5.4 NOISE

This section of the EIR evaluates the noise impacts associated with the proposed project. The analysis presented in this section is based on the calculations, analysis, and conclusions contained in the project's *Noise Impact Analysis* report, performed by LSA Associates (July 2005), included in its entirety in Appendix F. This section serves to determine the noise impacts associated with short-term construction of the proposed project on adjacent noise-sensitive uses, determine the long-term traffic and noise impacts from existing uses on noise-sensitive uses, and determine the required mitigation measures to reduce short-term and long-term noise impacts. The following analysis utilizes the Noise standards set for by the Los Angeles County Noise Element and Noise Control Ordinance.

5.4.1 ENVIRONMENTAL SETTING

CHARACTERISTICS OF SOUND

Sound increasing in the environment can affect quality of life. Noise is usually defined as unwanted sound. Noise consists of any sound that may produce physiological or psychological damage and/or interfere with communication, work, rest, recreation, and sleep.

To the human ear, sound has two significant characteristics: pitch and loudness. Pitch may be an annoyance, while loudness can affect the ability to hear. Pitch is the number of complete vibrations, or cycles per second, of a wave, resulting in the tone's range from high to low. Loudness is the strength of a sound and describes a noisy or quiet environment; it is measured by the amplitude of the sound wave. Loudness is determined by the intensity of the sound waves, combined with the reception characteristics of the human ear. Sound intensity refers to how hard the sound wave strikes an object, which in turn produces the sound's effect. This characteristic of sound can be precisely measured with instruments. The analysis of a project defines the noise environment of the project area in terms of sound intensity and its effect on adjacent sensitive land uses.

Measurement of Sound

Sound intensity is measured through the A-weighted scale to correct for the relative frequency response of the human ear. That is, an A-weighted noise level de-emphasizes low and very high frequencies of sound similar to the human ear's de-emphasis of these frequencies. Unlike linear units, such as inches or pounds, decibels are measured on a logarithmic scale representing points on a sharply rising curve.

For example, 10 decibels (dB) are 10 times more intense than 1 decibel, 20 decibels are 100 times more intense, and 30 decibels are 1,000 times more intense. Thirty decibels represent 1,000 times more acoustic energy than one decibel. The decibel scale increases as the square of the change, representing the sound pressure energy. A sound as soft as human breathing is about 10 times greater than 0 decibels. The decibel system of measuring sound gives a rough connection between the physical intensity of sound and its perceived loudness to the human ear. A 10-decibel increase in sound level is perceived by the human ear as only a doubling of the

loudness of the sound. Ambient sounds generally range from 30 dBA (very quiet) to 100 dBA (very loud).

Sound levels are generated from a source, and their decibel level decreases as the distance from that source increases. Sound dissipates exponentially with distance from the noise source. For a single point source, sound levels decrease approximately six decibels for each doubling of distance from the source. This drop-off rate is appropriate for noise generated by stationary equipment. If noise is produced by a line source, such as highway traffic or railroad operations, the sound decreases three decibels for each doubling of distance in a hard site environment. Line source noise, when produced within a relatively flat environment with absorptive vegetation, decreases four and one-half decibels for each doubling of distance.

There are many ways to rate noise for various time periods, but an appropriate rating of ambient noise affecting humans also accounts for the annoyance effects of sound. Equivalent continuous sound level (L_{eq}) is the total sound energy of time-varying noise over a sample period. However, the predominant rating scales for human communities in the State of California are the L_{eq} and community noise equivalent level (CNEL) or the day-night average level (L_{dn}) based on A-weighted decibels (dBA). CNEL is the time-varying noise over a 24-hour period, with a 5 dBA weighting factor applied to the hourly L_{eq} for noises occurring from 7:00 PM to 10:00 PM (defined as relaxation hours) and 10 dBA weighting factor applied to noise occurring from 10:00 PM to 7:00 AM (defined as sleeping hours). L_{dn} is similar to the CNEL scale but without the adjustment for events occurring during the evening hours. CNEL and L_{dn} are within 1 dBA of each other and are normally exchangeable. The noise adjustments are added to the noise events occurring during the more sensitive hours.

Other noise rating scales of importance when assessing the annoyance factor include the maximum noise level (L_{max}), which is the highest exponential time-averaged sound level that occurs during a stated time period. The noise environments discussed in this analysis are specified in terms of maximum levels denoted by L_{max} for short-term noise impacts. L_{max} reflects peak operating conditions and addresses the annoyance aspects of intermittent noise.

Another noise scale often used together with the L_{max} in noise ordinances for enforcement purposes is noise standards in terms of percentile noise levels. For example, the L_{10} noise level represents the noise level exceeded 10 percent of the time during a stated period. The L_{50} noise level represents the median noise level. Half the time the noise level exceeds this level, and half the time it is less than this level. The L_{90} noise level represents the noise level exceeded 90 percent of the time and is considered the background noise level during a monitoring period. For a relatively constant noise source, the L_{eq} and L_{50} are approximately the same.

Noise impacts can be described in three categories. The first is audible impacts, which refers to increases in noise levels noticeable to humans. Audible increases in noise levels generally refer to a change of 3.0 dB or greater, since this level has been found to be barely perceptible in exterior environments. The second category, potentially audible, refers to a change in the noise level between 1.0 and 3.0 dB. This range of noise levels has been found to be noticeable only in laboratory environments. The last category is changes in noise level of less than 1.0 dB, which

are inaudible to the human ear. Only audible changes in existing ambient or background noise levels are considered potentially significant.

Psychological and Physiological Effects of Noise

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

Table 5.4-1, Definitions of Acoustical Terms, lists definitions of common acoustical terms; Table 5.4-2, Common Sound Levels and Their Noise Sources, lists noise typically associated with various sources, and Table 5.4-3, Land Use Compatibility for Exterior Community Noise, shows the noise ranges and limits for various land uses recommended by the California Department of Health, Office of Noise Control.

Table 5.4-1
Definitions of Acoustical Terms

Term	Definition
Decibel, dB	A unit of level that denotes the ratio between two quantities that are proportional to power; the number of decibels is 10 times the logarithm (to the base 10) of this ratio.
Frequency, Hz	Of a function periodic in time, the number of times that the quantity repeats itself in one second (i.e., number of cycles per second).
A-Weighted Sound Level, dBA	The sound level obtained by use of A-weighting. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise. All sound levels in this report are A-weighted, unless reported otherwise.
L_{02}, L_{08}, L_{50}, L_{90}	The fast A-weighted noise levels that are equaled or exceeded by a fluctuating sound level 2 percent, 8 percent, 50 percent, and 90 percent of a stated time period, respectively.
Equivalent Continuous Noise Level, L_{eq}	The level of a steady sound that, in a stated time period and at a stated location, has the same A-weighted sound energy as the time-varying sound.
Community Noise Equivalent Level, CNEL	The 24-hour A-weighted average sound level from midnight to midnight, obtained after the addition of 5 decibels to sound levels occurring in the evening from 7:00 PM to 10:00 PM and after the addition of 10 decibels to sound levels occurring in the night between 10:00 PM and 7:00 AM
Day/Night Noise Level, L_{dn}	The 24-hour A-weighted average sound level from midnight to midnight, obtained after the addition of 10 decibels to sound levels occurring in the night between 10:00 PM and 7:00 AM
L_{max}, L_{min}	The maximum and minimum A-weighted sound levels measured on a sound level meter, during a designated time interval, using fast time averaging.
Ambient Noise Level	The all-encompassing noise associated with a given environment at a specified time, usually a composite of sound from many sources at many directions, near and far; no particular sound is dominant.

Intrusive	The noise that intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency, and time of occurrence and tonal or informational content as well as the prevailing ambient noise level.
Source: *Handbook of Acoustical Measurement and Noise Control 1991*.	

Table 5.4-2
Common Sound Levels and Their Noise Sources

Noise Source	A-Weighted Sound Level in Decibels	Noise Environments	Subjective Evaluations
Near Jet Engine	140	Deafening	128 times as loud
Civil Defense Siren	130	Threshold of Pain	64 times as loud
Hard Rock Band	120	Threshold of Feeling	32 times as loud
Accelerating Motorcycle at a Few Feet Away	110	Very Loud	16 times as loud
Pile Driver; Noisy Urban Street/Heavy City Traffic	100	Very Loud	8 times as loud
Ambulance Siren; Food Blender	95	Very Loud	
Garbage Disposal	90	Very Loud	4 times as loud
Freight Cars; Living Room Music	85	Loud	
Pneumatic Drill; Vacuum Cleaner	80	Loud	2 times as loud
Busy Restaurant	75	Moderately Loud	
Near Freeway Auto Traffic	70	Moderately Loud	Reference Level
Average Office	60	Quiet	½ as loud
Suburban Street	55	Quiet	
Light Traffic; Soft Radio Music in Apartment	50	Quiet	¼ as loud
Large Transformer	45	Quiet	
Average Residence without Stereo Playing	40	Faint	⅛ as loud
Soft Whisper	30	Faint	
Rustling Leaves	20	Very Faint	
Human Breathing	10	Very Faint	Threshold of Hearing
	0	Very Faint	
Source: Compiled by LSA Associates, Inc. 2004.			

Table 5.4-3
Land Use Compatibility for Exterior Community Noise

Land Use Category	Noise Range (Ldn or CNEL), dB			
	I	II	III	IV
Passively used open spaces	50	50-55	55-70	70+
Auditoriums, concert halls, amphitheaters	45–50	50-65	65-70	70+
Residential-low-density single family, duplex, mobile homes	50–55	55-70	70-75	75+
Residential-multi-family	50–60	60-70	70-75	75+
Transient lodging-motels, hotels	50–60	60-70	70-80	80+
Schools, libraries, churches, hospitals, nursing homes	50–60	60-70	70-80	80+
Actively used open spaces-playgrounds, neighborhood parks	50–67	--	67-73	73+
Golf courses, riding stables, water recreation, cemeteries	50–70	--	70-80	80+
Office buildings, business commercial and professional	50–67	67-75	75+	--
Industrial, manufacturing, utilities, agriculture	50–70	70-75	75+	--

Source: Office of Noise Control, California Department of Health 1976.

Noise Range I—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.
Noise Range II—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 are included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning, will normally suffice.
Noise Range III—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 insulation features included in the design.
Noise Range IV—Clearly Unacceptable: New construction or development should generally not be undertaken.

Existing Noise Setting

Existing Sensitive Land Uses in the Project Area

Sensitive receptors include nearby existing residences. There are existing residences in close proximity to the project within the Sunset Point residential tract. These existing residences are immediately north of the project site along Sagecrest Circle. These sensitive land uses may be potentially affected by the noise generated during construction on the project site.

Overview of the Existing Noise Environment

The primary existing noise sources in the project area are vehicles traveling along existing roadways. Traffic on The Old Road, Calgrove Boulevard, Interstate 5 (I-5), and other streets in the project vicinity is the primary source of ambient noise in the project vicinity. The existing (2004) average daily traffic (ADT) volumes for roadway segments in the project vicinity are provided by Austin-Foust Associates, Inc. (August 2004).

The Federal Highway Administration (FHWA) Highway Traffic Noise Prediction Model (FHWA RD-77-108) was used to evaluate highway traffic-related noise conditions in the vicinity of the project site. This model requires various parameters including traffic volumes, vehicle mix, vehicle speed, and roadway geometry to compute typical equivalent noise levels during daytime, evening, and nighttime hours. The resultant noise levels are weighted and summed over 24-hour periods to determine the CNEL values. Table 5.4-4, Existing (2004) Baseline Traffic Noise Levels, provides the existing traffic noise levels adjacent to roadway segments in the project vicinity (within 2 miles of the subject site). These noise levels represent worst-case scenarios, which assume that no shielding is provided between the traffic and the location where the noise contours are drawn. The specific assumptions used in developing these noise levels and the model printouts are provided in the Noise Study included in Appendix G. Traffic noise is generally moderate to high along existing street segments in the project vicinity. The 70, 65, and 60 dBA CNEL noise contours for local roadways extend up to 97, 196, and 417 feet, respectively, from the roadway centerline. The 70, 65, and 60 dBA CNEL noise contours for I-5 extend up to 594, 1,277, and 2,749 feet, respectively, from the freeway centerline. Please refer to *Figure 5.4-1, Existing Noise Contour Locations* on page 5.4-17.

Table 5.4-4
Existing (2004) Baseline Traffic Noise Levels

Roadway Segment	ADT	Center-line to 70 CNEL (feet)	Center-line to 65 CNEL (feet)	Center-line to 60 CNEL (feet)	CNEL (dBA) 50 Feet from Outermost Lane
The Old Road					
Between Valencia Boulevard and McBean Parkway	17,000	52	112	230	67.0
Between Stevenson Ranch Parkway and Pico Canyon Road	25,000	57	115	243	68.1
Between Pico Canyon Road and Marriott Way	10,000	23[1]	49	106	64.2
Stevenson Ranch Parkway					
Between The Old Road and I-5 SB Ramps	27,000	60	121	256	68.4
Pico Canyon Road					
20 feet West of The Old Road	14,000	37	80	166	65.4
Between The Old Road and Marriott Way	29,000	62	126	268	68.7
Calgrove Boulevard					
Between The Old Road and I-5 SB Ramps	11,000	25	53	113	64.6
I-5					
Between Lyons Avenue and Calgrove Boulevard	182,000	594	1,277	2,749	82.62

Source: LSA Associates, Inc., November 2004.

[1] Traffic noise within 50 feet of roadway centerline was calculated manually.

5.4.2 NOISE STANDARDS

COUNTY OF LOS ANGELES NOISE STANDARDS

The County does not set land use standards for noise in its Noise Element of the General Plan. Therefore, the 65 dBA CNEL exterior standards recommended for residential uses in the State of California guidelines was used as the primary threshold of significance. However, the County Code, Chapter 12.08 Noise Control, has the following exterior noise standards listed in Table 5.4-5, Exterior Noise Standards, L_{50}.

Table 5.4-5
Exterior Noise Standards, L_{50}

Noise Zone	Designated Noise Zone Land Use	Time Interval	Exterior Noise Level (dBA)
I	Noise Sensitive Area	Anytime	45
II	Residential Area	10:00 PM–7:00 AM	45
		7:00 AM –10:00 PM	50
III	Commercial Area	10:00 PM –7:00 AM	55
		7:00 AM –10:00 PM	60
IV	Industrial Area	Anytime	70

Source: Los Angeles County Code Chapter 12.08 Noise Control

The above noise level limits may not be exceeded for a cumulative period of more than 30 minutes in any hour. If the existing ambient L_{50} exceeds these levels, then the ambient L_{50} becomes the exterior noise levels. For events shorter than 30 minutes, higher noise limits are used for the exterior noise standards. For example, 5, 10, and 15 dBA are added to the above noise limits for events less than 15, 5, and 1 minutes, respectively. Twenty dBA plus the above noise limits (70 dBA L_{max} during the day and 65 dBA L_{max} during the night) may not be exceeded for any period of time.

For interior noise standards, the County sets an allowable interior noise level of 45 dBA for the period from 7:00 AM to 10:00 PM and 40 dBA for the period from 10:00 PM to 7:00 AM for all multi-family residential uses. For events shorter than 5 minutes in any hour, the noise standard is increased in 5 dBA increments in each standard. For example, 5 and 10 dBA are added to these noise limits for events less than 5 minutes and 1 minute, respectively. If the measured ambient noise reflected by the L_{50} exceeds that permissible within any of the interior noise standards, the allowable interior noise level shall be increased in 5 dBA increments in each standard, as appropriate, to reflect said ambient noise level.

The County also has the following construction noise restrictions:

A. Operating or causing the operation of any tools or equipment used in construction, drilling, repair, alteration or demolition work between weekday hours of 7:00 PM and 7:00 AM, or at any time on Sundays or holidays, such that the sound there from creates a noise disturbance across a residential or commercial real-property line, except for emergency work of public service utilities or by variance issued by the health officer is prohibited.

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

1. At Residential Structures.

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

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

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

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

2. At Business Structures.

a. Mobile Equipment. Maximum noise levels for nonscheduled, intermittent, short-term operation of mobile equipment:

Daily, including Sundays and legal holidays, all hours: maximum of 85 dBA.

C. All mobile or stationary internal-combustion-engine powered equipment or machinery shall be equipped suitable exhaust and air-intake silencers in proper working order.

D. In case of a conflict between this noise ordinance and any other ordinance regulating construction activities, provisions of any specific ordinance regulating construction activities shall control.

The County also has a noise policy regulating construction activities. For example, construction hours are limited to between the hours of 7:00 AM and 7:00 PM of any working day, except Sundays and holidays.

5.4.3 SIGNIFICANCE THRESHOLD CRITERIA

According to Appendix G of the CEQA Guidelines (2004), a project would normally have a significant noise impact if it would result in any of the following:

- Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
- Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels;
- A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project; or
- A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.

While a project would normally have a significant noise-related effect on the environment if it substantially increases the ambient noise levels for adjoining areas or conflict with adopted environmental plans and goals of the community in which it is located, the applicable noise standards governing the project site are the County's noise criteria, discussed previously. These standards were also utilized to determine noise impact significance. As such, a significant noise impact would result if the proposed project would conflict with the applicable noise standards of the County of Los Angeles.

5.4.4 IMPACTS AND MITIGATION MEASURES

CONSTRUCTION-RELATED NOISE IMPACTS

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

Level of Significance Before Mitigation: Significant Impact.

Impact Analysis: Short-term noise impacts would be associated with excavation, grading, and erecting of buildings on-site during construction of the proposed project. Construction-related short-term noise levels would be higher than existing ambient noise levels in the project area today, but would not occur once construction of the project is completed.

Two types of short-term noise impacts could occur during the construction of the proposed project. First, construction crew commutes and the transport of construction equipment and materials to the site for the proposed project would incrementally increase noise levels on access roads leading to the site. There will be a relatively high single-event noise exposure potential at a maximum level of 87 dBA L_{max} with trucks passing at 50 feet. However, the projected construction traffic would be small when compared to the existing traffic volumes on The Old Road, Calgrove Boulevard, and I-5, and its associated long-term noise level change would not be perceptible. Therefore, short-term construction-related worker commutes and equipment transport noise impacts would not be significant.

The second type of short-term noise impact is related to noise generated during excavation, grading, and construction on the project site. Construction is performed in discrete steps, each of which has its own mix of equipment and, consequently, its own noise characteristics. These various sequential phases would change the character of the noise generated on the site. Therefore, the noise levels vary as construction progresses. Despite the variety in the type and size of construction equipment, similarities in the dominant noise sources and patterns of operation allow construction-related noise ranges to be categorized by work phase. Table 5.4-6, Typical Maximum Construction Equipment Noise Levels (L_{max}), lists maximum noise levels recommended for noise impact assessments for typical construction equipment based on a distance of 50 feet between the equipment and a noise receptor.

Typical maximum noise levels range up to 91 dBA at 50 feet during the noisiest construction phases. The site preparation phase, which includes excavation and grading of the site, tends to generate the highest noise levels, because the noisiest construction equipment is earthmoving equipment. Earthmoving equipment includes excavating machinery such as backfillers, bulldozers, draglines, and front loaders. Earthmoving and compacting equipment includes compactors, scrapers, and graders. Typical operating cycles for these types of construction equipment may involve one or two minutes of full power operation followed by three or four minutes at lower power settings.

Construction of the proposed project is expected to require the use of earthmovers, bulldozers, and water and pickup trucks. This equipment would be used on the project site. Based on Table 5.4-6, the maximum noise level generated by each earthmover on the proposed project site is assumed to be 88 dBA L_{max} at 50 feet from the earthmover. Each bulldozer would also generate 88 dBA L_{max} at 50 feet. The maximum noise level generated by water and pickup trucks is approximately 86 dBA L_{max} at 50 feet from these vehicles. Each doubling of a sound source with equal strength increases the noise level by 3 dBA. Assuming that each piece of construction equipment operates at some distance from the other equipment, the worst-case combined noise level at each individual residence during this phase of construction would be 91 dBA L_{max} at a distance of 50 feet from the active construction area.

The closest existing residences in the vicinity of the project site are located more than 200 feet from the proposed construction areas. These residences are also elevated above the proposed project site. There are no intervening structures between these homes and the project site. These closest residences may be subject to short-term noise reaching 79 dBA L_{max}, generated by construction activities near the project boundary. Compliance with the construction hours specified in the County's Noise Control Ordinance would be required to minimize noise impacts to these residences to the maximum extent practicable. Although such construction related noise impacts would be temporary in nature, they would be considered significant and unavoidable because they would exceed the County's 65 dBA CNEL exterior noise level threshold.

Table 5.4-6
Typical Maximum Construction Equipment Noise Levels (L_{max})

Type of Equipment	Range of Maximum Sound Level Measured at 50 feet (dBA)	Suggested Maximum Sound Level for Analysis at 50 feet (dBA)
Pile Drivers, 12,000 to 18,000 ft-lb/blow	81–96	93
Rock Drills	83–99	96
Jackhammers	75–85	82
Pneumatic Tools	78–88	85
Pumps	74–84	80
Scrapers	83–91	87
Haul Trucks	83–94	88
Cranes	79–86	82
Portable Generators	71–87	80
Rollers	75–82	80
Dozers	77–90	85
Tractors	77–82	80
Front-End Loaders	77–90	86

Table 5.4-6 (continued)
Typical Maximum Construction Equipment Noise Levels (L_{max})

Type of Equipment	Range of Maximum Sound Level Measured at 50 feet (dBA)	Suggested Maximum Sound Level for Analysis at 50 feet (dBA)
Hydraulic Backhoes	81–90	86
Hydraulic Excavators	81–90	86
Graders	79–89	86
Air Compressors	76–89	86
Trucks	81–87	86
Source: *Noise Control for Buildings and Manufacturing Plants*, Bolt, Beranek, & Newman 1987.		

Mitigation Measures:

N1 Construction shall be limited to the hours of 7:00 AM to 7:00 PM on any working day except Sundays and holidays, in accordance with the County's Noise Control Ordinance (County Code Section 12.080.440.)

N2 The following measures shall be implemented to reduce potential construction noise impacts on nearby sensitive receptors:

a) During all site excavation and grading, the construction contractor shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers consistent with manufacturers' standards.

b) The construction contractor shall place all stationary construction equipment so that emitted noise is directed away from sensitive receptors nearest the project site.

c) The construction contractor shall locate equipment staging in areas that will create the greatest distance between construction-related noise sources and the existing noise-sensitive receptors (existing residences) north of the project site during all project construction.

Level of Significance After Mitigation: Significant and Unavoidable Impact.

LONG-TERM TRAFFIC NOISE IMPACTS

◆ ***THE PROPOSED PROJECT COULD RESULT IN A PERMANENT INCREASE IN TRAFFIC-RELATED NOISE IN THE PROJECT AREA.***

Level of Significance Before Mitigation: Significant Impact.

Impact Analysis: Residential units planned on the exterior portions of the project fronting the Old Road and near the I-5 Freeway site would be exposed to high noise levels. These areas include the proposed fire station site, the senior housing area, *and Lots 80-91 located along "E" and "F" Streets*. The projected cumulative traffic volumes (using a previously proposed 835-unit project) forecast by Austin-Foust Associates, Inc. were applied to roadway segments in the project vicinity to determine the traffic noise impacts.

The FHWA Highway Traffic Noise Prediction Model (FHWA RD-77-108) was used to evaluate future highway traffic-related noise conditions in the vicinity of the project site. Table 5.4-7, Interim Year (2015) No Project Traffic Noise Levels, provides the future interim year (2015) no project traffic noise levels adjacent to roadway segments in the project vicinity. Table 5.4-8, Interim Year (2015) Plus Project Traffic Noise Levels, provides the future interim year (2015) plus project traffic noise levels adjacent to roadway segments in the project vicinity. These noise levels represent the worst-case scenario, which assumes that no shielding is provided between the traffic and the location where the noise contours are drawn. The specific assumptions used in developing these noise levels and the model printouts are provided in Appendix G.

Impacts to Off-Site Uses

Table 5.4-8 shows that project-related traffic noise increase along roadway segments in the project vicinity would be mostly small and negligible (0.8 dBA or less), except along The Old Road between Marriott Way and Calgrove Boulevard (+2.1 dBA) or along Calgrove Boulevard between The Old Road and I-5 southbound ramps (+2.3 dBA). However, there are no existing residences directly adjacent to these segments of the road and these increases are less than the 3-dBA threshold normally perceptible by the human ear. No significant project-related traffic noise impacts on off-site land uses would occur. Therefore, no mitigation measures would be required.

Impacts to On-Site Uses

Although the proposed project includes the construction of 186 residential units, the following analysis was based on a worst-case scenario of a previously proposed 835 unit project on the same project site[1]. Based on the project's traffic study report (Austin-Foust Associates, Inc., August 2004), all internal roadways on-site would carry maximum daily trips of 3,900. Vehicle speeds on these internal roads are usually 35 miles per hour (mph) or slower. However, with the

[1] At the time of Noise Impact Study preparation (July 2005), a revised Traffic Impact Study for the proposed 186-unit project was not available. Therefore, these traffic related noise levels were generated from traffic associated with an 835-unit project previously proposed on the subject site.

assumption of a vehicle speed at 45 mph, the 65 dBA CNEL would be within 40 feet of the roadway centerline. This range of distance is within the proposed roadway right-of-way. Therefore, no significant traffic noise impacts would occur from traffic on on-site roadways.

Impacts of Freeway Noise to On-Site Uses

Table 5.4-8 shows that the 65 dBA CNEL would extend to 59 feet from the centerline of The Old Road. The 65 dBA CNEL from I-5 would extend to 1,565 feet from the centerline of I-5. Because The Old Road is parallel to I-5, the area impacted by traffic noise from The Old Road would also be impacted by much higher traffic noise from I-5 (area impacted by 60 dBA CNEL or lower from The Old Road would also be impacted by 70 dBA CNEL or higher from I-5). Therefore, the following discussion of potential traffic noise effects on the proposed on-site land uses focuses on traffic noise impacts from the I-5 Freeway.

Based on Tentative Tract Map 53563 for Lyons Canyon Ranch, the northeast portions of the project site designated for residential development (the proposed senior housing development, and Lots proposed along "E" Street and "F" Street) and the fire station site would be potentially exposed to high traffic noise from I-5. Noise levels affecting these development areas will range from 72 dBA CNEL to 66 dBA CNEL. It is estimated that the eastern edge of the fire station site is approximately 330 feet from the centerline of I-5. Therefore, the portions of the fire station designed to front the Old Road would be exposed to 75 dBA CNEL from I-5 traffic. Exhibit 5.4-1, Project-Site Noise Contour Locations, shows the potential effect of noise on the project site.

The eastern edge of the senior housing lot, proposed in the northeast portion of the project site, is approximately 500 feet from the centerline of I-5. As a result, this area would be exposed to traffic noise measuring 72 dBA CNEL. However, this area would be partially blocked by the fire station buildings. Thus, the units closest to the fire station buildings would receive some degree of noise reduction, although noise levels would still exceed the 65 dBA CNEL threshold.

Table 5.4-7
Interim Year (2015) No Project Traffic Noise Levels

Roadway Segment	ADT	Center-line to 70 CNEL (feet)	Center-line to 65 CNEL (feet)	Center-line to 60 CNEL (feet)	CNEL (dBA) 50 Feet from Outermost Lane
The Old Road					
Between Valencia Boulevard and McBean Parkway	23,000	70	134	280	68.3
Between Stevenson Ranch Parkway and Pico Canyon Road	31,000	65	132	281	69.0
Between Pico Canyon Road and Marriott Way	10,000	23[1]	49	106	64.2
Between Marriott Way and Calgrove Boulevard	8,000	20[1]	43	92	63.2
Stevenson Ranch Parkway					
Between The Old Road and I-5 SB Ramps	37,000	72	148	315	69.8
Pico Canyon Road					
20 feet west of The Old Road	33,000	67	137	292	69.3
Between The Old Road and Marriott Way	40,000	75	156	332	70.1
Calgrove Boulevard					
Between The Old Road and I-5 SB Ramps	9,000	21[1]	46	99	63.7
I-5					
Between Lyons Avenue and Calgrove Boulevard	246,000	726	1,561	3,361	83.9

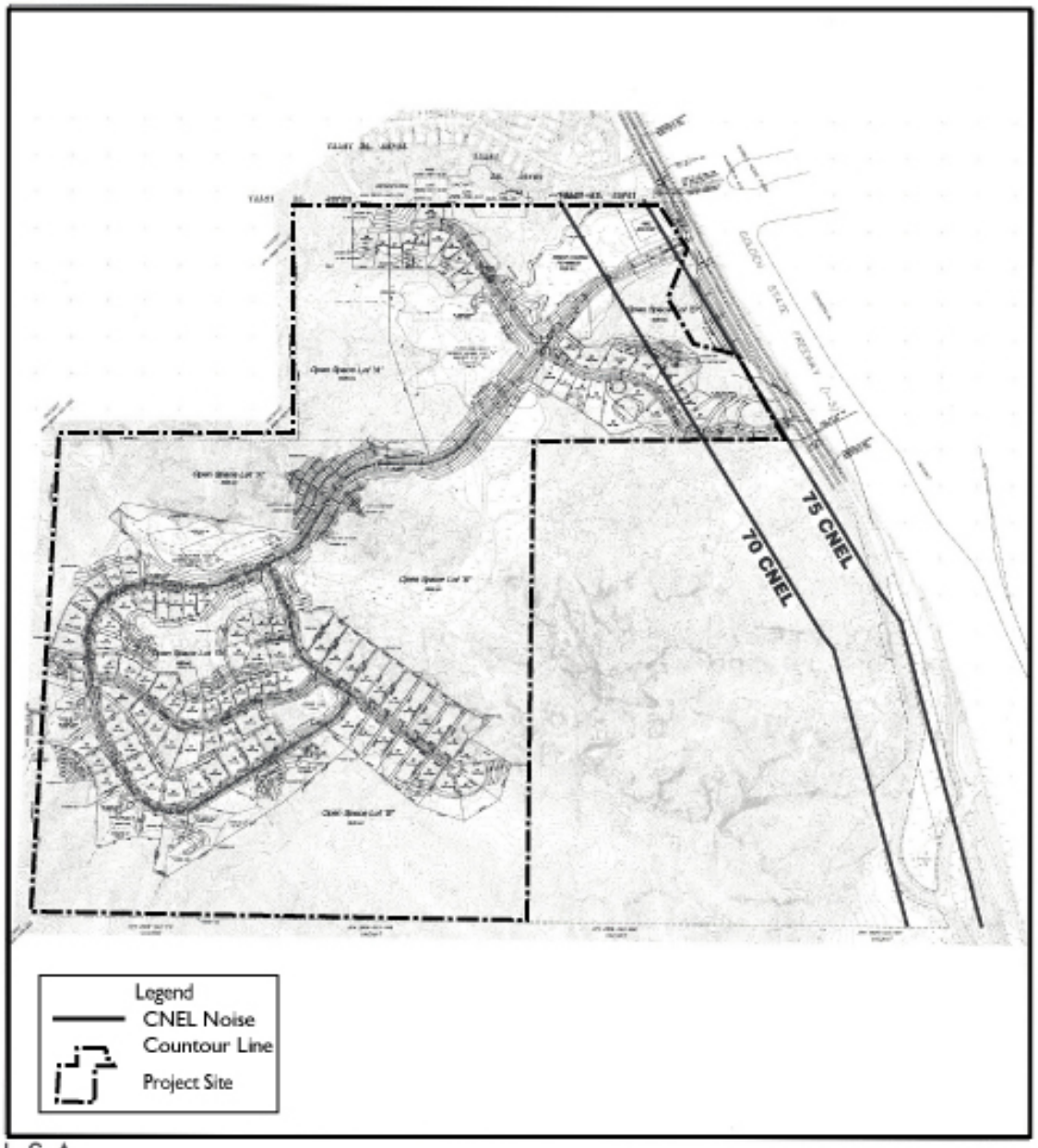
Source: LSA Associates, Inc., November 2004.
[1] Traffic noise within 50 feet of roadway centerline requires site-specific analysis.

Table 5.4-8
Interim Year (2015) Plus Project Traffic Noise Levels

Roadway Segment	ADT	Center-line to 70 CNEL (feet)	Center-line to 65 CNEL (feet)	Center-line to 60 CNEL (feet)	CNEL (dBA) 50 Feet from Outermost Lane	Change from No Project Level (dBA)
The Old Road						
Between Valencia Boulevard and McBean Parkway	24,000	71	138	288	68.5	0.2
Between Stevenson Ranch Parkway and Pico Canyon Road	31,000	65	132	281	69.0	0.0
Between Pico Canyon Road and Marriott Way	12,000	26[1]	56	120	65.0	0.8
Between Marriott Way and Calgrove Boulevard	13,000	27	59	126	65.3	2.1
Stevenson Ranch Parkway						
Between The Old Road and I-5 SB Ramps	37,000	72	148	315	69.8	0.0
Pico Canyon Road						
West of The Old Road	32,000	66	135	286	69.2	-0.1
Between The Old Road and Marriott Way	40,000	75	156	332	70.1	0.0
Calgrove Boulevard						
Between The Old Road and I-5 SB Ramps	15,000	30	65	139	66.0	2.3
I-5						
Between Lyons Avenue and Calgrove Boulevard	247,000	728	1,565	3,370	83.9	0.0

Source: LSA Associates, Inc., November 2004.

[1] Traffic noise within 50 feet of roadway centerline requires site-specific analysis.



Project Site Noise Contour Locations

Exhibit 5.4-1

Outdoor Active Use Areas

Based on the above discussion, if outdoor active use areas, such as backyards or patios, are proposed along with residential dwelling units (including the fire station site) or any community recreational areas along the eastern edge of the subject site, they would be exposed to traffic noise ranging from 66 to 73 dBA CNEL. These outdoor active use areas, if proposed, would be potentially exposed to exterior noise levels exceeding the County's exterior noise standard of 65 dBA CNEL. Therefore, noise barriers would be required along the property lines or along the perimeter of the outdoor active use areas (backyards, patios, balconies, or decks) of these residential lots (including the fire station) along and directly exposed to traffic noise from the Old Road and I-5. If no outdoor active use areas are proposed along the eastern edge of these frontline dwelling units or the fire station, no sound walls will be required along the eastern property boundary to attenuate traffic noise. However, for any active use areas proposed along the eastern edge of *Lots 79-90 along "E" and "F" Streets*, and the fire station, a sound barrier with maximum wall heights of 6 feet will be required to reduce the exterior traffic noise level to 65 dBA or lower.

Balconies or decks proposed on the second story of single-family residential units or on the upper floors of the eastern senior housing building are prohibited on the eastern side of single-family dwelling units *within Lots 79-90*, the fire station, and the attached senior housing units because they would be directly exposed to The Old Road and I-5 traffic noise. Balconies or decks on Lots 79-90 and the senior housing units are allowed on the side of the building facing away from the street or on any lots outside of the 65 dBA CNEL impact zone. These residential units will not require sound wall protection and thus balconies are allowed.

Interior Noise Levels

As stated above, homes proposed along the far eastern edge of the project site would be potentially exposed to traffic noise levels exceeding 65 dBA CNEL. Based on the data provided in the Environmental Protection Agency's (EPA) Protective Noise Levels (EPA 550/9-79-100, November 1979), standard homes in Southern California provide at least 12 dBA of exterior to interior noise attenuation with windows open and 24 dBA with windows closed. Therefore, homes exposed to exterior traffic noise levels lower than 69 dBA CNEL (45 + 24 = 69 dBA) would not have their interior noise level exceed the 45 dBA CNEL standard with the windows closed. With the windows open, homes exposed to exterior traffic noise levels exceeding 57 dBA CNEL (45 + 12 = 57 dBA) would exceed the 45 dBA CNEL interior noise standard.

Based on the above discussion and the projected traffic noise levels on the far eastern edge of the project site, Lots 79-83, the fire station, and the attached senior housing units are anticipated to be exposed to traffic noise below 69 dBA CNEL from roads adjacent to the project site. Therefore, building facade enhancements, such as double-paned windows with sound transmission class (STC) ratings higher than standard building construction provides will be required to achieve the 45 dBA CNEL interior noise standard. In addition, mechanical ventilation, such as an air-conditioning system, would be required for dwelling units along the eastern edge of the project site to ensure that windows can remain closed for prolonged periods of time.

Fire Station Noise Impacts

There would be potential noise impacts associated with the daily operation of the fire station, once constructed by the Los Angeles County Fire Department. Although noise from the normal operation of the fire station facility, including operation of fire truck engines or exhaust would not result in noise levels substantially higher than noise from I-5 traffic, the use of sirens by a fire truck or fire alarms may cause short-term annoyance to adjacent residential uses when it occurs. As with any residential use adjacent to a fire station, such noise impacts are considered temporarily significant because the siren noise can reach up to 95 dBA and thus will exceed the Los Angeles County 65 dBA exterior noise threshold.

Mitigation Measures:

N3 A sound barrier, with a minimum wall height of six feet, is required for ground-floor frontline outdoor active use areas on the following lots: Lots 79 through 81 and Lots 83-86. Frontline second story balconies or decks are prohibited.

N4 A sound barrier, with a minimum wall height of seven feet, is required for ground-floor frontline outdoor active use areas on Lot 82. Frontline second-story balconies or decks are prohibited.

N5 A sound barrier, with a minimum wall height of five feet, is required for ground-floor frontline outdoor active use areas on the following lots: Lot 87-90. Frontline second-story balconies are prohibited.

N6 Balconies or decks shall be prohibited on walls with direct second story (or higher) exposure for Lots 79 through 90, the fire station, or the attached senior housing, which are directly exposed to traffic noise from The Old Road and I-5. Balconies or decks on the side of the building facing away from the street or outside of the 65 dBA CNEL impact zone shall not require sound wall protection and thus are allowed.

N7 Mechanical ventilation, such as an air-conditioning system for all units in the senior housing lot and the fire station.

N8 Windows with a minimum STC-30 rating are required for bedrooms exposed to I-5 traffic on Lots 79-84, except for Lot 82, where windows with a minimum STC-32 rating are recommended for bedrooms exposed to I-5 traffic.

N9 Windows with a minimum STC-34 rating are required for sleeping quarters associated with the proposed fire station.

Level of Significance After Mitigation: Less Than Significant Impact.

STATIONARY SOURCE NOISE IMPACTS

- ***THE PROPOSED PROJECT COULD RESULT IN A PERMANENT INCREASE IN STATIONARY-SOURCE NOISE IN THE PROJECT AREA.***

Level of Significance Before Mitigation: Less Than Significant Impact.

Impact Analysis: The proposed residential development would likely include stationary noise sources associated with everyday residential activities. These stationary sources include noises from air conditioning operation and other common household activities. However, existing background noise levels associated with vehicle travel along local roadways and the I-5 freeway are anticipated to be much higher than typical household sources of stationary noise. Therefore, impacts are considered less than significant.

Mitigation Measures*:* No mitigation measures are required.

5.4.5 CUMULATIVE IMPACTS AND MITIGATION MEASURES

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

Level of Significance Before Mitigation: Significant Impact.

Impact Analysis: Based on the fact that noise dissipates as it travels away from its source, impacts from construction noise and stationary sources would be limited to the project site and vicinity. As such, noise impacts from related projects, in conjunction with project-specific noise impacts, would not have the potential to result in cumulatively considerable adverse effects.

Traffic-related (mobile-source) noise impacts could have the potential to be cumulatively considerable, when added to mobile-source noise generated by related projects in the vicinity of the proposed project site. This noise impact evaluation (from mobile sources) completed for the project was based on traffic data provided in the project's *Traffic Impact Analysis* and calculates pre and post-project operational noise impacts resulting from existing conditions and a project with 835 residential units. Therefore, this study accounts for future development projects in the project vicinity, cumulative noise impacts associated with the project, and related projects. As shown above, the project's contribution to cumulative traffic-related noise impacts in the project vicinity is not cumulatively considerable. However, given that the existing noise environment experienced by residential development in the project vicinity exceeds the County's exterior thresholds (primarily due to I-5 Freeway noise), the project's minimal contribution to exterior noise levels is considered a significant and unavoidable cumulative impact.

Mitigation Measures: Refer to mitigation measures N3 through N7. No additional mitigation measures are available to reduce cumulative noise impacts.

Level of Significance After Mitigation: Significant and Unavoidable Impact.