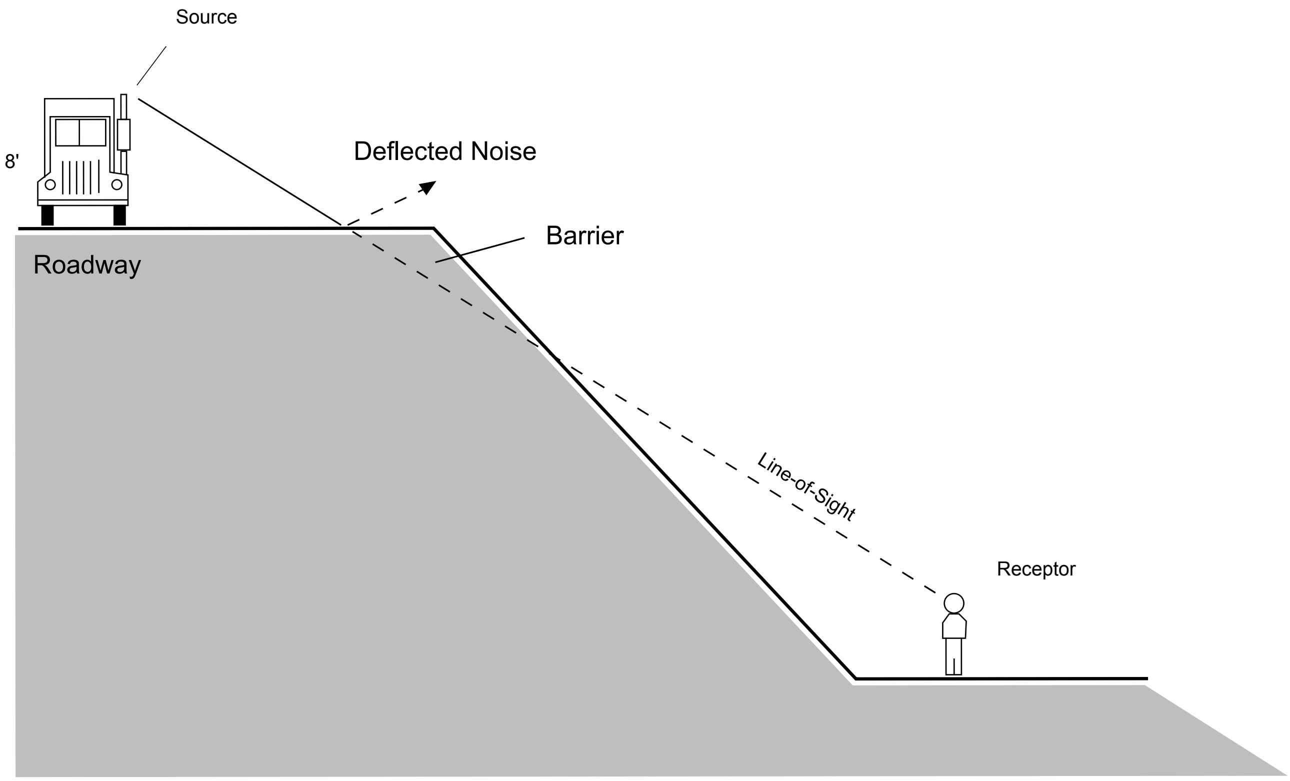
Various rating scales approximate the human subjective assessment to the "loudness" or "noisiness" of a sound. Noise metrics have been developed to account for additional parameters, such as duration and cumulative effect of multiple events. Noise metrics are categorized as single event metrics and cumulative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

(a) Single Event Metrics

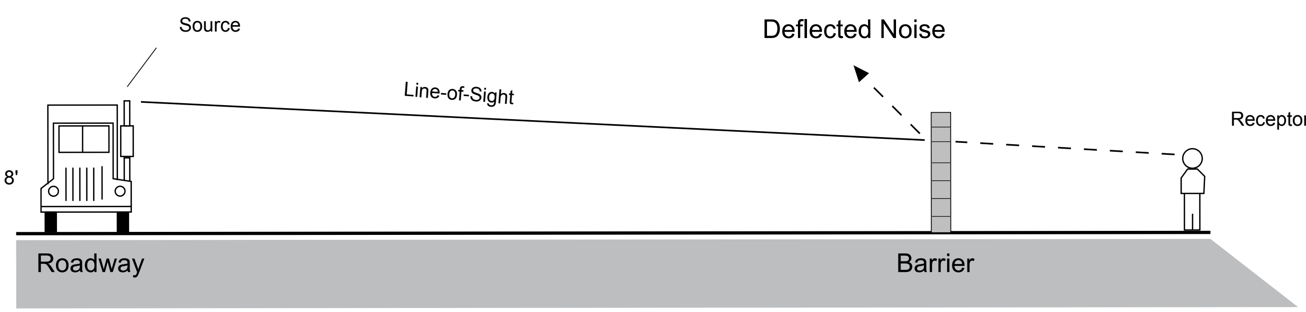
Single event metrics describe the noise from individual events, such as one aircraft flyover.

4 Federal Highway Administration, *Highway Noise Mitigation*, (1980) 18.

5 T. M. Barry and J. A. Reagan, *FHWA Highway Traffic Noise Prediction Model*, (1978) 33.



"Barrier Effect" Resulting from Differences in Elevation.



"Barrier Effect" Resulting from Typical Soundwall.

SOURCE: Impact Sciences, Inc. – October 2009

FIGURE **4.5-1**

Noise Attenuation by Barriers and Elevation Differences

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(1) 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-weighted (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 analysis are all based upon the dB(A) scale.

(2) 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 4.5-2, Single and Cumulative Noise Metric Definitions**. Generally, it is this metric that people instantaneously respond to when an aircraft flies over or a loud vehicle passes by.

(3) 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 flyover or a train pass-by. Within **Figure 4.5-2**, 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, some cumulative noise metrics can be computed from SENEL data.

(b) 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.

(1) 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 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 4.5-2**. 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 referred to as the Hourly Noise Level (HNL) in the California Airport Noise Regulations and is used to develop Community Noise Equivalent Level values for aircraft operations.

(2) Community Noise Equivalent Level

Community Noise Equivalent Level (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 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. For measured noise levels occurring between the hours of 10:00 PM to 7:00 AM 10 dB are added. 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 periods.

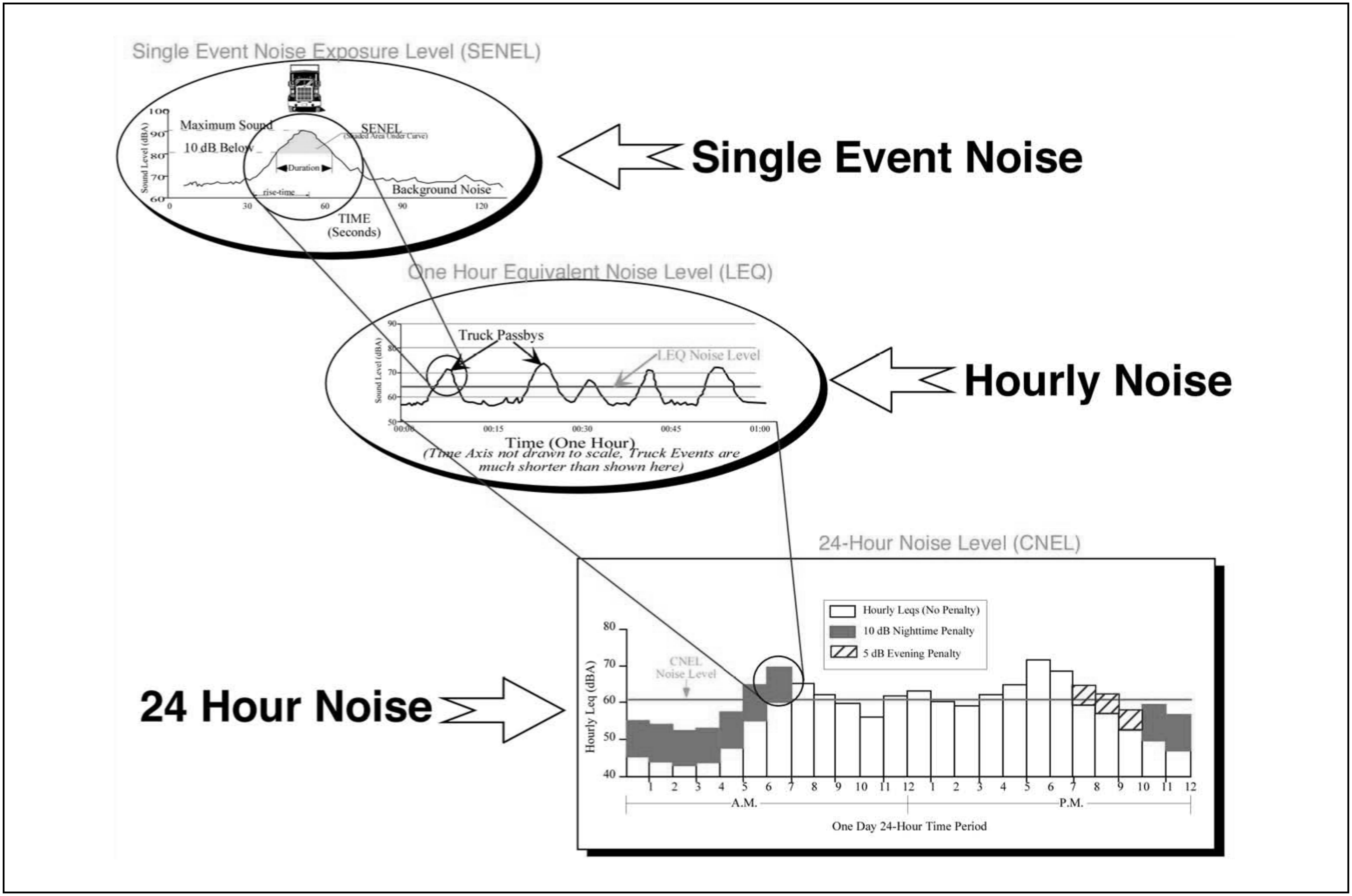
CNEL is graphically illustrated in the bottom of **Figure 4.5-2**. Examples of various noise environments in terms of CNEL are presented in **Figure 4.5-3, Examples of Typical Outdoor CNEL Levels**.

(3) 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 PM to 10:00 PM period.

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

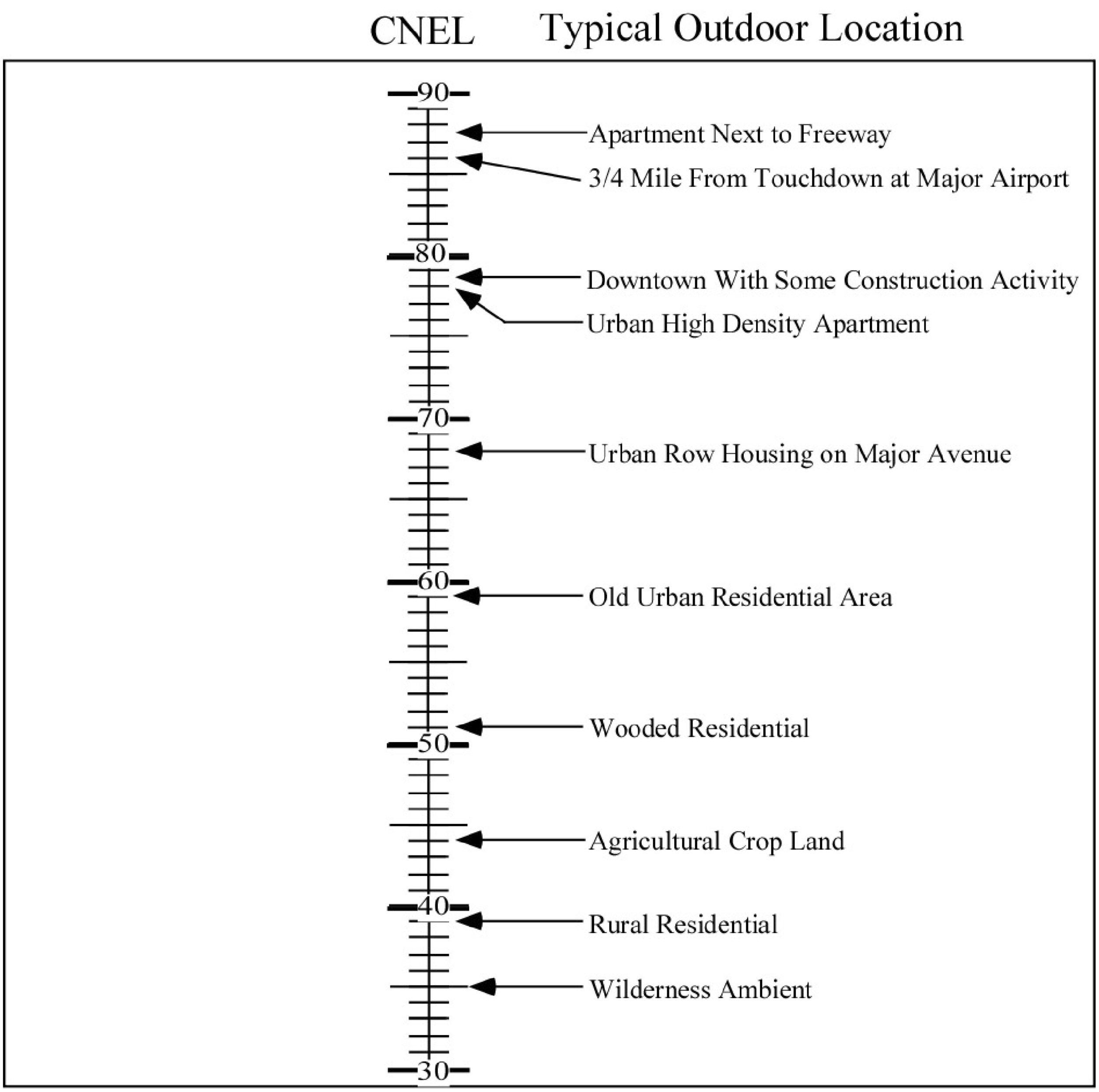
L(%), L_{max} and L_{min} are statistical methods to account for variance in noise levels throughout a given measurement period. L(%) is a way of expressing the noise level exceeded for a percentage of time in a given measurement period. For example since 5 minutes is 25 percent of 20 minutes, L(25) 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}.



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

FIGURE **4.5-2**

Single and Cumulative Noise Metric Definitions



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 **4.5-3**

Examples of Typical Outdoor CNEL Levels

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(3) Introduction to 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 groundborne 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.

b. Plans and Policies for Noise Control

Applicable plans and policies that pertain to the proposed project include the: (1) California Department of Health Services, Environmental Health Division's *Guidelines for Noise and Land Use Compatibility*, (2) California Noise Insulation Standards, (3) Noise Elements of the City of Santa Clarita General Plan and the Draft Santa Clarita Valley General Plan Update (OVOV), and (4) City Noise Ordinance. Standards for vibration identified by the Federal Transit Administration and California Department of Transportation (Caltrans) are also discussed below.

(1) California Department of Health Services

In 1972, the United States Environmental Protection Agency (U.S. EPA) determined that a yearly average day-night sound level of 45 dB(A) would permit adequate speech communication in the home. The U.S. EPA also identified an indoor day/night level of 45 dB(A) as necessary to protect against sleep interference.[6]

Using this information and knowing that residential construction can attenuate noise by at least 25 dB(A) with windows and doors closed (see **Table 4.5-1**), the California Department of Health Services, Environmental Health Division (DHS), developed and published recommended guidelines for noise and land use compatibility, referred to as the *State Land Use Compatibility Guidelines* (see **Figure 4.5-4, State Land Use Compatibility Guidelines for Noise**). The DHS does not mandate application of this compatibility matrix to development projects; however, each jurisdiction is required to consider the *State Land Use Compatibility Guidelines* when developing its general plan noise element and when determining acceptable noise levels within its community.[7]

The *State Land Use Compatibility Guidelines* identify an exterior (outdoor) noise level of 60 dB(A) CNEL to be an acceptable level for single family, duplex, and mobile homes. An exterior (outdoor) noise level of 65 dB(A) CNEL is considered to be an acceptable level for multi-family residential, transient lodging, and schools. Exterior noise levels up to 70 dB(A) CNEL/L_{dn} are considered conditionally acceptable for these land uses without any special noise insulation requirements because interior noise levels will typically be reduced to acceptable levels (to at least 45 dB(A) CNEL/L_{dn}) through conventional construction, closed windows, and fresh air supply systems or air conditioning. Exterior noise levels between 70 dB(A) and 75 dB(A) CNEL for residential land uses and between 70 dB(A) and 80 dB(A) CNEL for transient lodging and schools are considered acceptable only if the buildings provide noise insulation features, such as sound walls, window upgrades, and site design modifications to achieve a 45 dB(A) CNEL interior noise level. Noise levels up to 78 dB(A) CNEL may be considered conditionally acceptable for office and commercial uses. Noise levels up to 80 dB(A) CNEL may be considered conditionally acceptable for industrial uses.

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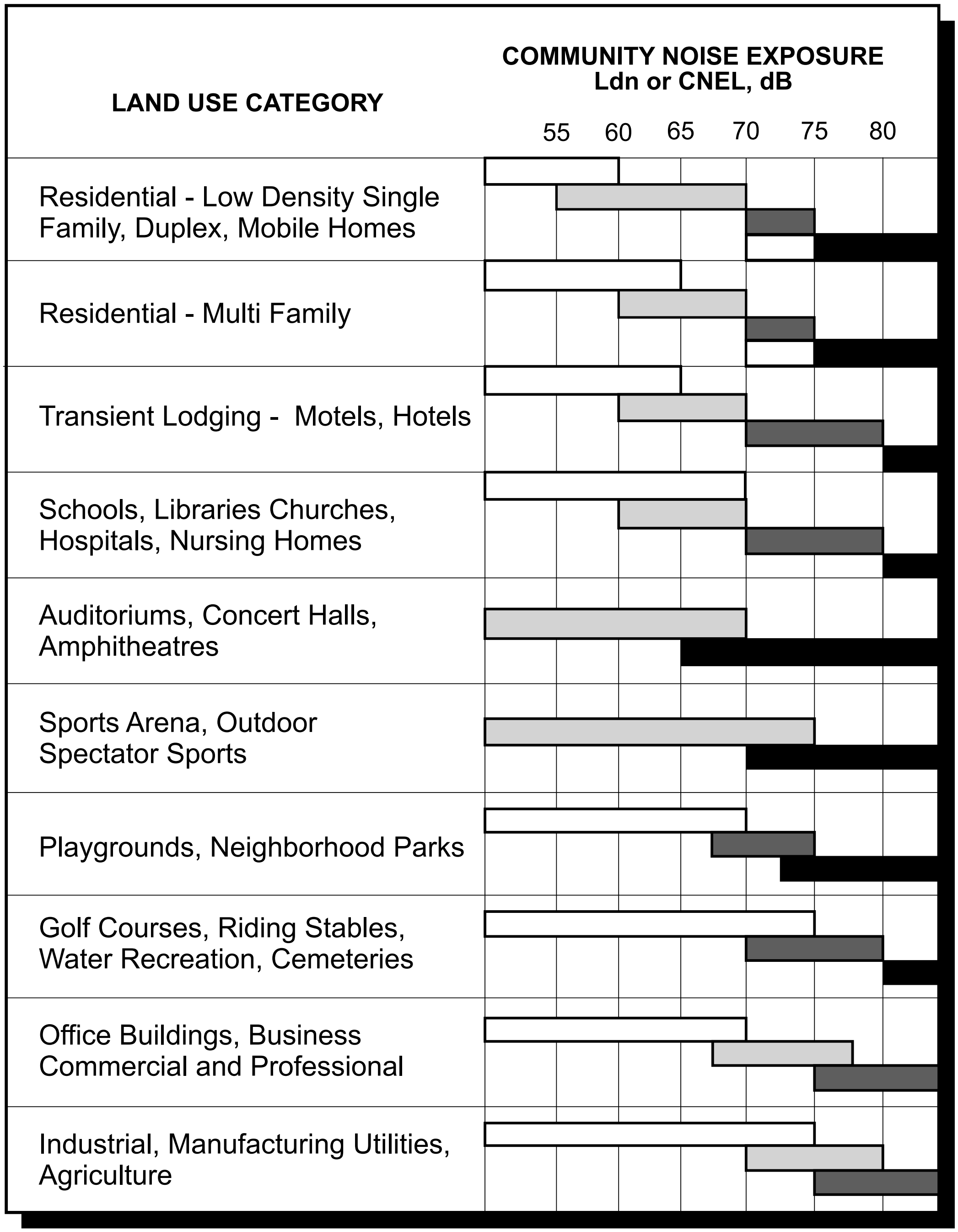
6 Dr. Alice H. Suter. "Administrative Conference of the United States: Noise and Its Effects" (November 1991) http://www.nonoise.org/library/suter/suter.htm.

7 These guidelines are also published by the Governor's Office and Planning and Research in the *State of California General Plan Guidelines* (2003).



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 **4.5-4**

State Land Use Compatibility Guidelines for Noise

(2) California Noise Insulation Standards

The California Noise Insulation Standards (Cal. Code of Reg., tit. 24, Sec. 3501 et seq.) require that interior noise levels from exterior sources be 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 CNEL or L_{dn}, whichever is consistent with the noise element of the local general plan. Where exterior noise levels exceed 60 dB(A) CNEL/L_{dn}, an acoustical analysis for new development is required to show that the proposed construction will reduce interior noise levels to 45 dB(A) CNEL/L_{dn}. If the interior 45 dB(A) CNEL/L_{dn} limit can be achieved only with the windows closed, the residence design must include mechanical ventilation that meets applicable Uniform Building Code (UBC) requirements.

In unacceptable interior noise environments, additional noise insulation features, such as extra batting or resilient channels[8] in exterior walls, double paned windows, air conditioners to enable occupants to keep their windows closed, solid wood doors, noise baffles on exterior vents, etc., are typically needed to provide acceptable interior noise levels. The best type of noise insulation for a land use should be based on detailed acoustical analyses that identify all practical noise insulation features and that confirms their effectiveness.

(3) City of Santa Clarita General Plan Noise Element

The City has incorporated a slightly modified version of the *State Land Use Compatibility Guidelines* into its existing General Plan Noise Element (pp. N-6 and N-7), as well as noise level control standards that directly affect the proposed project.[9] These standards (measured in dB(A) CNEL) are used in this impact analysis to measure noise impacts; therefore, application of these guidelines to both on- and off-site project-related noise satisfies the City's impact analysis requirements. The guidelines in the City's Noise Element are referred to as the *City Land Use Compatibility Guidelines* (see **Figure 4.5-5, City Land Use Compatibility Guidelines for Noise**). The Noise Element is incorporated by reference and is available for review at the City of Santa Clarita Planning and Community Development Department, located at 23920 Valencia Boulevard, Santa Clarita, California 91355.

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8 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.

9 City of Santa Clarita, *General Plan*, "Noise Element Amendment," (2000) N-7. The *General Plan* Noise Element may be found at the City of Santa Clarita Planning Department. The Noise Ordinance is found at http://www.santa-clarita.com/cityhall/admin/code/Santa_Clarita_Municipal_Code/Title_11/44/index.html.

The City Land Use Compatibility Guidelines identify an exterior (outdoor) noise level of 60 dB(A) CNEL to be an acceptable level for single family, duplex, and mobile homes, multi-family units, transient lodging, and schools. Exterior noise levels up to 70 dB(A) CNEL/L_{dn} are considered conditionally acceptable for these land uses without any special noise insulation requirements because interior noise levels will typically be reduced to acceptable levels (to at least 45 dB(A) CNEL/L_{dn}) through conventional construction, closed windows, and fresh air supply systems or air conditioning. Exterior noise levels from 70 dB(A) to 75 dB(A) CNEL are considered acceptable only if the buildings provide noise insulation features, such as sound walls, window upgrades, and other design modifications to achieve a 45 dB(A) CNEL interior noise level. Noise levels up to 75 dB(A) CNEL may be considered conditionally acceptable for office and commercial uses. Noise levels up to 80 dB(A) CNEL may be considered conditionally acceptable for industrial uses.

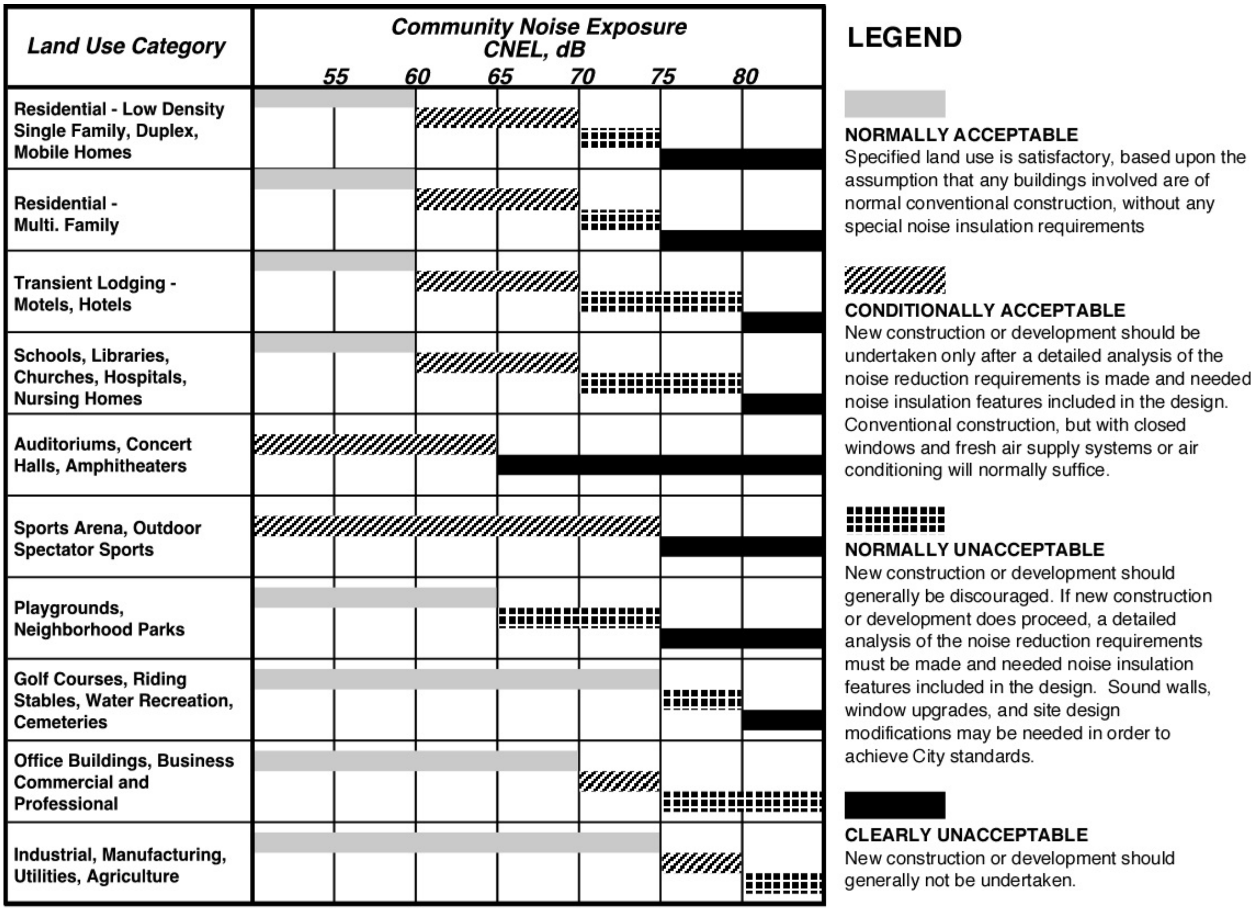
(4) One Valley One Vision Draft Noise Element

One Valley One Vision (OVOV) is a joint effort between the County of Los Angeles and the City of Santa Clarita to create a single vision and guidelines for the future growth of the Valley and the preservation of natural resources. The result of this project will be a General Plan document for the buildout of the entire Santa Clarita Valley. The draft Noise Element was released in February 2009. The Noise Element is a comprehensive program for including noise management in the planning process, providing a tool for local planners to use in achieving and maintaining land uses that are compatible with existing and future environmental noise levels in the Santa Clarita Valley.

The Draft OVOV Noise Element incorporates a slightly modified version of the *State Land Use Compatibility Guidelines*, which is identical to the *City Land Use Compatibility Guidelines* in the existing City of Santa Clarita General Plan Noise Element.

(5) City of Santa Clarita Noise Ordinance

The City has also adopted an ordinance to control point source noise. Three sections of the ordinance are particularly pertinent to the proposed project: Sections 11.44.040, 11.44.070, and 11.44.080, as amended. This ordinance is also incorporated herein by reference and is available for review at the City’s website, as well at the City of Santa Clarita Planning and Community Development Department, 23920 Valencia Boulevard, Santa Clarita, California 91355.



CONSIDERATIONS IN DETERMINATION OF NOISE-COMPATIBLE LAND USE

A. NOISE EXPOSURE INFORMATION DESIRED

Where sufficient data exists, evaluate land use suitability with respect to a worst-case value of CNEL. Usually, a future projection of noise levels represents the worst case. Existing and future noise contours for freeway, roadway, airport and railroads are provided in the Noise Element.

B. NOISE SOURCE CHARACTERISTICS

The land use-noise compatibility recommendations should be viewed in relation to the specific source of the noise. For example, aircraft and railroad noise is normally made up of higher single noise events than auto traffic but occurs less frequently. Therefore, different sources yielding the same composite noise exposure do not necessarily create the same noise environment. The State Aeronautics Act uses 65 dB CNEL as the criterion which airports must eventually meet to protect existing residential communities from unacceptable exposure to aircraft noise. In order to facilitate the purposes of the Act, one of which is to encourage land uses compatible with the 65 dB CNEL criterion wherever possible, and in order to facilitate the ability of airports to comply with the Act, residential uses located in areas with an aircraft noise level greater than 65 CNEL should be discouraged and considered located within normally unacceptable areas.

C. SUITABLE INTERIOR ENVIRONMENTS

One objective of locating residential units relative to a known noise source is to maintain a suitable interior noise environment at no greater than 45 dB CNEL. This requirement, coupled with the measured or calculated noise reduction performance of the type of structure under consideration, should govern the minimum acceptable distance to a noise source.

D. ACCEPTABLE OUTDOOR ENVIRONMENTS

Another consideration, which in some communities is an overriding factor, is the desire for an acceptable outdoor noise environment. The acceptable outdoor noise level is 65 CNEL for rear yard areas, neighborhood parks, and pool recreation areas at multi-family developments.

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

FIGURE **4.5-5**

City Land Use Compatibility Guidelines for Noise

(a) Section 11.44.040

Section 11.40.040 sets noise levels for residential, commercial, and manufacturing uses taking place on private property and for construction activities on private property outside of the hourly limits provided in Section 11.40.080. The levels are shown in **Table 4.5-2, City Ordinance Noise Limits**.

Table 4.5-2
City Ordinance Noise Limits

Region	Time	Exterior Sound Level (dB)
Residential Zone	Day	65
Residential Zone	Night	55
Commercial and Manufacturing	Day	80
Commercial and Manufacturing	Night	70

Source: City of Santa Clarita.
Note: Wherever a boundary line occurs between a residential property and a commercial/manufacturing property, the noise level of the quieter zone is to be used.

(b) Section 11.44.070

Section 11.44.070 states, "any noise level from the use or operation of any machinery, equipment, pump, fan, air conditioning apparatus, refrigerating equipment, motor vehicle, or other mechanical or electrical device, or in repairing or rebuilding any motor vehicle, which exceeds the noise limits as set forth in Section 11.44.040 at any property line, or, if a condominium or rental units, within any condominium or rental unit within the complex, shall be a violation of this chapter."

(c) Section 11.44.080, as Amended

Finally, Section 11.44.080, as amended by Ordinance Nos. 93-4 and 00-3, prohibits construction work requiring a building permit on sites within 300 feet of a residentially zoned property from operating except between the hours of 7:00 AM and 7:00 PM Monday through Friday, and between 8:00 AM and 6:00 PM on Saturday. Construction work also is prohibited on Sundays, New Year's Day, Independence Day, Thanksgiving Day, Christmas Day, Memorial Day, and Labor Day. The Planning and Building Services Department of the City of Santa Clarita may issue a permit for work to be done outside of these hours provided that containment of construction noise is provided. Section 11.44.080, as amended, represents an exception for construction work to the noise limits in Section 11.44.040 and 11.44.070 of the City's Noise Ordinance.[10]

c. Vibration Criteria

(1) Federal Criteria

The Federal Transit Administration (FTA) has published guidelines for assessing the impacts of ground-borne 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.[11] The threshold of perception of vibration is 0.01 in/sec PPV.

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.[12]

(2) California Department of Transportation.

There are no state standards for traffic-related vibrations. Caltrans position is that highway traffic and construction vibrations generally pose no threat to buildings and structures.[13] For continuous (or steady-state) vibrations; however, Caltrans considers the architectural damage risk level to be somewhere between 0.2 and 2.0 in/sec.[14]

d. Adverse Effects of Noise Exposure

Noise is known to have several adverse effects on humans, which has led to 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 4.5** for additional discussion on this topic.

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10 Jeff Hogan, City of Santa Clarita, Planning and Community Development Department, personal communication, December 2008.

11 Federal Transit Administration, Office of Planning and Environment, *Transit Noise and Vibration Impact Assessment*, (2006) 12–13.

12 California Department of Transportation, *Transportation Related Earthborne Vibrations (Caltrans Experiences)*, Technical Advisory, Vibration, (2002) 10.

13 Ibid.

14 Ibid., 12.

(1) Hearing Loss

Hearing loss is generally not a community noise concern, even 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.

(2) 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 4.5-6, Speech Interference and Noise Levels**, shows the relation of quality of speech communication with respect to various noise levels.

(3) 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.

(4) 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.

(5) 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.

3. EXISTING CONDITIONS

a. Predominant Noise Sources

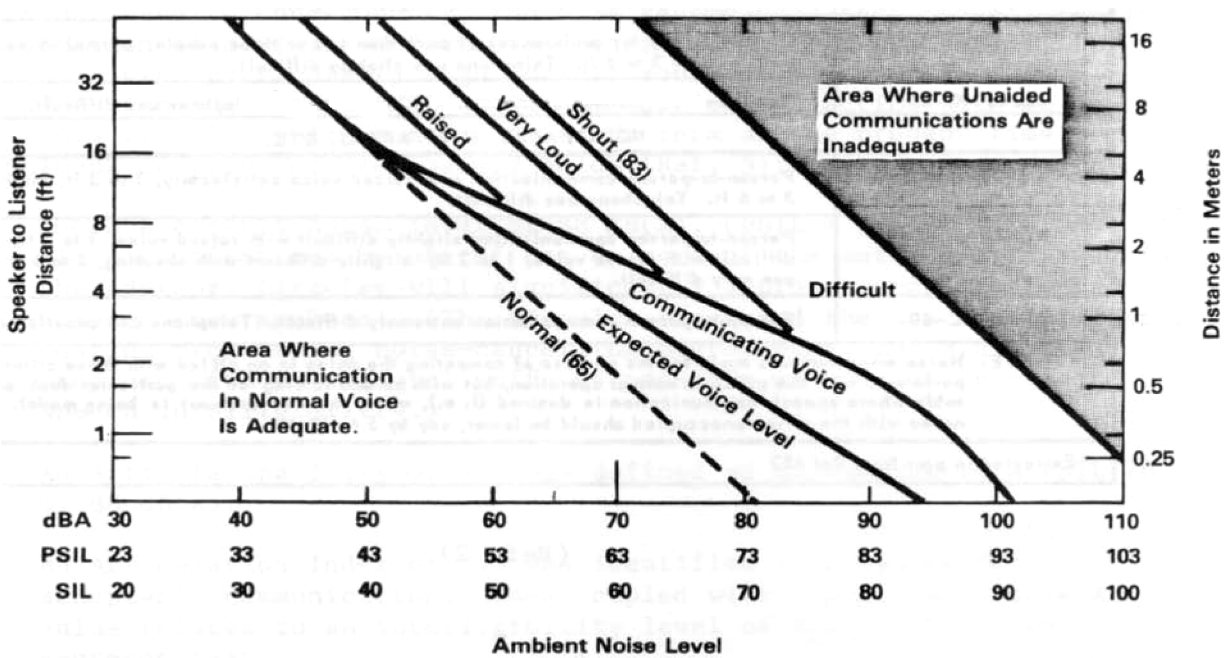
Motor vehicle noise on freeways and other roadways is the primary noise source in the project area. The Union Pacific Railroad/Metrolink, which runs along the southern portion of the project area, is also a significant noise source. The railroad line handles two types of trains in the Santa Clarita area: 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 up to 12 freight trains pass through the Santa Clarita Valley each day.

b. On- and Off-Site Measured Ambient Noise Levels

(1) Long-Term Existing Noise Levels

On June 29, June 30, July 1, July 14, and July 15, 2009, 24-hour (long-term) weekday sound level measurements were taken at seven locations on and near the project site in order to characterize the ambient noise environment.[15] **Figures 4.5-7a** and **4.5-7b**, depict the seven noise monitoring locations. The measurements were taken using Larson Davis Model 720 and 820 sound level meters, which satisfy the American National Standards Institute (ANSI) for general environmental noise measurement instrumentation. The sound meters were equipped with an omni-directional microphone, calibrated before the day's measurements, and set at approximately 5 feet above ground. Weather conditions were clear with little to no wind.

15 Ambient noise level is the level of existing noise occurring in the surrounding area, sometimes referred to as background noise.



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 **4.5-6**

Speech Interference and Noise Levels

SOURCE: Impact Sciences, Inc. – August 2010

FIGURE **4.5-7a**

Noise Measurement Locations

112-024•08/10

SOURCE: Impact Sciences, Inc. – June 2010

FIGURE 4.5-7b

Noise Measurement Locations - Jan Heidt Newhall Metrolink Station

112-024•06/10

Noise readings from the first four long-term monitoring locations (Map Ref. 1 through 4) were completed on July 29 and July 30, 2009. These were situated at key locations on the project site that would be representative of noise sensitive land uses close to SR-14. While the Santa Clara River Corridor would provide a buffer between sensitive uses on the project site and SR-14, noise monitoring at these locations was necessary in order to establish a long-term background noise level due to motor vehicles traveling on SR-14.

Noise readings from the fifth and sixth long-term monitoring locations (Map Ref. 5 and 6) were completed on July 15, 2009. These were situated at key locations on the project site that would be representative of noise sensitive land uses close to the existing railroad tracks near the southern portion of the project site. Noise monitoring at these locations was necessary in order to establish a long-term background noise level due to trains traveling on the railroad tracks.

The Vista Canyon Metrolink Station would be similar in design to the existing Jan Heidt Newhall Metrolink Station. Consequently, it was determined that noise monitoring at this station would be helpful in analyzing potential noise impacts at the proposed Vista Canyon project site. Therefore, noise readings from the seventh long-term monitoring location (Map Ref. 7) was completed on July 30, 2009. This location is located directly north of the station approximately 60 feet from the railroad tracks and provides noise levels related to passing freight trains and Metrolink trains as they enter and exit the station.

The resulting noise levels are provided in **Table 4.5-3, 24-Hour Monitored Noise Levels**. The dominant source of noise from these monitoring locations is traffic along SR-14 and Metrolink commuter rail and freight trains along the Union Pacific Railroad/Metrolink tracks. The measurements include both mobile (traffic and rail) and point source noise. Point sources of noise in the project area include people talking, doors slamming, truck deliveries, parking lot cleaning, lawn care equipment operation, stereos, domestic animals, etc. Noise levels generated by these sources contribute to the ambient noise levels that are experienced in all similarly developed areas. As demonstrated in **Table 4.5-3**, ambient noise levels are less than 70 dB(A) CNEL. Noise monitoring at the Jan Heidt Newhall Metrolink Station was conducted to establish projected noise levels at the Vista Canyon Metrolink Station.

Levels less than 70 dB(A) CNEL are considered conditionally acceptable for single- and multi- family residences in accordance with the *City Land Use Compatibility Guidelines*. Levels less than 75 dB(A) CNEL are considered conditionally acceptable for commercial, office, and industrial land uses.

Table 4.5-3
24-Hour Monitored Noise Levels

Map Ref.	Location	Noise Level dB(A) CNEL
1	On Site: Northwestern area of Project Site and South of Santa Clara River	63
2	On Site: North-central area of Project Site and South of Santa Clara River	61
3	On Site: Northeastern area of Project Site and South of Santa Clara River	66
4	On Site: Planning Area 4 of the Project Site and immediately South of SR-14	67
5	On Site: South-central area of Project Site and North of the Railroad Tracks	62
6	On Site: Southeastern area of Project Site and North of the Railroad Tracks	68
7	Off Site: Jan Heidt Newhall Metrolink Station (Directly North of Station)	69

Source: Impact Sciences. Inc., (2009)
*The 24-hour noise measurements are provided in **Appendix 4.5** of this EIR.*

(2) Short-Term Existing Noise Levels

Short-term weekday noise monitoring was completed on July 2 and July 9, 2009 at five locations both on and off the project site. The resulting short-term noise levels are provided in **Table 4.5-4, Short-Term Monitored Noise Levels**. **Figure 4.5-7a** also depicts the short-term noise monitoring locations. Monitoring was conducted between the hours of 8:00 AM to 10:00 AM and between 2:00 PM and 3:00 PM with a sampling duration of approximately 15 minutes at each location.

The first short-term off-site monitoring location (Map Ref. 8) was in an open field approximately 881 feet west of Oak Ridge Drive and approximately 201 feet east of a 12-foot sound/retaining wall within the Circle J Ranch area of the City of Santa Clarita. The Union Pacific Railroad/Metrolink track is approximately 42 feet west of the sound/retaining wall. The tracks parallel Railroad Avenue (formerly San Fernando Road), which is to the west of the tracks. The monitoring location is surrounded by residential land uses (both single-family and multi-family). The primary sources of noise at this location is traffic traveling northbound and southbound along Oak Ridge Drive and Railroad Avenue and Metrolink commuter rail and freight trains traveling along the Union Pacific Railroad/Metrolink track. During the monitoring period, noise from a passing freight train and a helicopter flyover were sampled.

Table 4.5-4
Short-Term Monitored Noise Levels

Map Ref.	Location	Noise Level (dB(A) $L_{eq,15}$)
8	Off Site: Open Field west of Oak Ridge Drive	68.5
9	Off Site: Sulphur Springs Community Elementary School	76.3
10	On Site: Dirt Road west of Lost Canyon Road terminus	48.5
11	Off Site: English Ivy Lane near Strawberry Pine Court	69.2
12	Off Site: Jakes Way and Rose Lane	62.1

Source: Impact Sciences. Inc., (2009)
The short-term noise measurements are provided in ***Appendix 4.5*** *of this EIR.*

The second short-term monitoring location (Map Ref. 9) was at the Sulphur Springs Community Elementary School located at 16628 Lost Canyon Road in Canyon Country. The monitoring location was approximately 6 feet from Lost Canyon Road. The proximity of this monitoring location to Lost Canyon Road combined with noise generating, school related activities (listed below) account for the high noise level at this location. The school is in a residential area directly east of the project site. The primary source of noise at this location is traffic traveling along Lost Canyon Road and point noise sources typical of a school area (e.g., drop off and pick up of students, people talking, doors slamming, deliveries, parking lot cleaning, lawn care equipment operation, stereos, etc.). During the monitoring period, noises from a series of lawn mowers were sampled.

The third short-term monitoring location (Map Ref. 10) was on an unnamed dirt road approximately 125 feet from the terminus of Lost Canyon Road at the project site's eastern boundary. More specifically, the dirt road is located on the project site near a single-family residential neighborhood located along La Veda Avenue. The primary source of noise at this location is traffic traveling along Lost Canyon Road and La Veda Avenue and point noise sources typical of residential areas (e.g., people talking, doors slamming, truck deliveries, parking lot cleaning, lawn care equipment operation, stereos, domestic animals, etc.). During the monitoring period, no specifically discernable noises were sampled.

The fourth short-term monitoring location (Map Ref. 11) was on English Ivy Lane, which is a cul-de-sac in the Fair Oaks community located south of the project site. This area was under construction during the monitoring, which explains the high noise level. The monitoring location was near the intersection of English Ivy Lane and Strawberry Pine Court. The primary source of noise at this location is traffic traveling along English Ivy Lane and construction noise. Other point noise sources typical of residential areas (e.g., people talking, doors slamming, truck deliveries, parking-lot cleaning, lawn care equipment operation, stereos, domestic animals, etc.) were also present. During the monitoring period, construction noise and refuse truck noises were sampled.

The fifth short-term monitoring location (Map Ref. 12) was near the intersection of Jakes Way and Rose Land in a multi-family residential area east of SR-14. This monitoring location is located west of the project site. The primary source of noise at this location is traffic traveling along the adjacent SR-14 and point noise sources typical of residential areas (e.g., people talking, doors slamming, truck deliveries, parking lot cleaning, lawn care equipment operation, stereos, domestic animals, etc.).

c. Roadway Noise

In order to characterize the ambient roadway noise environment in the study area, noise prediction modeling was conducted based on vehicular traffic volumes along nearby roadway segments. Noise levels were modeled using the FHWA *Highway Traffic Noise Prediction Model* (FHWA-RD-77-108). This model calculates the average noise level in dB(A) CNEL along a given roadway segment based on traffic volumes, vehicle mix, average speeds, roadway geometry, and site conditions. The model calculates noise associated with a specific line source and the results characterize noise generated only by motor vehicle traffic along the specific roadway segment and do not reflect other noise sources in the project area.

The project site is characterized as falling between acoustically hard and soft, since both hardscape and vegetated areas are proposed. An acoustically hard site uses a model factor, known as an alpha factor, of zero while an acoustically soft site uses an alpha factor of 0.5. Therefore, the model utilized an alpha factor value of 0.25.

As shown in **Table 4.5-5, Existing Roadway Noise Levels**, the roadway segments near the project site range from a low of 56.2 dB(A) CNEL to a high of 66.0 dB(A) at a distance of 75 feet from the roadway centerline. As demonstrated in **Table 4.5-5**, ambient noise levels are less than 70 dB(A) CNEL. Levels less than 70 dB(A) CNEL are considered conditionally acceptable for single- and multi-family residences in accordance with the *City Land Use Compatibility Guidelines*. Refer to the project's transportation impact study in **Appendix 4.3** for a detailed discussion of existing traffic levels.[16] Noise model calculations are available in **Appendix 4.5**.

16 Fehr & Peers, *Draft Transportation Impact Study for Vista Canyon Transit-Oriented Development*, (2009) 12-15.

Table 4.5-5
Existing Roadway Noise Levels

Roadway Segment	CNEL in dB(A) at 75 Feet from Roadway Centerline
Soledad Canyon Rd – Between Sierra Hwy and Vista Canyon Rd	66.0
Soledad Canyon Rd – Between Vista Canyon Rd and Sand Canyon Rd	66.0
Soledad Canyon Rd – East of Sand Canyon Rd	66.0
Lost Canyon Rd – Between Via Princessa and Canyon Park Blvd	57.7
Lost Canyon Rd – Between Canyon Park Blvd and Jakes Way	56.2
Sand Canyon Rd – Between Sierra Hwy and Soledad Canyon Rd	61.4
Sand Canyon Rd – Between Soledad Canyon Rd and Lost Canyon Rd	61.4
Sand Canyon Rd – Between Lost Canyon Rd and Alamo Canyon Dr	61.2
Via Princessa – Between SR-14 and Lost Canyon Rd	59.1
Via Princessa – South of Lost Canyon Rd	59.1
Sierra Hwy – Between Via Princess and Canyon Park Blvd	65.8
Sierra Hwy – Between Canyon Park Blvd and Soledad Canyon Rd	65.8
Jakes Way – East of Canyon Park Blvd	57.6

Source: Impact Sciences, Inc. Calculations are provided in ***Appendix 4.5****.*

d. State Route 14

In order to characterize the ambient roadway noise environment along SR-14, noise prediction modeling was conducted based on vehicular traffic volumes along segments near to the project site. Noise levels were modeled using the FHWA *Highway Traffic Noise Prediction Model* (FHWA-RD-77-108). This model calculates the average noise level in dB(A) CNEL along a given roadway segment based on traffic volumes, vehicle mix, average speeds, roadway geometry, and site conditions. The model calculates noise associated with a specific line source and the results characterize noise generated only by motor vehicle traffic along the specific roadway segment and do not reflect other noise sources in the project area. The project site is characterized as falling between acoustically hard and soft, since both hardscape and vegetated areas are proposed. The vehicle mix was adjusted based on information contained in the transportation impact study, which stated that trucks represent approximately 5.5 percent of the vehicles traveling along SR-14 north of Interstate 5. In addition, a 5 dB(A) reduction was taken for the use of berms and other sound barriers along SR-14.

Table 4.5-6, Existing SR-14 Noise Levels, presents the roadway segments, average daily traffic (ADT) volume, and noise levels. The noise levels near the project site range from a low of 69.8 dB(A) CNEL to a high of 70.7 dB(A) 100 feet from the roadway centerline. Levels less than 70 dB(A) CNEL are considered conditionally acceptable for single- and multi- family residences in accordance with the *City Land Use Compatibility Guidelines*. Levels less than 75 dB(A) CNEL are considered conditionally acceptable for commercial, office, and industrial land uses. Refer to the project's transportation impact study in **Appendix 4.3** for a detailed discussion of existing traffic levels.[17] Noise model calculations are available in **Appendix 4.5**.

Table 4.5-6
Existing SR-14 Noise Levels

SR-14 Segment	ADT Volume	CNEL in dB(A) at 100 Feet from Roadway Centerline
North of I-5	169,000	70.7
North of San Fernando Rd/SR 126 interchange	156,000	70.7
Between Golden Valley Rd and Via Princessa/Sierra Hwy	148,000	70.4
Between Via Princessa/Sierra Hwy and Sand Canyon Rd	118,000	69.8
North of Sand Canyon Rd interchange	107,000	69.8

Source: Impact Sciences, Inc. Calculations are provided in ***Appendix 4.5****.*

4. PROJECT IMPACTS

a. Significance Threshold Criteria

According to Appendix G of the *State CEQA Guidelines*, a project would have a significant impact on noise if the project would:

- Expose persons to or generate noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
- Expose persons to or generate excessive ground-borne vibration or ground-borne noise levels;
- Cause a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project;
- Cause a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.

The following additional thresholds of significance are based on the City of Santa Clarita's *City Land Use Compatibility Guidelines*, as well as the noise standards outlined in the City's Noise Ordinance.

17 Fehr & Peers, *Draft Transportation Impact Study for Vista Canyon Transit-Oriented Development*, (2009) 12-15.

(1) Construction Noise

If components of the proposed project and/or off-site noise-sensitive land uses are to be subject to project-related construction noise levels originating on or off the project site that would be in violation of the City's Noise Ordinance, a significant on-site noise impact would occur.

(2) Operational Noise

(a) Stationary Source Noise Thresholds

Should stationary source noise from activities on private property within the project site exceed the limits of Sections 11.44.040 and 11.44.070 of the City's Noise Ordinance or in excess of normally acceptable noise levels of the *City Land Use Compatibility Guidelines*, a significant noise impact would occur.

(b) Mobile Source Noise Thresholds

The proposed project would result in a significant on-site mobile source noise impact if traffic on adjacent and nearby roadways would cause on-site exterior use areas to be exposed to continuous noise levels greater than those identified in the *City Land Use Compatibility Guidelines* for the affected land use.

Evaluation of off-site mobile source noise impacts considers the *City Land Use Compatibility Guidelines* and community responses to changes in noise levels. As discussed previously, changes in a noise level of less than 3.0 dB(A) are not typically noticed by the human ear.[18] Changes from 3.0 to 5.0 dB(A) may be noticed by some individuals who are extremely sensitive to changes in noise. A 5.0 dB(A) increase is readily noticeable. Based on this information, significant off-site project operational noise impacts would occur under the following criteria:

- Criterion 1 – An increase of 5.0 dB(A) or greater in noise level occurs from project-related activities if levels remain within the same land use compatibility classification (e.g., noise levels remain within the normally acceptable range); or
- Criterion 2 – An increase of 3.0 dB(A) or greater in noise level occurs from project-related activities, which results in a change in land use compatibility classification (e.g., noise levels change from normally acceptable to conditionally acceptable); or
- Criterion 3 – Any increase in noise levels occurs where existing noise levels are already considered unacceptable under the *City Land Use Compatibility Guidelines*.

18 U.S. Department of Transportation, Federal Highway Administration, *Highway Noise Fundamentals*, (1980) 81.

Noise generated by emergency vehicles is not under the control of the City. Accordingly, the City's Noise Ordinance exempts emergency operations from noise regulation. The state also has preempted local jurisdictions from controlling noise generated by emergency equipment, such as sirens on police vehicles, ambulances, and fire trucks. Similarly, emergency-related helicopter and aircraft flights cannot be controlled by the City. Therefore, there is no threshold of significance for emergency vehicles.

(c) Interior Noise Thresholds

A significant noise impact would occur if the proposed project would cause interior noise levels from exterior sources to exceed 45 dB(A) L_{dn} or CNEL in any habitable room of a 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.

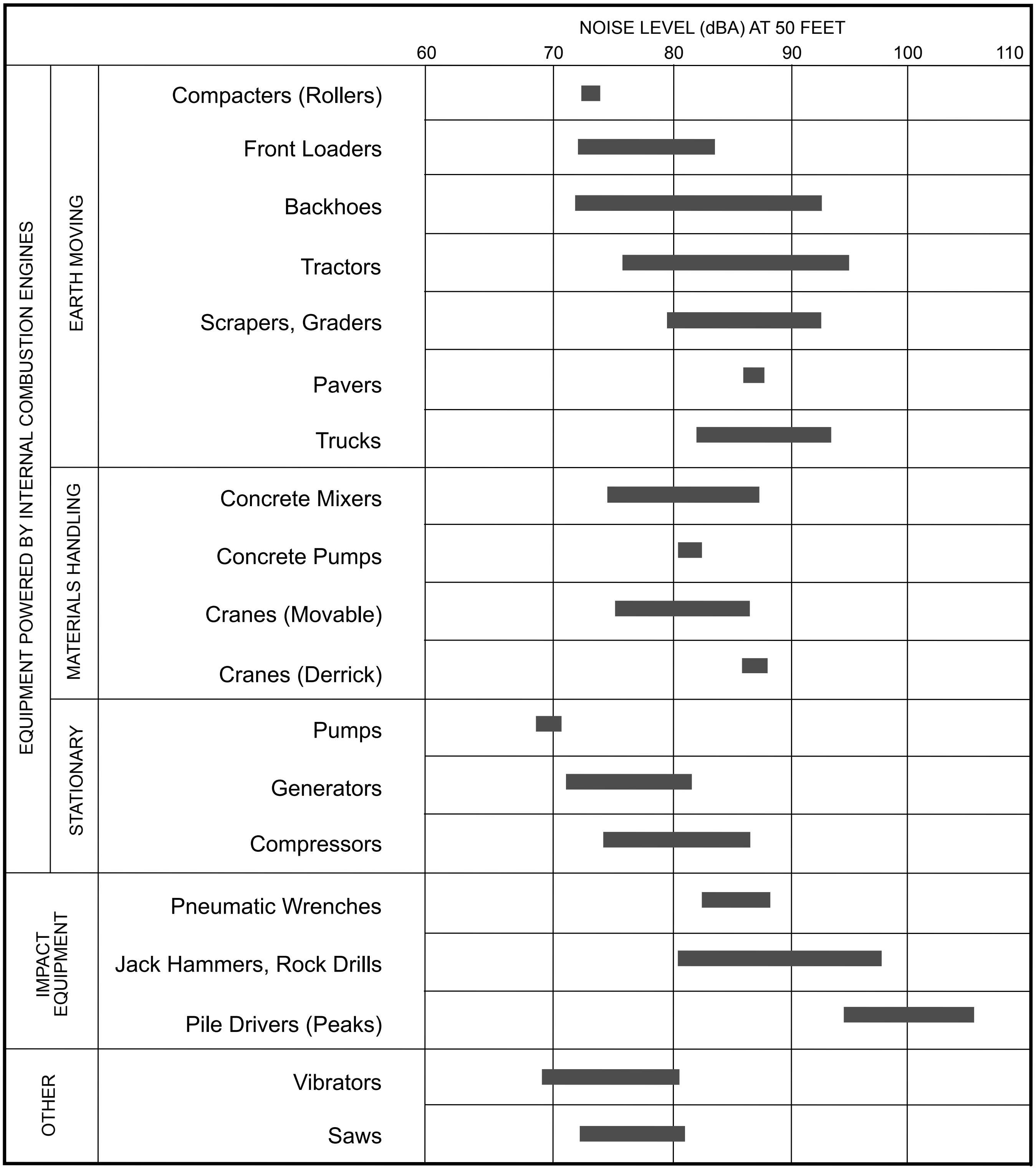
b. Construction-Related Impacts

(1) General Construction Noise Impacts

Project development activities would occur over approximately four years and would primarily include site preparation (grading and excavation), and the construction of a bridge, internal roadways, driveways, and structures. The proposed project also would require the import of up dirt to accommodate development within the project site.

Site preparation typically involves the use of heavy equipment, such as scrapers, tractors, loaders, concrete mixers, cranes, pile drivers, etc. Trucks would be used to import soil, deliver equipment and building materials, and to haul away waste materials. Smaller equipment, such as jackhammers, pneumatic tools, saws, and hammers would also be used throughout the site during the construction phases.

The U.S. EPA has compiled data on the noise-generating characteristics of specific types of construction equipment. These data are presented in **Figure 4.5-8, Noise Levels of Typical Construction Equipment**. As shown, noise levels generated by heavy equipment can range from approximately 68 dB(A) to noise levels in excess of 100 dB(A) when measured at 50 feet. However, these construction equipment noise levels diminish rapidly with distance from the construction site at a rate of approximately 6.0 to 7.5 dB(A) per doubling of distance. For example, assuming an acoustically "hard" site, a noise level of 68 dB(A) measured at 50 feet from the noise source to the receptor would reduce to 62 dB(A) at 100 feet from the source to the receptor, and further reduce by another 6.0 dB(A) to 56 dB(A) at 200 feet from the source to the receptor.



Note: Based on limited available data samples.

SOURCE: United States Environmental Protection Agency, 1971, "Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances," NTID 300-1.

FIGURE **4.5-8**

Noise Levels of Typical Construction Equipment

112-024•10/09

In general, the first and noisiest stage of project buildout is site preparation. The highest noise levels 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 middle stages of construction, foundation forms are constructed and concrete foundations are poured. Primary noise sources include heavy concrete trucks and mixers, cranes, pile drivers, and pneumatic drills. At 50 feet from the source, noise levels in the 70 to 90 dB(A) range are common. The latter stages of construction consist of interior and exterior building construction, and site cleanup. Primary noise sources associated with these activities 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 involve the use of trucks, landscape rollers, and compactors, with noise levels in the 65 to 75 dB(A) range.

Noise levels generated during the construction phases would affect occupants of existing on-site uses and uses constructed in the project's early development phases, as well as off site nearby residences.

(a) Grading Noise Impacts

Heavy grading activity is anticipated to occur prior to occupancy of any portion of the project site. Therefore, grading noise impacts would affect off-site noise sensitive land uses. Grading would occur throughout the project site to create building pads, driveways, roads, parking areas, and landscaping. Short-term grading operations would occur in close proximity to existing off-site multi-family residential land uses on the western side of the project and single-family residential land uses on the eastern side of the project. Planned and existing off-site residential land uses are also south of the project site; however, the Union Pacific Railroad/Metrolink tracks, undeveloped land, and open space parcels provide for a buffer between the project site and these planned residential uses. Although the project would utilize a substantial number of equipment during grading activities, they would operate at various locations throughout the project site. Only a fraction of the equipment would be in operation at any given time near to existing and planned noise sensitive receptors.

The amount of equipment operating near to sensitive receptors at any given time was estimated using default assumption in the Urban Emissions 2007 (URBEMIS2007) Environmental Management Software.[19] Although this model is primarily used in air quality analyses, it provides State-approved estimates for construction equipment assumed to operate simultaneously at any given time. Based on these estimates, grading activities would generate maximum noise levels of approximately 91 dB(A) at noise sensitive receptors. Noise levels generated during grading would affect uses constructed in the project's early development phases, as well as off-site nearby residences and properties. These noise impacts would be periodic and short-term with respect to any specific receptor.

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19 Refer to **Section 4.4**, **Air Quality**, for details regarding the URBEMIS2007 model.

(b) Building Construction Noise Impacts

Within the project site, new buildings, parking lots, roadways, and other infrastructure would be constructed. Although the project would utilize a substantial number of equipment during building construction activities, they would operate at various locations throughout the project site. Only a fraction of the equipment would be in operation at any given time near to existing and planned noise sensitive receptors. As described above the number of equipment operating near to sensitive receptors at any given time was estimated using default assumption URBEMIS2007 model. Based on these estimates, grading activities would generate maximum noise levels of approximately 90 dB(A) at noise sensitive receptors. Noise levels generated during building construction would affect uses constructed in the project's early development phases, as well as off-site nearby residences and properties. These noise impacts would be periodic and short-term with respect to any specific receptor.

(c) Summary of Construction Noise Impacts

Construction of the proposed project would intermittently increase noise in the surrounding area. As noted above, the highest noise levels would occur during the grading phase, with a peak noise level of 91 dB(A). The City of Santa Clarita Municipal Code, more specifically the Noise Ordinance, prohibits construction work requiring a building permit on sites within 300 feet of a residentially zoned property from operating except between the hours of 7:00 AM and 7:00 PM Monday through Friday, and between 8:00 AM and 6:00 PM on Saturday. Construction work is prohibited on Sundays, New Year's Day, Independence Day, Thanksgiving Day, Christmas Day, Memorial Day, and Labor Day. Compliance with the permitted construction hours within the City's Noise Ordinance is required below in **Mitigation Measures 4.5-1** and **4.5-2.** Nonetheless, project construction noise would intermittently exceed the *Noise and Land Use Compatibility Guidelines* of the City's Noise Element resulting in temporary, unavoidably significant noise impacts at nearby residences.

(2) Construction Mobile Source Noise Impacts

The heavy-duty, on-road trucks that would be used to move construction equipment onto the project site and into construction areas typically have a noise level of approximately 90 dB(A) at 50 feet. Future on-site sensitive receptors constructed during the earlier phases of project development and off-site sensitive receptors located along the truck routes that would have a direct line of sight to the trucks would experience temporary, instantaneous noise levels up to approximately 90 dB(A) at 50 feet from the roadway. Receptors located further away would experience less noise due to their greater distance from the truck route and any intervening topography and/or structures that may exist between them and the noise source. Because the heavy equipment would remain at the construction sites for the duration of the construction phase, the noise impact on the sensitive receptors would only occur when the equipment is moved onto and off the construction sites, and would be temporary and instantaneous because the noise levels would diminish rapidly as the trucks travel away from them. In short, heavy-duty construction truck traffic would be periodic and restricted to daytime hours, is expected to travel along highways and major arterials where less noise sensitive uses are or would be located, and is not expected to traverse residential streets. As such, short-term construction-related truck traffic would not result in a significant noise impact.

Although the daily transportation of construction workers is expected to cause some increases in noise levels along roadways in the project area, this traffic, which would be largely comprised of passenger vehicles and pick-up trucks, would not represent a substantial percentage of daily volumes in the area over the course of infrastructure installation and construction, and would contribute substantially less than 3 dB(A) to the ambient noise environment. As noted earlier, noise is measured on a logarithmic scale. The A-weighted sound level, referenced in units of dB(A), is measured on a logarithmic scale such that a doubling of sound energy results in a 3 dB(A) increase in noise level. Because construction worker trips would not result in a doubling of traffic or sound energy on roadways, the noise contribution from construction worker commutes would be inaudible to the typical human ear. Therefore, construction-worker traffic noise would be less than significant.

(3) Construction Vibration Impacts

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

The result 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. **Table 4.5-7, Vibration Levels for Construction Equipment**, lists vibration levels of the construction equipment that will be used on the project site and typically produce groundborne vibration. A significant impact would occur, should construction activity cause a PPV of above 0.2 PPV. Existing land uses surrounding the project site primarily consist of residential uses. These residential uses would be considered sensitive receptors.

Table 4.5-7
Vibration Levels for Construction Equipment

Equipment	PPV at 25 ft (in/sec)
Loaded Truck	0.076
Large bulldozer	0.089
Roller (vibratory)	0.210
Impact Pile Driver (upper range)	1.518
Impact Pile Driver (typical)	0.644
Sonic Pile Driver (upper range)	0.734
Sonic Pile Driver (typical)	0.170

Source: Federal Transit Administration, Transit Noise and Vibration Impact Assessment, (2006) 12-9.

Loaded trucks would be used to haul excavated soil from the site and to bring construction materials to the site. Bulldozers would be used to move dirt and materials around the site. As indicated above in **Table 4.5-7,** loaded trucks and large bulldozers are capable of producing vibration levels of approximately 0.076 and 0.089 PPV, respectively, at 25 feet from the source, which is below the threshold of 0.2 PPV; therefore, these activities would not result in significant vibration impacts to off-site sensitive receptors.

Pile driving may occur during construction of the Vista Canyon Road Bridge, which would extend from the center of the project site (in PA-2) across the Santa Clara River. Pile driving may also occur with construction of the parking structures and other multi-story buildings, within PA-1 and PA-2. Pile driving can produce vibration levels of up to 1.518 PPV at 25 feet from the source. The bridge, parking structures and other buildings referenced above are located approximately 2,000 feet from the nearest existing residence east of the project site, approximately 300 feet to the nearest residence west of the project site and approximately 500 feet to the nearest residence south of the project site. Consequently, no significant impacts to off-site sensitive uses would occur from potential pile driving, due to the distance from potential pile driving activities to these sensitive uses.

Excavation and construction would occur along the boundary of the project site, and near these existing residential areas. As shown in **Table 4.8-7**, vibration due to use of rollers would exceed 0.2 inch/second within 25 feet of the equipment. However, project development activities involving rollers would not occur within 25 feet of existing off-site residential uses. Therefore, no significant impact related to the use of rollers would occur to off-site sensitive uses.

As mentioned above, pile driving would occur during project construction, specifically Phases 2, 3, and 4 of the project. During Phase 1, residential land uses would be constructed in PA-1. Parking structures in PA-1 would be constructed prior to occupancy of any adjacent on-site residential units. The residential land uses in PA-1 would be approximately 500 feet southwest of the Vista Canyon Road Bridge. Commercial/retail space would also be constructed during Phase 1 in PA-2, which could potentially be located as close as 150 feet from the Bridge. Additional residential land uses would be constructed in PA-2 and PA-3 during construction of Phase 2, the nearest of which is approximately 400 feet southwest of the Bridge. Again parking structures associated with the residential uses would be constructed prior to occupancy. While vibration attenuates with distance from the source, pile driving could still result in impacts greater than 0.2 inch/second at the nearest occupied land use, which would be within the project site. Based on the FTA vibration standards, this would constitute a potentially significant on-site impact.

Mitigation Measure 4.5-1 and **4.5-2** would require the construction contractor to limit construction activity to the hours and days specified in the City Noise Ordinance. **Mitigation Measure 4.5-3** is provided to minimize, to the extent feasible, the use of loaded trucks or heavy excavating equipment within 300 feet of on- or off-site residences. If it is necessary to use heavy equipment, the project applicant or construction contractor shall provide advanced notice to residences, advising that there will be a potential for construction vibrations.

Implementation of these measures would reduce vibration impacts at nearby receptors. Nevertheless, since groundborne vibration could still be generated during construction in excess of the FTA vibration standards, on-site impacts would remain significant and unavoidable. Off-site vibration impacts to sensitive uses would be less than significant.

c. Operation-Related Impacts

As the project builds out, on- and off-site noise impacts would result from project-generated traffic, as well as from human activity on the project site itself. Each of these potential noise impacts is discussed separately below.

(1) Mobile Source Noise Impacts

As stated in **Section 4.3, Traffic and Access**, of this EIR, the proposed project is projected to generate approximately 21,382 vehicle trips per day external to the project site. Approximately 1,859 trips would be generated by the proposed Metrolink station and bus terminal. Approximately 2,544 internal trips would occur within the project site's roadway network. These trips would occur on local roadways when fully operational. Post-project, interim year, on- and off-site traffic noise levels were projected using the

FHWA *Highway Traffic Noise Prediction Model*.[20] The traffic impact study (**Appendix 4.3**) for the proposed project did not contain average daily trip (ADT) numbers for interim conditions along roadway segments analyzed in the study. Therefore, ADT numbers were estimated by averaging the data from the intersection analyses for the interim year based on the number of vehicles that would be traveling through or turning onto each roadway segment. It was assumed that the peak AM and PM turning volumes represent approximately 10 percent of the total ADT values. **Table 4.5-8, Interim Year (2015) Mobile Source Noise Impacts**, provides interim year with and without project traffic noise levels at noise sensitive receptors in the project study area. As shown in **Table 4.5-8**, implementation of the proposed project would result in roadway noise levels that range from 56.6 to 70.9 dB(A). Furthermore, implementation of the proposed project would result in noise increase of less than 3 dB(A) along the roadway segments analyzed. Based on the modeled results, mobile source noise impacts due to the project would result in a less than significant impact to on- and off-site noise sensitive land uses.

(2) SR-14 Noise Impacts

As discussed previously, the existing ADT along segments of SR-14 near to the project site ranges from 107,000 to 169,000. According to data contained in the traffic impact study (**Appendix 4.3**), the project would contribute between 16 and 555 peak hour trips along segments of SR-14 near the project site.[21] Assuming these values represent 10 percent of ADT (which likely overestimates project trips), the project would contribute between 160 and 5,550 ADT along segments of SR-14 near the project site. As noted earlier, the A-weighted sound level, referenced in units of dB(A), is measured on a logarithmic scale such that a doubling of sound energy results in a 3 dB(A) increase in noise level. Because the project would not result in a doubling of traffic or sound energy on any portion of SR-14, the noise contribution from project-related mobile sources would be inaudible to the typical human ear. Therefore, because the project would not result in a 3 dB(A) increase in noise levels associated with SR-14, the project impacts along SR-14 would be less than significant to on- and off-site noise-sensitive land uses.

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20 As previously discussed, the FHWA *Noise Prediction Model* calculates the average noise level at specific locations based on traffic volumes, average speeds, roadway geometry, and site environmental conditions. The average vehicle noise rates (energy rates) utilized in the FHWA Model have been modified by the Caltrans to reflect average vehicle noise rates identified for California.

21 Fehr & Peers, *Draft Transportation Impact Study for Vista Canyon Transit-Oriented Development*, (2010) 96.

Table 4.5-8
Interim Year (2015) Mobile Source Noise Impacts

Roadway Segment	Existing (2008) CNEL	Interim Year without Project CNEL	Interim Year with Project CNEL	Project Noise Contribution dB(A)	Increase over Existing	Significance		
						Criterion 1	Criterion 2	Criterion 3
Soledad Canyon Rd - Between Golden Valley Rd and Whites Canyon Rd	n/a	70.0	70.4	0.4	n/a	NO	NO	NO
Soledad Canyon Rd - Between Whites Canyon Rd and Sierra Hwy	n/a	70.5	70.9	0.4	n/a	NO	NO	NO
Soledad Canyon Rd - Between Sierra Hwy and Vista Canyon Rd	69.7	69.3	70.0	0.7	0.3	NO	NO	NO
Soledad Canyon Rd - Between Vista Canyon Rd and Sand Canyon Rd	69.7	69.2	69.6	0.4	-0.1	NO	NO	NO
Soledad Canyon Rd - East of Sand Canyon Rd	69.7	69.4	69.8	0.4	0.1	NO	NO	NO
Lost Canyon Rd - Between Via Princessa and Canyon Park Blvd	61.3	61.6	61.3	-0.3	0.0	NO	NO	NO
Lost Canyon Rd - Between Canyon Park Blvd and Jakes Way	59.8	61.6	61.3	-0.3	1.5	NO	NO	NO
Lost Canyon Rd - Between La Veda Avenue and Sand Canyon Rd	n/a	58.5	60.8	2.3	n/a	NO	NO	NO
Sand Canyon Rd - Between Sierra Hwy and Soledad Canyon Rd	65.0	63.5	63.7	0.2	-1.3	NO	NO	NO
Sand Canyon Rd - Between Soledad Canyon Rd and Lost Canyon Rd	65.0	66.0	66.5	0.5	1.5	NO	NO	NO
Sand Canyon Rd - Between Lost Canyon Rd and Alamo Canyon Dr	64.8	63.7	64.1	0.4	-0.7	NO	NO	NO

Roadway Segment	Existing (2008) CNEL	Interim Year without Project CNEL	Interim Year with Project CNEL	Project Noise Contribution dB(A)	Increase over Existing	Significance		
						Criterion 1	Criterion 2	Criterion 3
Sand Canyon Rd - Alamo Canyon Dr and Placerita Canyon Rd	n/a	63.7	64.1	0.4	n/a	NO	NO	NO
Via Princessa - Between Whites Canyon Rd and Sierra Hwy	n/a	65.2	65.5	0.3	n/a	NO	NO	NO
Via Princessa - Between Sierra Hwy and SR-14	n/a	62.4	62.9	0.5	n/a	NO	NO	NO
Via Princessa - Between SR-14 and Lost Canyon Rd	62.8	56.5	56.6	0.1	-6.2	NO	NO	NO
Via Princessa - South of Lost Canyon Rd	62.8	61.6	63.7	2.1	0.9	NO	NO	NO
Sierra Highway - Between Golden Valley Rd and Via Princessa	n/a	68.3	68.6	0.3	n/a	NO	NO	NO
Sierra Highway - Between Via Princessa and Canyon Park Blvd	69.6	67.8	68.1	0.3	-1.5	NO	NO	NO
Sierra Highway - Between Canyon Park Blvd and Soledad Canyon Rd	69.6	68.4	68.6	0.2	-1.0	NO	NO	NO
Sierra Highway - Between Soledad Canyon Rd and Skyline Ranch Rd	n/a	67.9	68.2	0.3	n/a	NO	NO	NO
Sierra Highway - North of Sand Canyon Rd	n/a	64.8	65.0	0.2	n/a	NO	NO	NO
Skyline Ranch Rd - North of Sierra Hwy	n/a	n/a	n/a	0.0	n/a	NO	NO	NO
Whites Canyon Rd - Between Via Princessa and Soledad Canyon Rd	n/a	62.9	63.1	0.2	n/a	NO	NO	NO
Jakes Way - East of Canyon Park Blvd	61.2	59.8	60.2	0.4	-1.0	NO	NO	NO
Placerita Canyon Rd - Between Delden Rd and Ravenhill Rd	n/a	62.9	63.2	0.3	n/a	NO	NO	NO
Placerita Canyon Rd - Ravenhill Rd and Sand Canyon Rd	n/a	62.9	63.2	0.3	n/a	NO	NO	NO

Roadway Segment	Existing (2008) CNEL	Interim Year without Project CNEL	Interim Year with Project CNEL	Project Noise Contribution dB(A)	Increase over Existing	Significance		
						Criterion 1	Criterion 2	Criterion 3
Sandy Dr - Between Sierra Hwy and Jakes Way	n/a	57.9	58.5	0.6	n/a	NO	NO	NO
Canyon Park Blvd - Between Sierra Hwy and SR-14	n/a	59.0	59.0	0.0	n/a	NO	NO	NO
Lost Canyon Rd - Between Jakes Way and Vista Canyon Rd (on-site)	n/a	n/a	59.0	59.0	n/a	n/a	NO	NO
Vista Canyon Rd - Between Soledad Canyon Way and Lost Canyon Rd (on-site)	n/a	n/a	58.4	58.4	n/a	n/a	NO	NO

Source: Impact Sciences, Inc. Calculations are provided in ***Appendix 4.5****.*
n/a = not available

(3) Commuter Rail (Metrolink) and Freight Train Impacts

The Union Pacific Railroad/Metrolink railroad line handles 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 up to 12 freight trains pass through the Santa Clarita Valley each day. Noise measurements were taken at the Jan Heidt Newhall Metrolink Station. This station is similar to the proposed Vista Canyon Metrolink Station and would experience similar noise levels as trains enter and exit the station. Noise monitoring indicated maximum noise levels of 69 dB(A) CNEL, approximately 60 feet from the train tracks. Proposed residential units within Planning Areas 1 and 2 of the project would be located approximately 300 feet from the railroad tracks. Residential units within Planning Area 3 would be located 120 feet of the railroad tracks. However, in light of noise measurements conducted on and off site as part of this EIR and the distance from the proposed project's residential units to the railroad tracks, noise impacts from the railroad tracks would be less than significant.

The project would not cause an increase in railroad noise as the commuter rail and freight trains already traverse the region and the tracks are located adjacent to the project site. Therefore, because the project would not result in an increase in noise levels associated with the railroad tracks (as the tracks are already there), the project impacts would be less than significant to on- and off-site noise-sensitive land uses.

(4) Point Source Noise Impacts

The Metrolink Station, Bus Transfer Station, retail, restaurant, office, and residential uses on the project site could introduce various stationary noise sources, including electrical and mechanical air conditioning, most of which would be located on the rooftops of buildings associated with the proposed project. On-site residential uses could be potentially affected by the introduction of such equipment. Typically, equipment noise sources produce noise levels of approximately 56 dB(A) at 50 feet. While noise levels may be annoying within a quiet environment, it is very likely that existing daytime ambient levels within the project site and areas surrounding the project site would substantially if not completely mask these on-site noise sources. Therefore, noise sources from electrical and mechanical equipment on the proposed project site, that could impact on-site residential units proposed by the project, and off-site surrounding residential areas, would be less than significant.

Additional point sources of noise would consist of people talking, doors slamming, truck deliveries, parking lot cleaning, operation of lawn care equipment, air conditioners, stereos, domestic animals, etc. These are the same noise sources as currently occur near the site and contribute to the ambient noise levels that are experienced in all similarly developed areas. Noise levels generated by these sources would not exceed the City's Noise Ordinance or normally acceptable noise levels of the *City Land Use Compatibility Guidelines* due to their intermittent and instantaneous nature. Impacts from point noise sources would be less than significant.

Development of the proposed project would also introduce commercial parking lots associated with the Metrolink Station, Bus Transfer Station, retail, restaurant, and office land uses that will be developed on the project site. In general, noise associated with parking structures, especially subterranean parking structures, is not of a sufficient volume to exceed community standards based on the time-weighted CNEL scale. Parking garages can be a source of annoyance due to automobile engine startups and acceleration and the activation of car alarms. On-site residential land uses and off-site adjacent residential land uses to the east and west of the project site would be the closest sensitive receptors within the project area and would thus represent the worst-case impact associated with the subterranean parking structure noise from the project.

Parking lots, parking structures, and subterranean parking structures can generate L_{eq} noise levels between 49 dB(A) L_{eq} (tire squeals) to 74 dB(A) L_{eq} (car alarms) at 50 feet. Although SR-14 generates high level of traffic noise, it is approximately 1,000 feet from most of the development on site (PA-1, PA-2, and PA-3). Therefore, normal daytime parking lot L_{eq} noise would not likely be masked by the freeway noise, except in PA-4, which would likely be partially masked. However, intervening buildings and subterranean parking garages will act as a damper for daytime parking lot L_{eq} noise, due to the walls that act as noise barriers. Additionally, parking lot noise would be short-term and periodic. Consequently, noise generated by commercial parking lots would result in noise impacts that are less than significant both on and off the project site.

(5) Interior Noise Impacts

As discussed previously, an exterior (outdoor) noise level up to 70 dB(A) CNEL/L_{dn} is considered conditionally acceptable for residential land uses without any special noise insulation requirements because interior noise levels will typically be reduced to acceptable levels (to at least 45 dB(A) CNEL/L_{dn}) through conventional construction, closed windows, and fresh air supply systems or air conditioning. Exterior noise levels from 70 dB(A) to 75 dB(A) CNEL are considered acceptable only if the buildings provide noise insulation features, such as sound walls, window upgrades, and site design modifications to achieve a 45 dB(A) CNEL interior noise level.

As shown in **Table 4.5-8**, implementation of the project itself would not cause exterior noise levels to exceed 70 dB(A). Traffic on two roadway sections would exceed 70 dB(A): (1) Soledad Canyon Road between Golden Valley Road and Whites Canyon Road and (2) Soledad Canyon Road between Whites

Canyon Road and Sierra Highway. However, the project would contribute only 0.4 dB(A) to the total noise levels. Ambient growth in traffic without the project would, by itself, result in exterior noise levels of 70.0 dB(A) and 70.5 dB(A). Therefore, the project would have a less than significant impact on off-site interior noise levels.

5. MITIGATION MEASURES ALREADY INCORPORATED INTO THE PROJECT

The proposed project has not incorporated any mitigation measures into its design.

6. MITIGATION MEASURES PROPOSED BY THIS EIR

4.5-1 Pursuant to Section 11.44.080 of the City's Noise Ordinance, construction work shall occur within 300 feet of occupied residences only between the hours of 7:00 AM and 7:00 PM Monday through Friday, and between 8:00 AM and 6:00 PM on Saturday. No construction work shall occur on Sundays, New Year's Day, Independence Day, Thanksgiving Day, Christmas Day, Memorial Day, and Labor Day.

4.5-2 The project applicant shall require by contract specifications that the following construction best management practices (BMPs) be implemented by the construction contractor to reduce construction noise and vibration levels:

- Two weeks prior to the commencement of construction, notification must be provided to surrounding land uses of the project site disclosing the construction schedule, including the various types of activities that would be occurring throughout the duration of the construction period.
- Ensure that construction equipment is properly muffled according to industry standards and in good working condition.
- Place noise- and vibration- generating construction equipment and locate construction staging areas away from sensitive uses, where feasible (particularly away from the residential uses located north and east of the project site).
- Use electric air compressors and similar power tools rather than diesel equipment, where feasible.
- Construction-related equipment, including heavy-duty equipment, motor vehicles, and portable equipment, shall be turned off when not in use for more than 30 minutes.
- Construction hours, allowable workdays, and the phone number of the job superintendent shall be clearly posted at all construction entrances to allow for surrounding owners and residents to contact the job superintendent. If the job superintendent receives a complaint, the superintendent shall investigate, take appropriate corrective action, and report the action taken to the reporting party.

Contract specifications shall be included in the proposed project construction documents, which shall be reviewed by the City of Santa Clarita prior to issuance of the grading permit.

7. CUMULATIVE IMPACTS

(1) Mobile Source Noise Impacts

As discussed in **Section 4.3, Traffic and Access**, of this EIR, buildout of the Santa Clarita Valley would result in cumulative (2030) traffic impacts. Post-project, cumulative year traffic noise levels were projected using the FHWA *Highway Traffic Noise Prediction Model*.[22] **Table 4.5-9, Cumulative Year (2030) Mobile Source Noise Impacts**, identifies cumulative year 2030 with project traffic noise levels at noise sensitive receptors in the project area. As shown, cumulative with project noise levels are less than 70 dB(A) and implementation of the proposed project would result in cumulative noise increase of less than 3 dB(A) along the roadway segments analyzed. A reduction in noise level also would occur along several roadway intersections due to a redistribution of traffic as a result of the roadway improvements. Based on the modeled results, cumulative plus project mobile source noise levels would result in a less than significant impact to on- and off-site noise-sensitive land uses.

(2) SR-14 Noise Impacts

As discussed previously, the existing ADT along segments of SR-14 near to the project site ranges from 107,000 to 169,000. According to data contained in the traffic impact study, the cumulative year 2030 growth plus project condition would result in between 12,231 and 15,237 additional peak hour trips along segments of SR-14 near to the project site.[23] Assuming these values represent 10 percent of ADT (which likely overestimates project trips), the cumulative year 2030 growth plus project scenario would result in an additional 122,310 to 152,370 ADT along segments of SR-14 near to the project site. As previously discussed, the project would contribute between 160 and 5,550 ADT along segments of SR-14 near to the project site. **Table 4.5-10, Cumulative Year 2030 SR-14 Noise Levels**, summarized the change in ADT and the noise levels.

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22 As previously discussed, the FHWA *Noise Prediction Model* calculates the average noise level at specific locations based on traffic volumes, average speeds, roadway geometry, and site environmental conditions. The average vehicle noise rates (energy rates) utilized in the FHWA Model have been modified by the Caltrans to reflect average vehicle noise rates identified for California.

23 Fehr & Peers, *Draft Transportation Impact Study for Vista Canyon Transit-Oriented Development*, (2010) 96.

Table 4.5-9
Cumulative Year (2030) Mobile Source Noise Impacts

Roadway Segment	Existing (2008) CNEL	Cumulative Year without Project CNEL	Cumulative with Project CNEL	Project Noise Contribution dB(A)	Increase over Existing	Significance		
						Criterion 1	Criterion 2	Criterion 3
Soledad Canyon Rd - West of Golden Valley Rd	n/a	69.6	69.6	0.0	n/a	NO	NO	NO
Soledad Canyon Rd - Between Golden Valley Rd and Whites Canyon Rd	n/a	68.6	68.8	0.2	n/a	NO	NO	NO
Soledad Canyon Rd - Between Whites Canyon Rd and Sierra Hwy	n/a	68.9	69.0	0.1	n/a	NO	NO	NO
Soledad Canyon Rd - Between Sierra Hwy and Vista Canyon Rd	69.7	67.5	68.2	0.7	-1.5	NO	NO	NO
Soledad Canyon Rd - Between Vista Canyon Rd and Sand Canyon Rd	69.7	67.1	67.4	0.3	-2.3	NO	NO	NO
Soledad Canyon Rd - East of Sand Canyon Rd	69.7	66.9	67.0	0.1	-2.7	NO	NO	NO
Lost Canyon Rd - Between Via Princessa and Canyon Park Blvd	61.3	59.1	61.1	2.0	-0.2	NO	NO	NO
Lost Canyon Rd - Between Canyon Park Blvd and Jakes Way	59.8	59.1	61.1	2.0	1.3	NO	NO	NO
Lost Canyon Rd - Between La Veda Avenue and Sand Canyon Rd	n/a	50.5	55.9	5.4	n/a	NO	NO	NO
Sand Canyon Rd - Between Sierra Hwy and Soledad Canyon Rd	65.0	64.0	64.5	0.5	-0.5	NO	NO	NO
Sand Canyon Rd - Between Soledad Canyon Rd and Lost Canyon Rd	65.0	66.1	66.1	0.0	1.1	NO	NO	NO

Roadway Segment	Existing (2008) CNEL	Cumulative Year without Project CNEL	Cumulative with Project CNEL	Project Noise Contribution dB(A)	Increase over Existing	Significance Criterion 1	Significance Criterion 2	Significance Criterion 3
Sand Canyon Rd - Between Lost Canyon Rd and Alamo Canyon Dr	64.8	62.7	62.9	0.2	-1.9	NO	NO	NO
Sand Canyon Rd - Alamo Canyon Dr and Placerita Canyon Rd	n/a	58.0	57.7	-0.3	n/a	NO	NO	NO
Via Princessa - West of Whites Canyon Rd	n/a	63.6	63.5	-0.1	n/a	NO	NO	NO
Via Princessa - Between Whites Canyon Rd and Sierra Hwy	n/a	64.3	64.4	0.1	n/a	NO	NO	NO
Via Princessa - Between Sierra Hwy and SR-14	n/a	62.9	62.9	0.0	n/a	NO	NO	NO
Via Princessa - Between SR-14 and Lost Canyon Rd	62.8	60.4	61.6	1.2	-1.2	NO	NO	NO
Via Princessa - South of Lost Canyon Rd	62.8	56.8	57.4	0.6	-5.4	NO	NO	NO
Sierra Highway - Between Golden Valley Rd and Via Princessa	n/a	67.2	67.3	0.1	n/a	NO	NO	NO
Sierra Highway - Between Via Princessa and Canyon Park Blvd	69.6	67.3	67.3	0.0	-2.3	NO	NO	NO
Sierra Highway - Between Canyon Park Blvd and Soledad Canyon Rd	69.6	67.2	67.1	-0.1	-2.5	NO	NO	NO
Sierra Highway - Between Soledad Canyon Rd and Skyline Ranch Rd	n/a	67.5	67.6	0.1	n/a	NO	NO	NO
Sierra Highway - North of Sand Canyon Rd	n/a	63.7	63.7	0.0	n/a	NO	NO	NO
Skyline Ranch Rd - North of Sierra Hwy	n/a	59.4	59.6	0.2	n/a	NO	NO	NO
Whites Canyon Rd - Between Via Princessa and Soledad Canyon Rd	n/a	63.4	63.4	0.0	n/a	NO	NO	NO

Roadway Segment	Existing (2008) CNEL	Cumulative Year without Project CNEL	Cumulative with Project CNEL	Project Noise Contribution dB(A)	Increase over Existing	Significance		
						Criterion 1	Criterion 2	Criterion 3
Jakes Way - East of Canyon Park Blvd	61.2	58.0	59.0	1.0	-2.2	NO	NO	NO
Golden Valley Rd - South of Newhall Ranch Rd	n/a	63.2	63.3	0.1	n/a	NO	NO	NO
Golden Valley Rd - South of SR-14	n/a	62.7	62.7	0.0	n/a	NO	NO	NO
Placerita Canyon Rd - Between Delden Rd and Ravenhill Rd	n/a	63.4	63.2	-0.2	n/a	NO	NO	NO
Placerita Canyon Rd - Ravenhill Rd and Sand Canyon Rd	n/a	61.4	61.2	-0.2	n/a	NO	NO	NO
Sandy Dr - Between Sierra Hwy and Jakes Way	n/a	56.6	56.9	0.3	n/a	NO	NO	NO
Canyon Park Blvd - Between Sierra Hwy and SR-14	n/a	57.1	57.5	0.4	n/a	NO	NO	NO
Lost Canyon Rd - Between Jakes Way and Vista Canyon Rd (on-site)	n/a	n/a	59.0	59.0	n/a	n/a	NO	NO
Vista Canyon Rd - Between Soledad Canyon Way and Lost Canyon Rd (on-site)	n/a	n/a	58.4	58.4	n/a	n/a	NO	NO

Source: Impact Sciences, Inc. Calculations are provided in ***Appendix 4.5****.*
n/a = not available

Table 4.5-10
Cumulative Year 2030 SR-14 Noise Levels

SR-14 Segment	Existing (2008)		Cumulative Plus Project		Increase over Existing	Significance		
	ADT Volume	CNEL	ADT Volume	CNEL		Criterion 1	Criterion 2	Criterion 3
North of I-5	169,000	70.7	297,890	73.1	2.4	NO	NO	NO
North of San Fernando Rd/SR 126 interchange	156,000	70.7	284,890	73.3	2.6	NO	NO	NO
Between Golden Valley Rd and Via Princessa/Sierra Hwy	148,000	70.4	300,370	73.5	3.1	NO	**YES**	NO
Between Via Princessa/Sierra Hwy and Sand Canyon Rd	118,000	69.8	267,460	73.4	3.6	NO	**YES**	NO
North of Sand Canyon Rd interchange	107,000	69.8	229,310	73.1	3.3	NO	**YES**	NO

*Source: Impact Sciences, Inc. Calculations are provided in **Appendix 4.5**.*

As noted earlier, the A-weighted sound level, referenced in units of dB(A), is measured on a logarithmic scale such that a doubling of sound energy results in a 3 dB(A) increase in noise level. The cumulative plus project scenario would result in a doubling of traffic or sound energy on a portion of SR-14. As shown in **Table 4.5-10**, the cumulative plus project condition would result in a 3 dB(A) or more increase in noise levels associated with SR-14 and would cause a change in land use compatibility classification for residential land uses (from conditionally acceptable to normally unacceptable). Therefore, the project, along with other projected development and ambient growth, would result in a cumulatively considerable impact along SR-14 and would result in a cumulatively significant impact to adjacent off-site noise-sensitive land uses. The project does not propose on-site residential land uses in close proximity to SR-14; therefore, cumulative on-site impacts would be less than significant.

(3) Commuter Rail and Freight Train Impacts

According to the City of Santa Clarita *Transportation Development Plan*, "current Metrolink expansion plans anticipate increasing the current 24-train weekday schedule to 28 trains by 2010 and 32 trains by 2015."[24] These additional trains would travel on the Antelope Valley Line primarily to accommodate additional peak morning and afternoon workday commuters. Noise monitoring at the Jan Heidt Newhall Metrolink Station indicated maximum noise levels of 69 dB(A) CNEL at 60 feet from the tracks. The proposed increase in commuter trains, if implemented, would increase the maximum noise levels to approximately 64 dB(A) at 120 feet and 56 dB(A) at 300 feet from the railroad. The increase in noise levels would be less than the significance threshold at the nearest residential land uses, and would be considered to result in a less than significant cumulative impact to sensitive receptors.

8. CUMULATIVE MITIGATION MEASURES

Significant cumulative noise impacts would result along SR-14 to off-site land uses from Santa Clarita Valley buildout, which would include the proposed project. No feasible mitigation exists to reduce these cumulative noise impacts to a less than significant level. Therefore, this impact is considered significant and unavoidable.

9. UNAVOIDABLE SIGNIFICANT IMPACTS

Mitigation measures recommended to reduce construction-related noise and vibration impacts would reduce the severity of the impact; however, the potential for noise and vibration levels to exceed the

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24 City of Santa Clarita, *Transportation Demand Plan 2006-2015*, (2006) 79. Assuming 12 freight trains, the increase in the total number of trains would be from 36 to 44 trains per day.

significance thresholds would remain. Therefore, construction-related impacts to on-site and off-site receptors are considered significant and unavoidable.

Additionally, feasible mitigation measures exist to mitigate the cumulatively considerable significant impacts along SR-14 to off-site, noise sensitive land uses.