SECTION 5.6
Noise

5.6 NOISE

This section of the EIR evaluates the potential noise impacts associated with the proposed project. The analysis presented in this section is based on the calculations, analysis, and conclusions contained in the *Mancara at Robinson Ranch Environmental Noise Analysis (Noise Analysis),* prepared by Christopher A. Joseph and Associates (August 2006, updated November 2008), which is included in its entirety as Appendix J, Noise Impact Analysis.

Since the *Noise Analysis* was updated in 2008, minor modifications to the project description have occurred. These minor modifications include the relocation or realignment of drainage and water quality features; refinement and further definition of on- and off-site equestrian/recreational trails; design revisions for on-site roadway bridges; and minor refinements to roadway cross-sections and alignments, including additional definition regarding off-site improvements along Lost Canyon Road. Upon review of project modifications occurring since preparation of the updated *Noise Analysis*, it has been determined that: 1) modifications do not require an alteration or expansion of the established project impact footprint; 2) refinements do not affect the total proposed dwelling units, associated square footage, or vehicle trip generation resulting from development; and 3) refinements do not require a substantial increase in grading, excavation, import/export of soil, or type/quantity of construction equipment to be utilized. Thus, it has been determined that the conservative impact methodologies utilized within the updated *Noise Analysis* remain applicable to the project and the analysis accurately reflects the project's potential for noise impacts.

5.6.1 REGULATORY SETTING

NOISE SCALES AND DEFINITIONS

Sound is technically described in terms of the loudness (amplitude) of the sound and frequency (pitch) of the sound. The standard unit of measurement of the loudness of sound is the decibel (dB). Since the human ear is not equally sensitive to sound at all frequencies, a special frequency-dependent rating scale has been devised to relate noise to human sensitivity. The A-weighted decibel scale (dBA) performs this compensation by discriminating against frequencies in a manner approximating the sensitivity of the human ear.

Decibels are based on the logarithmic scale. The logarithmic scale compresses the wide range in sound pressure levels to a more usable range of numbers in a manner similar to the Richter scale used to measure earthquakes. In general, a one dB change in the sound pressure levels of a given sound is detectable only under laboratory conditions. A three dB change in sound pressure level is considered a "just detectable" difference in most situations. A five dB change is readily noticeable and a 10 dB change is considered a doubling (or halving) of the subjective loudness.

For each doubling of distance from a point noise source (a stationary source, such as a loudspeaker or loading dock), the sound level will decrease by six dBA. For each doubling of distance from a line source, like a roadway, noise levels are reduced by three to 4.5 dBA, depending on the ground cover between the source and the receiver. In terms of human response to noise, a sound 10 dBA higher than another is judged to be twice as loud; 20 dBA higher four times as loud; and so forth. Everyday sounds normally range from 30 dBA (very

quiet) to 100 dBA (very loud). Examples of various sound levels in different environments are shown in *Exhibit 5.6-1*, *Sound Levels and Human Response*.

Numerous methods have been developed to measure sound over a period of time; refer to *Table 5.6-1*, *Noise Descriptors*.

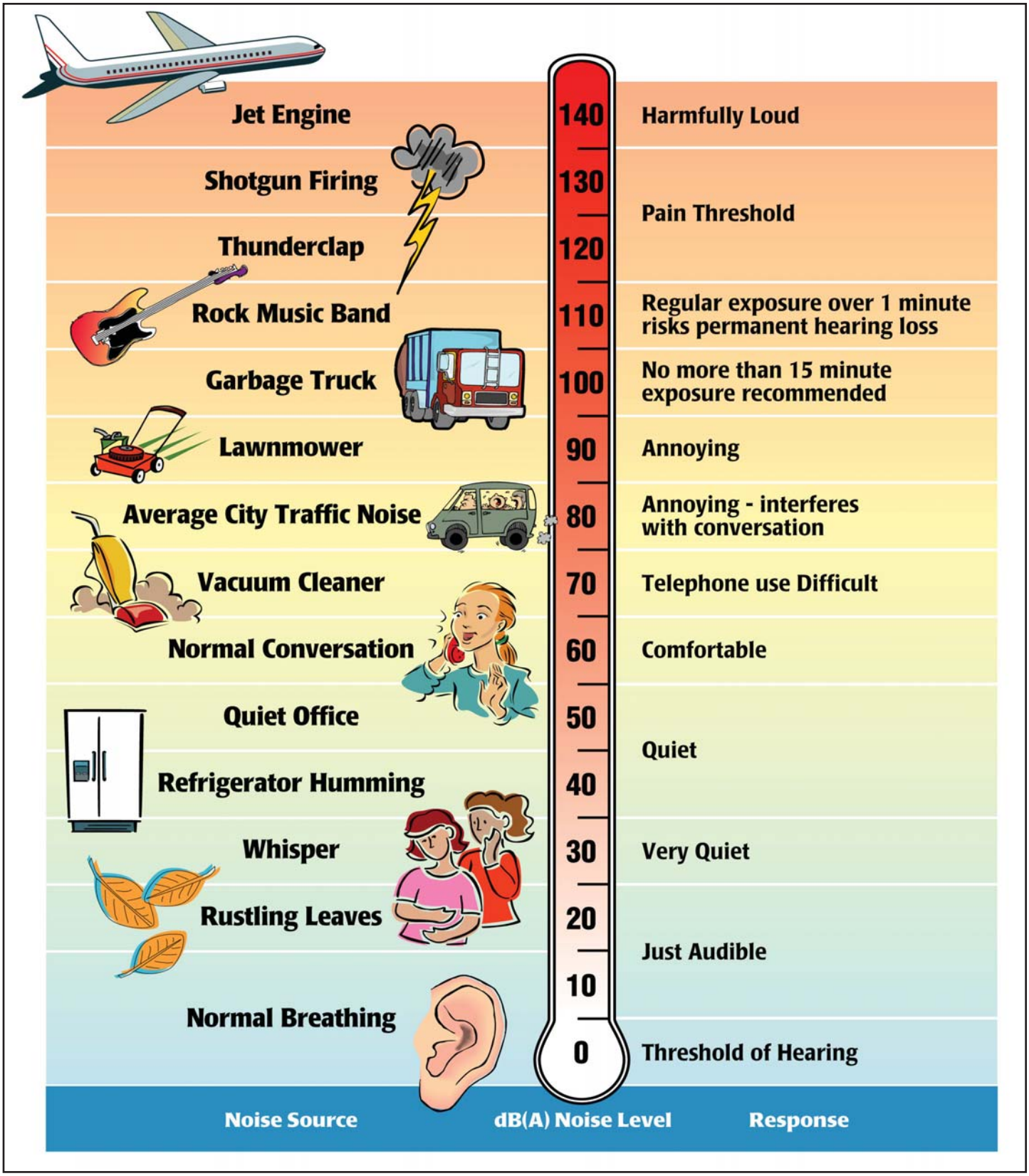
LAWS, ORDINANCES, REGULATIONS, AND STANDARDS

This section summarizes the laws, ordinance, regulations, and standards that are applicable to the project. Regulatory requirements related to environmental noise are typically promulgated at the local level; however, Federal and State agencies provide standards and guidelines to the local jurisdictions.

Table 5.6-1
Noise Descriptors

Term	Definition
Decibel (dB)	The unit for measuring the volume of sound equal to 10 times the logarithm (base 10) of the ratio of the pressure of a measured sound to a reference pressure (20 micropascals).
A-Weighted Decibel (dBA)	A sound measurement scale that adjusts the pressure of individual frequencies according to human sensitivities. The scale accounts for the fact that the region of highest sensitivity for the human ear is between 2,000 and 4,000 cycles per second (hertz).
Equivalent Sound Level (L_{eq})	The sound level containing the same total energy as a time varying signal over a given time period. The L_{eq} is the value that expresses the time averaged total energy of a fluctuating sound level.
Maximum Sound Level (L_{max})	The highest individual sound level (dBA) occurring over a given time period.
Minimum Sound Level (L_{min})	The lowest individual sound level (dBA) occurring over a given time period.
Community Noise Equivalent Level (CNEL)	A rating of community noise exposure to all sources of sound that differentiates between daytime, evening, and nighttime noise exposure. These adjustments are +5 dBA for the evening, 7:00 PM to 10:00 PM, and +10 dBA for the night, 10:00 PM to 7:00 AM
Day/Night Average (L_{dn})	The L_{dn} is a measure of the 24-hour average noise level at a given location. It was adopted by the U.S. Environmental Protection Agency (EPA) for developing criteria for the evaluation of community noise exposure. It is based on a measure of the average noise level over a given time period called the L_{eq}. The L_{dn} is calculated by averaging the L_{eq}'s for each hour of the day at a given location after penalizing the "sleeping hours" (defined as 10:00 PM to 7:00 AM), by 10 dBA to account for the increased sensitivity of people to noises that occur at night.
Exceedance Level (L_n)	The A-weighted noise levels that are exceeded 1%, 10%, 50%, and 90% (L_{01}, L_{10}, L_{50}, L_{90}, respectively) of the time during the measurement period.

Source: Cyril M. Harris, *Handbook of Noise Control*, dated 1979.



Source: Melville C. Branch and R. Dale Beland, *Outdoor Noise in the Metropolitan Environment*, 1970.
Environmental Protection Agency, *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety* (EPA/ONAC 550/9-74-004), March 1974.

MANCARA AT ROBINSON RANCH
ENVIRONMENTAL IMPACT REPORT

Sound Levels and Human Response

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Exhibit 5.6-1

STATE OF CALIFORNIA

The State of California Office of Planning and Research (OPR) *Noise Element Guidelines* include recommended interior and exterior level standards for local jurisdictions to identify and prevent the creation of incompatible land uses due to noise. The *OPR Guidelines* describe the compatibility of various land uses with a range of environmental noise levels in terms of dBA CNEL.

A noise environment of 50 dBA CNEL to 60 dBA CNEL is considered to be "normally acceptable" for residential uses. The State indicates that locating residential units, parks, and institutions (such as churches, schools, libraries, and hospitals) in areas where exterior ambient noise levels exceed 65 dBA CNEL is undesirable. The OPR recommendations also note that, under certain conditions, more restrictive standards than the maximum levels cited may be appropriate. As an example, the standards for quiet suburban and rural communities may be reduced by five to 10 dB to reflect their lower existing outdoor noise levels in comparison with urban environments.

In addition, *Title 25, Section 1092* of the *California Code of Regulations*, sets forth requirements for the insulation of multi-family residential dwelling units from excessive and potentially harmful noise. Whenever multiple-family residential dwelling units are proposed in areas with excessive noise exposure, the developer must incorporate construction features into the building's design that reduce interior noise levels to 45 dBA CNEL.

Table 5.6-2, *Noise and Land Use Compatibility Matrix*, illustrates the State guidelines established by the State Department of Health Services for acceptable noise levels for each county and city. These standards and criteria are incorporated into the land use planning process to reduce future noise and land use incompatibilities. This table is the primary tool that allows the City to ensure integrated planning for compatibility between land uses and outdoor noise.

CITY OF SANTA CLARITA

GENERAL PLAN

The City has set land use standards for noise in the *General Plan Noise Element* . The *Noise Element* is a comprehensive program for including noise management in the planning process, providing a tool for planners to use in achieving and maintaining land uses that are compatible with existing and future environmental noise levels. The *Noise Element* identifies current noise conditions within the planning area, and projects future noise impacts resulting from continued growth allowed by the Land Use Element. The Element identifies noise-sensitive land uses and noise sources, and defines areas of noise impact for the purpose of developing programs to ensure that residents in the Santa Clarita Valley will be protected from excessive noise intrusion. As development proposals are reviewed in the future, both the City and the County will evaluate each proposal with respect to the *Noise Element* to ensure that noise impacts are reduced through planning and project design. Through implementation of the policies and programs of the *Noise Element*, current and future adverse noise impacts will be reduced or avoided in order to protect the general health, safety, and welfare of the community.

Table 5.6-2
Noise and Land Use Compatibility Matrix

Land Use Category	Community Noise Exposure (L_{dn} or CNEL, dBA)			
	Normally Acceptable	Conditionally Acceptable	Normally Unacceptable	Clearly Unacceptable
Residential - Low Density, Single-Family, Duplex, Mobile Homes	50 - 60	55 - 70	70-75	75-85
Residential – Multiple Family	50 - 65	60 - 70	70 - 75	70 – 85
Transient Lodging - Motel, Hotels	50 - 65	60 - 70	70 - 80	80 – 85
Schools, Libraries, Churches, Hospitals, Nursing Homes	50 - 70	60 - 70	70 - 80	80 – 85
Auditoriums, Concert Halls, Amphitheaters	NA	50 - 70	NA	65 – 85
Sports Arenas, Outdoor Spectator Sports	NA	50 - 75	NA	70 – 85
Playgrounds, Neighborhood Parks	50 - 70	NA	67.5 - 75	72.5 – 85
Golf Courses, Riding Stables, Water Recreation, Cemeteries	50 - 70	NA	70 - 80	80 – 85
Office Buildings, Business Commercial and Professional	50 - 70	67.5 - 77.5	75 - 85	NA
Industrial, Manufacturing, Utilities, Agriculture	50 - 75	70 - 80	75 - 85	NA

Source: Office of Planning and Research, California, *General Plan Guidelines*, October 2003.

NA: Not Applicable

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 be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.
Clearly Unacceptable – New construction or development should generally not be undertaken.

Applicable goals, objectives, and policies from the *General Plan Noise, Land Use*, and *Circulation Elements* are listed below.

Noise Environment

Goal N 1: A healthy and safe noise environment for Santa Clarita Valley residents, employees, and visitors.

Objective N 1.1: Protect the health and safety of the residents of the Santa Clarita Valley by the elimination, mitigation, and prevention of significant existing and future noise levels.

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

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

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

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

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

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

Reduction of Noise from Traffic

Goal N 2: Protect residents and sensitive receptors from traffic-generated noise.

Objective N 2.1: Prevent and mitigate adverse effects of noise generated from traffic on arterial streets and highways through implementation noise reduction standards and programs.

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

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

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

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

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

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

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

Residential Neighborhoods

Goal N 3: Protect residential neighborhoods from excessive noise.

Objective N 3.1: Prevent and mitigate significant noise levels in residential neighborhoods.

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

Policy N 3.1.2: Require that developers of new single-family and multi-family residential neighborhoods in areas where the projected noise levels exceed 65 CNEL provide mitigation measures (which may include noise barriers, setbacks, and site design) for new residences to reduce outdoor noise levels to 65 CNEL, based on future traffic conditions. This requirement would apply to rear yard areas for single-family developments, and to private open space and common recreational and open space areas for multi-family developments.

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

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

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

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

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

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

Policy N 3.1.9: Implement a buyer and renter notification program for new residential developments where appropriate, to educate and inform potential buyers and renters of the sources of noise in the area and/or new sources of

noise that may occur in the future. As determined by the reviewing authority, notification may be appropriate in the following areas:

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

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

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

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

Healthy Neighborhoods

Goal LU 3: Healthy and safe neighborhoods for all residents.

Objective LU 3.3: Ensure that the design of residential neighborhoods considers and includes measures to reduce impacts from natural or man-made hazards.

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

Street and Highway System

Goal C 2: A unified and well-maintained network of streets and highways which provides safe and efficient movement of people and goods between neighborhoods, districts, and regional centers, while maintaining community character.

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

Objective C 2.4: Allow trucks to utilize only major and secondary highways as through routes, to minimize impacts of truck traffic on surface streets and residential neighborhoods.

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

MUNICIPAL CODE

The City's *Municipal Code*, Chapter 11.44, Noise Limits, establishes noise standards in various land use zones during daytime (7:00 AM to 9:00 PM) and nighttime (9:00 PM to 7:00 AM) periods. For residential zones, the base noise levels are 65 dBA during the daytime and 55 dBA during the nighttime. For commercial and manufacturing zones, the base noise levels are 80 dBA during the daytime and 70 dBA during the nighttime.

For repetitive impulsive noise or steady, whine, screech, or hum noise, the base noise levels noted above are reduced by five dBA. If the noise occurs more than five but less than 15 minutes per hour during the daytime, the above base noise levels are raised by five dBA. If the noise occurs more than one but less than five minutes per hour during the daytime, the above base noise levels are raised by 10 dBA. If the noise occurs less than one minute per hour during the daytime, the above base noise levels are raised by 20 dBA.

No person shall engage in any construction work that requires a building permit from the City on sites within 300 feet of a residentially zoned property 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. Further, no work shall be performed on Sundays or the following public holidays: New Year's Day, Independence Day, Thanksgiving, Christmas Day, Memorial Day, and Labor Day. The City and Building Safety Division may issue a permit for work to be done "after hours," provided that construction noise is contained.

5.6.2 ENVIRONMENTAL SETTING

EXISTING NOISE ENVIRONMENT

AMBIENT NOISE MEASUREMENTS

In order to quantify existing ambient noise levels in the project area, Christopher A. Joseph and Associates conducted noise measurements on January 11, 2006 and September 27, 2006; refer to *Table 5.6-3*, *Noise Measurements* and *Exhibit 5.6-2*, *Noise Measurement Locations*. The noise measurements were taken using a Larson-Davis Laboratories Model LDL 824 precision sound level meter, which satisfies the American National Standards Institute (ANSI) for general environmental noise measurement instrumentation. The results of the field measurements are in Appendix J. Existing measured noise levels range from approximately 45.4 dBA to 65.9 dBA.

The following is a detailed discussion of each of the four measurement sites:

- Location 1 is in the northwestern area of the project site just south of the railroad tracks and a non-gated railroad crossing. The primary source of ambient noise at this location is the hum of vehicular traffic on the State Route (SR) 14 (Antelope Valley Freeway). Metrolink railroad traffic is the source of the highest noise levels at this location.

According to the Metrolink website[1], 24 commuter trains pass by the project site during the week. During the weekend, 12 commuter trains pass by on Saturdays and 6 on Sundays. Freight trains also pass by the project site on an irregular basis. All trains are required to use horns when approaching the non-gated railroad crossing near this location. Secondary sources of noise at this location include aircraft overflights, barking dogs, and vehicles driving on the project site.

- Location 2 is in the northeastern area of the project site just south of the railroad tracks. The primary source of ambient noise at this location is the hum of vehicular traffic on the Antelope Valley Freeway. Railway traffic is the source of the highest noise levels at this location. Secondary sources of noise at this location include aircraft overflights and birdsong.

- Location 3 is in the southern area of the project site near Oak Springs Canyon Road. The primary sources of noise at this location are vehicular traffic on Oak Springs Canyon Road and the hum of vehicular traffic on the Antelope Valley Freeway. Secondary sources of noise at this location include aircraft overflights and animal sounds.

- Location 4 is in the northwestern area of the project site just north of the railroad tracks and the non-gated railroad crossing. As with Location 1, the primary source of ambient noise at this location is the hum of vehicular traffic on the Antelope Valley Freeway and Metrolink railroad traffic is in the source of the highest noise levels at this location. Secondary sources of noise at this location include aircraft overflights, barking dogs, and vehicular driving on the project site.

Table 5.6-3
Noise Measurements

Site No.	Location	Primary Noise Sources	Noise Level Statistics (dBA)		
			L_{eq}	L_{min}	L_{max}
1	Northwestern Area	Traffic on Antelope Valley Freeway. This measurement includes one Metrolink train pass-by with horn.	65.9	46.8	90.3
		Traffic on Antelope Valley Freeway. This measurement includes one pickup truck driving by the noise measurement equipment.	51.0	46.5	64.6
2	Northeastern Area	Traffic on Antelope Valley Freeway. This measurement did not include any train pass-bys.	45.4	37.6	54.6
3	Southern Area	Traffic on Oak Springs Canyon Road and the Antelope Valley Freeway.	47.9	39.5	65.5
4	Northwestern Area	Traffic on Antelope Valley Freeway. This measurement includes one Metrolink train pass-by with horn.	63.1	45.2	93.6
		Traffic on Antelope Valley Freeway. This measurement includes two Metrolink train pass-bys with horns.	65.1	51.4	86.9
		Traffic on Antelope Valley Freeway. This measurement includes one pickup truck driving fast by the noise measurement equipment.	64.3	48.7	90.9
		Traffic on Antelope Valley Freeway. No trains or trucks.	56.8	54.1	60.3

Source: *Mancara at Robinson Ranch Environmental Noise Analysis*, Christopher A. Joseph and Associates, November 2008.

[1] Metrolink, Schedules, website: http://www.metrolinktrains.com/schedules/, October 20, 2010.

Source: Christopher A. Joseph & Associates.

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Noise Measurement Locations

Exhibit 5.6-2

MOBILE NOISE SOURCES

In order to assess the potential for mobile source noise impacts, it is necessary to determine the noise currently generated by vehicles traveling through the study area. The existing roadway noise levels were modeled using the Federal Highway Administration's Highway Noise Prediction Model (FHWA-RD-77-108) together with several roadway and site parameters; please refer to Appendix J. These parameters determine the projected impact of vehicular traffic noise and include the roadway cross-section (e.g., number of lanes), roadway width, average daily traffic (ADT), vehicle travel speed, percentages of auto and truck traffic, roadway grade, angle-of-view, and site conditions ("hard" or "soft"). The model does not account for ambient noise levels (i.e., noise from adjacent land uses) or topographical differences between the roadway and adjacent land uses. Existing modeled traffic noise levels can be found in *Table 5.6-4*, *Existing Traffic Noise Levels.*

Table 5.6-4
Existing Traffic Noise Levels

Roadway Segment	ADT	dBA @ 35 Feet from Roadway Centerline
Lost Canyon Road		
Between Sand Canyon Road and Oak Springs Canyon Road	711	55.3
Oak Springs Canyon Road		
Between Whitewater Canyon Road and Holt Avenue	123	47.7

Source: *Mancara at Robinson Ranch Environmental Noise Analysis*, Christopher A. Joseph and Associates, November 2008.

STATIONARY NOISE SOURCES

The primary sources of stationary noise in the project vicinity are urban-related activities (i.e., mechanical equipment, parking areas, conversations (normal to loud), and recreational areas) and residential activities (i.e., air conditioners and pool/spa equipment). The noise associated with these sources may represent a single event noise occurrence, short-term or long-term/continuous noise.

5.6.3 SIGNIFICANCE THRESHOLD CRITERIA

The *City of Santa Clarita Local CEQA Guidelines* (Resolution 05-38) adopted on April 26, 2005 and the Initial Study Environmental Checklist form in *CEQA Guidelines* Appendix G serve as the thresholds for determining the significance of impacts relating to noise. As such, a project would be considered to have a significant environmental impact if it would result in the following:

- Expose persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.
- Expose persons to or generation of excessive groundborne vibration or groundborne noise levels.

- Cause a substantial permanent increase 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.

TEMPORARY NOISE SOURCES

The *CEQA Guidelines* also do not define the levels at which temporary and permanent increases in ambient noise are considered "substantial." As discussed previously, a noise level increase of three dBA is barely perceptible to most people, a five dBA increase is readily noticeable, and a difference of 10 dBA would be perceived as a doubling of loudness. Based on this information, temporary increases in noise levels of 10 dBA or more due to construction activities would be substantial and, therefore, significant.

LONG-TERM NOISE SOURCES

The noise standards adopted by the City are discussed previously in Section 5.6.1. These standards would apply to the land uses that would be constructed within the project site. The following thresholds would apply to permanent increases in noise due to vehicular traffic:

- Less than three dBA: not discernable: not significant.
- Between three dBA and five dBA: not significant if noise levels remain below the City of Santa Clarita General Plan noise level standards; significant if the noise increase would meet or exceed the City of Santa Clarita General Plan noise level standards.
- Five dBA or greater: significant.

VIBRATION

This analysis uses the Federal Transit Administration's (FTA) vibration impact thresholds for sensitive buildings such as residential land uses. The threshold for infrequent activity (fewer than 70 events per day) is 80 VdB at residences and buildings where people normally sleep. The threshold for frequent activity (more than 70 events per day) is 72 VdB at residences and buildings where people normally sleep.

CUMULATIVE

The project's contribution to a cumulative traffic noise increase would be considered significant when the combined effect exceeds perception level (i.e., auditory level increase) threshold. The combined effect compares the "cumulative with project" condition to "existing" conditions. This comparison accounts for the traffic noise increase from the project generated in combination with traffic generated by projects in the cumulative projects list. The following criteria have been utilized to evaluate the combined effect of the cumulative noise increase.

Combined Effects: The "Cumulative Plus Project" noise level causes the following:

- An increase of the existing noise level by five dB or more, where the existing level is less than 60 dB CNEL;
- An increase of the existing noise level by three dB or more, where the existing level is 60 to 65 CNEL; or
- An increase of the existing noise level by 1.5 dB or more, where the existing level is greater than 65 dB CNEL.

Although there may be a significant noise increase due to the proposed project in combination with other related projects (combined effects), it must also be demonstrated whether the project's contribution would be considerable. In other words, a significant portion of the noise increase must be due to the proposed project. The following criteria have been utilized to evaluate the incremental effect of the cumulative noise increase.

Incremental Effects: The "Cumulative Plus Project" causes a 1.5 dBA increase in noise over the "Existing Plus Project" noise level.

A significant impact would result only if both the combined and incremental effects criteria have been exceeded.

Based on these standards, the effects of the proposed project have been categorized as either a "less than significant impact" or a "potentially significant impact." Mitigation measures are recommended for potentially significant impacts. If a potentially significant impact cannot be reduced to a less than significant level through the application of mitigation, it is categorized as a significant unavoidable impact.

5.6.4 PROJECT IMPACTS AND MITIGATION MEASURES

CONSTRUCTION-RELATED NOISE AND VIBRATION

- ***PROJECT-RELATED GRADING AND CONSTRUCTION ACTIVITIES COULD RESULT IN TEMPORARY NOISE IMPACTS ON NEARBY NOISE-SENSITIVE RECEPTORS.***

Level of Significance Before Analysis and Mitigation: Potentially Significant Impact.

Impact Analysis: Construction activities generally occur in a short and temporary duration, lasting from a few days to a period of months. Generally, site preparation is the shortest duration of all construction phases and generates the highest levels of noise. Activities that occur during this phase include earthmoving and soils compaction. Construction activities for the project would require the use of heavy equipment for ground clearing, site grading, infrastructure, and roadway construction. The timing on the construction of the residential units would vary depending on market conditions and financing. However, this activity typically has the lowest construction noise levels as the use of heavy equipment is limited.

Construction-related noise would primarily affect the four residential properties located along the western project site boundary, and the equestrian estate and Robinson Ranch Golf Course located south of Oak Springs Canyon Road. The residential properties are located in close

proximity to Lots 15 through 17, 67, 68, 77 through 83, 98, 99, and 105. Assuming that daytime noise levels average 51 dBA Leq in the northwestern area of the site and 48 dBA L_{eq} in the southern part of the site (refer to *Table 5.6-3*) and that these noise levels would be applicable to the off-site areas near these locations, the noise levels identified in *Table 5.6-6*, *Typical Outdoor Construction Noise Levels*, would represent an increase of more than 10 dBA Leq during the day at each location.

Table 5.6-5
Typical Outdoor Construction Noise Levels

Construction Phase	Noise Levels at 50 Feet (dBA Leq)	Noise Levels at 50 Feet with Mufflers (dBA Leq)
Ground Clearing	84	82
Excavation, Grading	89	86
Foundations	78	77
Structural	85	83
Finishing	89	86
Source: *Mancara at Robinson Ranch Environmental Noise Analysis*, Christopher A. Joseph and Associates, November 2008.		

As previously discussed, the *Municipal Code* Chapter 11.44 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 through 7:00 PM Monday through Friday and 8:00 AM through 6:00 PM on Saturday. Construction activities are also prohibited on Sundays and on the following public holidays: New Year's Day, Independence Day, Thanksgiving, Christmas, Memorial Day, and Labor Day.. Implementation of the *General Plan* goals, objectives and polices, and compliance with *Municipal Code* Chapter 11.44 and Mitigation Measure N-1 would reduce construction related impacts; however, the project-related construction noise would intermittently exceed the Noise and Land Use Compatibility Guidelines of the *Noise Element* Therefore, a temporary significant unavoidable noise impact at nearby residences would occur.

Construction-Related Groundborne Vibration

Construction activities that would occur at the proposed project site have the potential to generate low levels of groundborne vibration. *Table 5.6-6*, *Vibration Source Levels for Construction Equipment*, identifies various vibration velocity levels for the types of construction equipment that would operate at the project site during construction.

Table 5.6-6
Vibration Source Levels for Construction Equipment

Equipment	Approximate VdB				
	25 Feet	50 Feet	60 Feet	75 Feet	100 Feet
Pile Driver (impact)	104	98	96	95	92
Large Bulldozer	87	81	79	77	75
Loaded Trucks	86	80	78	76	74
Jackhammer	79	73	71	69	67
Small Bulldozer	58	52	50	48	46

Note: VdB = vibration decibels

Source: *Mancara at Robinson Ranch Environmental Noise Analysis*, Christopher A. Joseph and Associates, November 2008.
Source: Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Guidelines*, May 2006.

Similar to noise, groundborne vibration would attenuate at a rate of approximately 6 VdB per doubling of distance. The groundborne vibration generated during construction activities would primarily impact existing sensitive uses that are located adjacent to or within the vicinity of specific projects. Based upon the information provided in *Table 5.6-6*, vibration levels could reach up to 87 VdB for typical construction activities and up to 104 VdB if pile driving activities were to occur at sensitive uses located within 25 feet of construction. The project is proposing to construct a new undercrossing beneath the existing Metrolink railroad alignment that would connect the extension of Lost Canyon Road with Mancara Road, along with two bridges that cross Oak Spring Canyon Wash: 1) on Lost Canyon Road and 2) on Oak Springs Canyon Road .

Construction of the undercrossing and the two bridges may require the use of pile drivers; the specific details related to the type of bridge or undercrossing construction have not been determined at this time. The closest residence is more than 325 feet west of the proposed undercrossing, 100 feet from the proposed Lost Canyon Road bridge, and 800 feet from the proposed Oak Spring Canyon Road bridge, although there are uninhabitable structures as close as 450 feet.

Therefore, the vibration impacts associated with use of pile driver would be 82 VdB for the closest residence to the undercrossing and 92 VdB for the closest residence to the Lost Canyon Bridge, both of which are above the 72 VdB threshold. The vibration impacts would be below the threshold for the Oak Spring Canyon Wash bridge. . Implementation of Mitigation Measures N-3 through N-5 would reduce groundborne vibration impacts associated with pile driving. It should be noted that groundborne vibration from pile driving activities would not have the potential to damage structures. However, given that the specific type of construction methods have yet to be determined for the undercrossing and the two bridges, and despite the implementation of Mitigation Measures N-3 through N-5, vibration impacts due to pile driving would not be reduced to a less than significant level and are concluded to be significant unavoidable.

Vibration from Site Cleaning and Grading Activities for Trail

Site clearing and grading activities for the 25-foot trail along the western site boundary would occur within 40 feet of the existing residences near Lot 78. Based on the information in *Table 5.6-6*, these homes could be exposed to vibration levels that exceed the 72 VdB threshold for

residences and buildings where people normally sleep. However, construction activities that would occur within 300 feet of a residential zone would be limited to the hours of 7:00 AM through 7:00 PM Monday through Friday, 8:00 AM through 6:00 PM on Saturday, and be prohibited on Federal holidays. With these limitations, the magnitude of this impact would be reduced to a less than significant level. Furthermore, site clearing and grading activities would occur no closer than 150 feet from the other existing residential structures located near the project site. As such, groundborne vibrations levels associated with site clearing and grading activities for the trail would not approach the 72 VdB threshold at these residences; therefore, impacts are considered to be less than significant.

Mitigation Measures:

N-1 Prior to the issuance of a grading permit, the project applicant shall demonstrate, to the satisfaction of the Santa Clarita Public Works Department that the construction contractor complies with the following:

- All construction equipment shall be equipped with improved noise muffling, and have the manufacturers' recommended noise abatement measures, such as mufflers, engine covers, and engine isolators in good working condition.
- Stationary construction equipment that generates noise levels in excess of 65 dBA Leq shall be located as far away from existing residential areas as possible. If required to minimize potential noise conflicts, the equipment shall be shielded from sensitive noise receptors by using temporary walls, sound curtains, or other similar devices.
- Heavy-duty vehicle storage and start-up areas shall be located a minimum of 150 feet from occupied residences where feasible.
- All equipment shall be turned off if not in use for more than five minutes.
- An information sign shall be posted at the entrance to each construction site that identifies the permitted construction hours and provides a telephone number to call and receive information about the construction project or to report complaints regarding excessive noise levels. Any reasonable complaints shall be rectified within 24 hours of their receipt.

N-2 Pursuant to Municipal Code Section 11.44.080, 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 or on the following public holidays: New Year's Day, Independence Day, Thanksgiving, Christmas, Memorial Day, and Labor Day.

N-3 Prior to approval of the project plans and specifications, the City Engineer, or his designee, shall confirm that the plans and specifications stipulate the following:

- Use of a resilient yet stiff shock-absorbing pad between the ram and the pile cap;
- Use of a sound muffler on the pile rig to reduce the hammer's air exhaust noise;

- Use of sound damping materials across the web of each pile driver to reduce the ringing sound of steel piles;
- Use of cast-in-place or auger cast piles for a pile-supported transfer slab foundation system; and
- Notify all adjacent property owners within 300 feet of pile driving activities a minimum of 48 hours prior to commencement of pile driving.

N-4 A person qualified in construction noise and vibration assessment shall prepare construction vibration mitigation plans, which shall be reviewed for adequacy by the City Public Works Department. The plans shall describe measures to reduce construction vibrations to the maximum extent possible. Vibration monitoring shall be performed during construction activities occurring in proximity to surrounding residents to establish the maximum level of vibration. If vibrations reach levels that disrupt surrounding residents, alternative work methods and/or equipment shall be employed to reduce vibration levels to non-harmful levels.

N-5 Impact equipment (e.g., jack hammers, pavement breakers, and rock drills) used for construction shall be hydraulically or electrical powered wherever possible to avoid noise associated with compressed air exhaust from pneumatically powered tools. However, where use of pneumatically powered tools is unavoidable, an exhaust muffler on the compressed air exhaust shall be used.

Level of Significance After Analysis and Mitigation: Significant Unavoidable Impact.

OPERATIONAL NOISE AND VIBRATION

- ***DEVELOPMENT OF THE PROPOSED PROJECT COULD PERMANENTLY INCREASE NOISE IN THE PROJECT AREA.***

Level of Significance Before Analysis and Mitigation: Less Than Significant Impact.

Impact Analysis:

On-Site Noise Conditions

Future noise levels within the project site would continue to be dominated by vehicular traffic on the Antelope Valley Freeway and Metrolink railroad traffic. Other sources of noise would include new stationary sources (such as outdoor ventilation and air conditioning equipment) and increased activity throughout the project site.

As noted in *Table 5.6-3* and *Table 5.6-4*, noise levels associated with traffic on the Antelope Valley freeway are very low at the project site and generate a background hum rather than a distinct source of high noise levels. Metrolink railroad traffic generates higher noise levels at the site, with the maximum noise levels generated by train horns. As part of the proposed project, the new extension of Lost Canyon Road would be constructed under the Metrolink railroad tracks; thus eliminating the non-gated railroad crossing at this location and the need for trains to sound their horns when approaching this location. The average 24-hour noise level for trains without the use of horns was calculated to be approximately 52 dBA CNEL at 150 feet from the

railroad centerline. This is estimated to be the closest distance that any of the proposed residential units would be constructed in proximity to the railroad centerline. Three freight train operations per day would generate an average noise level of approximately 56 dBA CNEL at 150 feet[2], for an average of approximately 57 dB CNEL for all rail activity. This noise level would not exceed the City's exterior noise standards.

The proposed residential units would not be constructed along any major roadways that would be a potential source of high noise levels. The average noise levels within the project site are expected to be representative of a quiet rural residential area similar to the existing noise levels along Oak Springs Canyon Road from Whitewater Canyon Road to Holt Avenue. As shown previously in *Table 5.6-4*, the average noise levels along this roadway segment are 47.7 dBA CNEL. This was calculated for a distance of 35 feet from the centerline of Oak Springs Canyon Road. The proposed residential units are expected to be constructed even further from the centerline of the internal roadways, thus receiving even lower traffic-related noise levels. These noise levels would not exceed the City's exterior noise standards.

Heating, ventilation, and air conditioning (HVAC) systems would be installed for the new buildings within the project site. Residential HVAC systems result in noise levels that average between 40 and 50 dBA Leq at 50 feet from the equipment. These noise levels would not exceed the City's exterior noise standards.

When combined, the cumulative exterior noise levels at the homes located in the northwestern part of the site adjacent to both Lost Canyon Road and the Metrolink railroad tracks would average up to 59.5 dBA CNEL as shown in *Table 5.6-7*, *Future Noise Levels at the Project Site*. Noise levels at all other locations within the project site would be lower as discussed in the preceding paragraphs. Also shown in *Table 5.6-7* are the cumulative interior noise levels at the homes located in the northwestern part of the site adjacent to both Lost Canyon Road and the Metrolink railroad tracks. As discussed previously, exterior-to-interior reduction of newer residential units is generally 30 dBA or more. With this assumption, interior noise levels associated with exterior sources would not exceed City standards at the project site.

Table 5.6-7
Future Noise Levels at the Project Site

Source of Noise	Noise Levels in dBA CNEL				
	Future Exterior Noise Level	City Exterior Noise Standard	Assumed Exterior to Interior Noise Reduction	Future Interior Noise Levels	City Interior Noise Standard
Traffic on Lost Canyon Road	54.9				
Commuter Rail	52.0				
Freight Trains	56.0				
Exterior HVAC Units	45.0				
Total Average Noise Levels	59.5	65.0	-30.0	29.5	45.0

Source: *Mancara at Robinson Ranch Environmental Noise Analysis*, Christopher A. Joseph and Associates, November 2008.

[2] U.S. Department of Housing and Urban Development, The Noise Guidebook, page 21, *undated.*

Based on this information, future residents of the proposed project would not be exposed to exterior noise levels that exceed City standards. Therefore, a less than significant noise impact would result regarding on-site noise exposure.

Off-Site Noise Conditions

Locations in the vicinity of the project site could experience slight changes in noise levels as a result of an increase in the on-site population and resulting increase in motor vehicle trips. The changes in future noise levels along the study-area roadway segments in the project vicinity are identified in *Table 5.6-8*, *Off-Site Traffic Noise Exposure*. Under the "Existing Plus Project" scenario noise levels at a distance of 35 feet from the centerline would range from 50.2 dBA on Oak Springs Canyon Road to 59.4 dBA on Lost Canyon Road. As shown in *Table 5.6-8*, the proposed project would increase local noise levels by a maximum of 3.2 dBA CNEL, which would not exceed the identified thresholds of significance. Therefore, a less than significant impact would occur in this regard.

Table 5.6-8
Off-Site Traffic Noise Exposure

Roadway Segment	Existing		Existing Plus Project		Difference in dBA @ 35 Feet from Roadway	Potentially Significant Impact?
	ADT	dBA @ 35 Feet from Roadway Centerline	ADT	dBA @ 35 Feet from Roadway Centerline		
Lost Canyon Road						
Between Sand Canyon Road and Oak Springs Canyon Road	711	55.3	1,469	58.5	3.2	No
Oak Springs Canyon Road						
Between Whitewater Canyon Road and Holt Avenue	123	47.7	218	50.2	2.5	No

Source: *Mancara at Robinson Ranch Environmental Noise Analysis*, Christopher A. Joseph and Associates, November 2008.

Operational Groundborne Vibration

The proposed residential uses could be exposed to groundborne vibration levels generated by railroad operations. According to the FTA's *Transit Noise and Vibration Impact Assessment* guidance manual, locomotive powered passenger and freight trains traveling at 50 miles per hour generate approximately 74 VdB at a distance of 150 feet from the track centerline.[3] As a screening estimate for the proposed project, this would be well below the infrequent activity impact threshold of 80 VdB at residences and buildings where people normally sleep. This would be a less than significant impact regarding the exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels.

Mitigation Measures: No mitigation measures are required.

Level of Significance After Analysis and Mitigation: Less Than Significant Impact.

[3] Federal Transit Administration, *Transit Noise and Vibration Impact Assessment,* May 2006.

5.6.5 CUMULATIVE IMPACTS AND MITIGATION MEASURES

- ***DEVELOPMENT ASSOCIATED WITH THE PROPOSED PROJECT AND OTHER RELATED CUMULATIVE PROJECTS COULD RESULT IN CUMULATIVELY CONSIDERABLE NOISE IMPACTS.***

Level of Significance Before Analysis and Mitigation: Potentially Significant Impact.

Impact Analysis: At the present time, the 50-residential-unit Robinson Ranch Estates project is the only other development project proposed for the same general vicinity as the proposed project. The Robinson Ranch Estates project is proposed to be located to the immediate east of the proposed project. This related project would utilize the same roadway network as the proposed project for vehicular access. As such, it would contribute to cumulative noise level impacts along these roadways. The Robinson Ranch Estates project is also expected to obtain vehicular access directly through the proposed project site and, therefore, would not begin construction until the roadway network is developed within the project site.

The cumulative mobile noise analysis is conducted in a two step process. First, the combined effects from both the proposed project and other projects are compared. Second, for combined effects that are determined to be cumulatively significant, the project's incremental effects then are analyzed. The project's contribution to a cumulative traffic noise increase would be considered significant when the combined effect exceeds perception level (i.e., auditory level increase) threshold. The combined effect compares the "cumulative with project" condition to "existing" conditions. This comparison accounts for the traffic noise increase from the project generated in combination with traffic generated by projects in the cumulative projects list. The following criteria have been utilized to evaluate the combined effect of the cumulative noise increase.

Combined Effects: The "Cumulative Plus Project" noise level causes the following:

- An increase of the existing noise level by five dB or more, where the existing level is less than 60 dB CNEL;
- An increase of the existing noise level by three dB or more, where the existing level is 60 to 65 dB CNEL; or
- An increase of the existing noise level by 1.5 dB or more, where the existing level is greater than 65 dB CNEL.

Although there may be a significant noise increase due to the proposed project in combination with identified cumulative projects (combined effects), it must also be demonstrated that the project has an incremental effect. In other words, a significant portion of the noise increase must be due to the proposed project. The following criteria have been utilized to evaluate the incremental effect of the cumulative noise increase.

Incremental Effects: The "Cumulative Plus Project" causes a 1.5 dBA increase in noise over the "Existing Plus Project" noise level.

A significant impact would result only if both the combined and incremental effects criteria have been exceeded. Noise by definition is a localized phenomenon, and drastically reduces as distance from the source increases. Consequently, only proposed projects and growth due to occur in the general vicinity of the project site would contribute to cumulative noise impacts. *Table 5.6-9*, *Cumulative Noise Scenario*, lists the traffic noise effects along roadway segments in the project vicinity for "Existing", "Existing Plus Project", and "Cumulative Plus Project", including incremental and net cumulative impacts.

First, it must be determined whether the *Combined Effects* is exceeded. Per *Table 5.6-9*, this criteria is not exceeded along any of the segments. Next, under the *Incremental Effects* criteria, cumulative noise impacts are defined by determining if the "Existing Plus Project" level is increased by 1.5 dB or more. Based on the results of *Table 5.6-9*, there would not be any roadway segments that would result in significant impacts, as they would not exceed both the combined and incremental effects criteria. Therefore, the proposed project, in combination with cumulative background traffic noise levels, would result in a less than significant cumulative impact in this regard.

Mitigation Measures: Refer to Mitigation Measure N-1. No additional mitigation measures are required.

Level of Significance After Analysis and Mitigation: Less Than Significant Impact.

Table 5.6-9
Cumulative Roadway Noise Levels

Roadway Segment	Existing	Existing Plus Project	Cumulative Plus Project	Combined Effects	Incremental Effects	Cumulatively Significant Impact
	dBA @ 35 Feet from Roadway Centerline	dBA @ 35 Feet from Roadway Centerline	dBA @ 35 Feet from Roadway Centerline	Difference in dBA Between Existing and Cumulative Plus Project	Difference in dBA Between Existing and Existing Plus Project	
Lost Canyon Road						
Between Sand Canyon Road and Oak Springs Canyon Road	55.3	58.5	59.5	4.2	1.0	No
Oak Spring Canyon Road						
Between Whitewater Canyon Road and Holt Avenue	47.6	50.2	51.1	3.5	0.9	No

Source: *Mancara at Robinson Ranch Environmental Noise Analysis*, Christopher A. Joseph and Associates, November 2008.

5.6.6 SIGNIFICANT UNAVOIDABLE IMPACTS

Implementation of the proposed project would result in a significant unavoidable impact for the following areas:

- Construction-Related Noise and Vibration Impacts

All other potentially significant impacts are at less then significant levels or can be reduced to less than significant with implementation of applicable mitigation measures.

If the City of Santa Clarita approves the proposed project, the City shall be required to adopt findings in accordance with *CEQA Guidelines* Section 15091 and prepare a Statement of Overriding Considerations in accordance with *CEQA Guidelines* Section 15093.

5.6.7 SOURCES CITED

Mancara at Robinson Ranch Environmental Noise Analysis, Christopher A. Joseph and Associates, November 2008.

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