TRACT 37907 (PACIFIC LANTANA)
NOISE IMPACT STUDY
City of Perris

TRACT 37907 (PACIFIC LANTANA)
NOISE IMPACT STUDY
City of Perris, California

Prepared for:

Mr. Anthony Arnest
PACIFIC COMMUNITIES BUILDERS, INC.
1000 Dove St., Suite 300
Newport Beach, CA 92660

Prepared by:

RK ENGINEERING GROUP, INC.
1401 Dove Street, Ste. 540
Newport Beach, CA 92660

Bryan Estrada, AICP
Darshan Shivaiah, M.S.

May 2, 2024

Table of Contents

Table of Contents (Cont.)

List of Attachments

Exhibits

Tables

List of Attachments (Cont.)

Tables (Cont.)

Appendices

1.0 Introduction

1.1 Purpose of Analysis and Study Objectives

The purpose of this report is to review potential noise impacts and noise/land use compatibility for the proposed Tract 37907 (Pacific Lantana) Project. This report also provides preliminary recommendations to meet the State of California and City of Perris interior noise standards.

The following is provided in this report:

- A description of the study area and the proposed project
- Information regarding the fundamentals of noise
- Identification of the regulatory setting and applicable noise standards
- Analysis of the existing noise environment
- Analysis of the project's operational noise impacts
- Analysis of the project's construction noise and vibration impact to adjacent sensitive receptors
- Summary of recommended mitigation measures and project design features to reduce noise level impacts.

1.2 Site Location

The proposed Tract 37907 (Pacific Lantana) project site is located at the northwest corner of A Street and Metz Road, in the City of Perris, California. The project site is located approximately 1,491 feet above sea level and the topography is relatively even.

The project site is bounded by existing residential homes to the north, Metz Road to the south, A street to the east and McKimball Road to the west.

The primary sources of ambient noise at the project site include roadway noise from the adjacent roadways as well as typical residential neighborhood noise from the existing residential homes surrounding the project site.

The project site location map is provided in Exhibit A.

1.3 Project Description

The project consists of constructing and operating 92 single family detached houses on 13.56 acres. The project also includes a community center with a recreational building, swimming pool, Jacuzzi, basketball court, dog park and play areas. As part of the project design, six-foot noise barrier walls will be constructed along the property lines of the project site, shielding backyards from the surrounding roadways.

The site plan used for this analysis, provided by PACIFIC COMMUNITY BUILDER, INC., is illustrated in Exhibit B.

1.4 Recommended Project Design Features

The following recommended mitigation measures are provided to help ensure the project's construction and operational noise levels do not adversely impact the adjacent noise sensitive land uses:

MM-1 The project developer shall post a sign in a readily visible location at the project site. All notices and signs shall indicate the dates and duration of construction activities, as well as provide a telephone number where residents can enquire about the construction process and register complaints to a designated construction noise disturbance coordinator.

MM-2 The project developer shall ensure that all contractors implement construction best management practices to reduce construction noise levels. Best management practices would include the following:

- All construction equipment shall be equipped with muffles and other suitable noise attenuation devices (e.g., engine shields).
- Grading and construction contractors shall use quieter equipment as opposed to noisier equipment (such as rubber-tired equipment rather than track equipment), to the maximum extent feasible.
- If feasible, electric hook-ups shall be provided to avoid the use of generators. If electric service is determined to be infeasible for the site, only whisper-quiet generators shall be used (i.e., inverter generators capable of providing variable load.

- Use electric air compressors and similar power tools rather than diesel equipment, where feasible.

- Locate staging area, generators and stationary construction equipment as far from the adjacent residential homes as feasible.

- Construction-related equipment, including heavy-duty equipment, motor vehicles, and portable equipment, shall be turned off when not in use for more than 5 minutes.

MM-3 The project developer shall build the proposed CMU block perimeter walls during the early phases of construction to help shield adjacent homes from construction noise.

1.5 Recommended Project Design Features (DF)

The following recommended project design features include standard rules and requirements, best practices and recognized design guidelines for reducing noise levels. Design features are assumed to be part of the conditions of the project and integrated into its design.

Operational Design Features

DF-1 A six-foot-high noise barrier wall will be provided to shield all habitable backyard areas facing exterior roadways and adjacent properties. The designed noise screening will only be accomplished if the barrier's weight is at least 3.5 pounds per square foot of face area without decorative cutouts or line-of-site openings between the shielded areas and the project site. All gaps (except for weep holes) should be filled with grout or caulking to avoid flanking.

The noise control barrier may be constructed using one, or any combination of the following materials:

- Masonry block;

- Stucco veneer over wood framing (or foam core), or 1-inch thick tongue and groove wood of sufficient weight per square foot;

- Transparent glass (3/8-inch-thick), acrylic, polycarbonate, or other transparent material with sufficient weight per square foot.

DF-2 The project will be required to incorporate building construction techniques that achieve the minimum interior noise standard of 45 dBA CNEL for all residential units.

Construction Design Features

DF-4 Construction-related noise activities shall comply with the requirements set forth in the City of Perris Municipal Code Chapter 7.34:

1. It is unlawful for any person between the hours of 7:00 p.m. of any day and 7:00 a.m. of the following day, or on a legal holiday, with the exception of Columbus Day and Washington's birthday, or on Sundays to erect, construct, demolish, excavate, alter or repair any building or structure in such a manner as to create disturbing, excessive or offensive noise. Construction activity shall not exceed 80 dBA in residential zones in the city.

2.0 Fundamentals of Noise

This section of the report provides basic information about noise and presents some of the terms used within the report.

2.1 Sound, Noise and Acoustics

Sound is a disturbance created by a moving or vibrating source and is capable of being detected by the hearing organs. Sound may be thought of as mechanical energy of a moving object transmitted by pressure waves through a medium to a human ear. For traffic, or stationary noise, the medium of concern is air. *Noise* is defined as sound that is loud, unpleasant, unexpected, or unwanted.

2.2 Frequency and Hertz

A continuous sound is described by its *frequency* (pitch) and its *amplitude* (loudness). Frequency relates to the number of pressure oscillations per second. Low-frequency sounds are low in pitch (bass sounding) and high-frequency sounds are high in pitch (squeak). These oscillations per second (cycles) are commonly referred to as Hertz (Hz). The human ear can hear from the bass pitch starting out at 20 Hz all the way to the high pitch of 20,000 Hz.

2.3 Sound Pressure Levels and Decibels

The *amplitude* of a sound determines it loudness. The loudness of sound increases or decreases, as the amplitude increases or decreases. Sound pressure amplitude is measured in units of micro-Newton per square inch meter (N/m2), also called micro-Pascal (μPa). One μPa is approximately one hundred billionths (0.00000000001) of normal atmospheric pressure. Sound pressure level (SPL or L_p) is used to describe in logarithmic units the ratio of actual sound pressures to a reference pressure squared. These units are called decibels and abbreviated dB.

2.4 Addition of Decibels

Because decibels are on a logarithmic scale, sound pressure levels cannot be added or subtracted by simple plus or minus addition. When two (2) sounds of equal SPL are combined, they will produce an SPL 3 dB greater than the original single SPL. In other words, sound energy must be doubled to produce a 3 dB increase.

If two (2) sounds differ by approximately 10 dB the higher sound level is the predominant sound.

2.5 Human Response to Changes in Noise Levels

In general, the healthy human ear is most sensitive to sounds between 1,000 Hz and 5,000 Hz, (A-weighted scale) and it perceives a sound within that range as being more intense than a sound with a higher or lower frequency with the same magnitude. For purposes of this report as well as with most environmental documents, the A-scale weighting is typically reported in terms of A-weighted decibel (dBA). Typically, the human ear can barely perceive the change in noise level of 3 dB. A change in 5 dB is readily perceptible, and a change in 10 dB is perceived as being twice or half as loud[1]. As previously discussed, a doubling of sound energy results in a 3 dB increase in sound, which means that a doubling of sound energy (e.g. doubling the volume of traffic on a highway), would result in a barely perceptible change in sound level.

2.6 Noise Descriptors

Noise in our daily environment fluctuates over time. Some noise levels occur in regular patterns, others are random. Some noise levels are constant, while others are sporadic. Noise descriptors were created to describe the different time-varying noise levels. Following are the most commonly used noise descriptors along with brief definitions.

A-Weighted Sound Level

The sound pressure level in decibels as measured on a sound level meter using the A-weighted filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the response of the human ear. A numerical method of rating human judgment of loudness.

Ambient Noise Level

The composite of noise from all sources, near and far. In this context, the ambient noise level constitutes the normal or existing level of environmental noise at a given location.

[1] Source: U.S. DOT Federal Highway Administration. Dec. 2011. Highway Traffic Noise: Analysis and Abatement Guidance.

Community Noise Equivalent Level (CNEL)

The average equivalent A-weighted sound level during a 24-hour day, obtained after addition of five (5) decibels to sound levels in the evening from 7:00 to 10:00 PM and after addition of ten (10) decibels to sound levels in the night before 7:00 AM and after 10:00 PM.

Decibel (dB)

A unit for measuring the amplitude of a sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure, which is 20 micro-pascals.

dB(A)

A-weighted sound level (see definition above).

Equivalent Sound Level (LEQ)

The sound level corresponding to a steady noise level over a given sample period with the same amount of acoustic energy as the actual time varying noise level. The energy average noise level during the sample period.

Habitable Room

Any room meeting the requirements of the Uniform Building Code or other applicable regulations which is intended to be used for sleeping, living, cooking or dining purposes, excluding such enclosed spaces as closets, pantries, bath or toilet rooms, service rooms, connecting corridors, laundries, unfinished attics, foyers, storage spaces, cellars, utility rooms, and similar spaces.

L(n)

The A-weighted sound level exceeded during a certain percentage of the sample time. For example, L10 is the sound level exceeded 10 percent of the sample time. Similarly L50, L90 and L99, etc.

Noise

Any unwanted sound or sound which is undesirable because it interferes with speech and hearing, or is intense enough to damage hearing, or is otherwise annoying. The State Noise Control Act defines noise as "...excessive undesirable sound...".

Outdoor Living Area

Outdoor spaces that are associated with residential land uses typically used for passive recreational activities or other noise-sensitive uses. Such spaces include patio areas, barbecue areas, jacuzzi areas, etc. associated with residential uses; outdoor patient recovery or resting areas associated with hospitals, convalescent hospitals, or rest homes; outdoor areas associated with places of worship which have a significant role in services or other noise-sensitive activities; and outdoor school facilities routinely used for educational purposes which may be adversely impacted by noise. Outdoor areas usually not included in this definition are: front yard areas, driveways, greenbelts, maintenance areas and storage areas associated with residential land uses; exterior areas at hospitals that are not used for patient activities; outdoor areas associated with places of worship and principally used for short-term social gatherings; and, outdoor areas associated with school facilities that are not typically associated with educational uses prone to adverse noise impacts (for example, school play yard areas).

Percent Noise Levels

See L(n).

Sound Level (Noise Level)

The weighted sound pressure level obtained by use of a sound level meter having a standard frequency-filter for attenuating part of the sound spectrum.

Sound Level Meter

An instrument, including a microphone, an amplifier, an output meter, and frequency weighting networks for the measurement and determination of noise and sound levels.

Single Event Noise Exposure Level (SENEL)

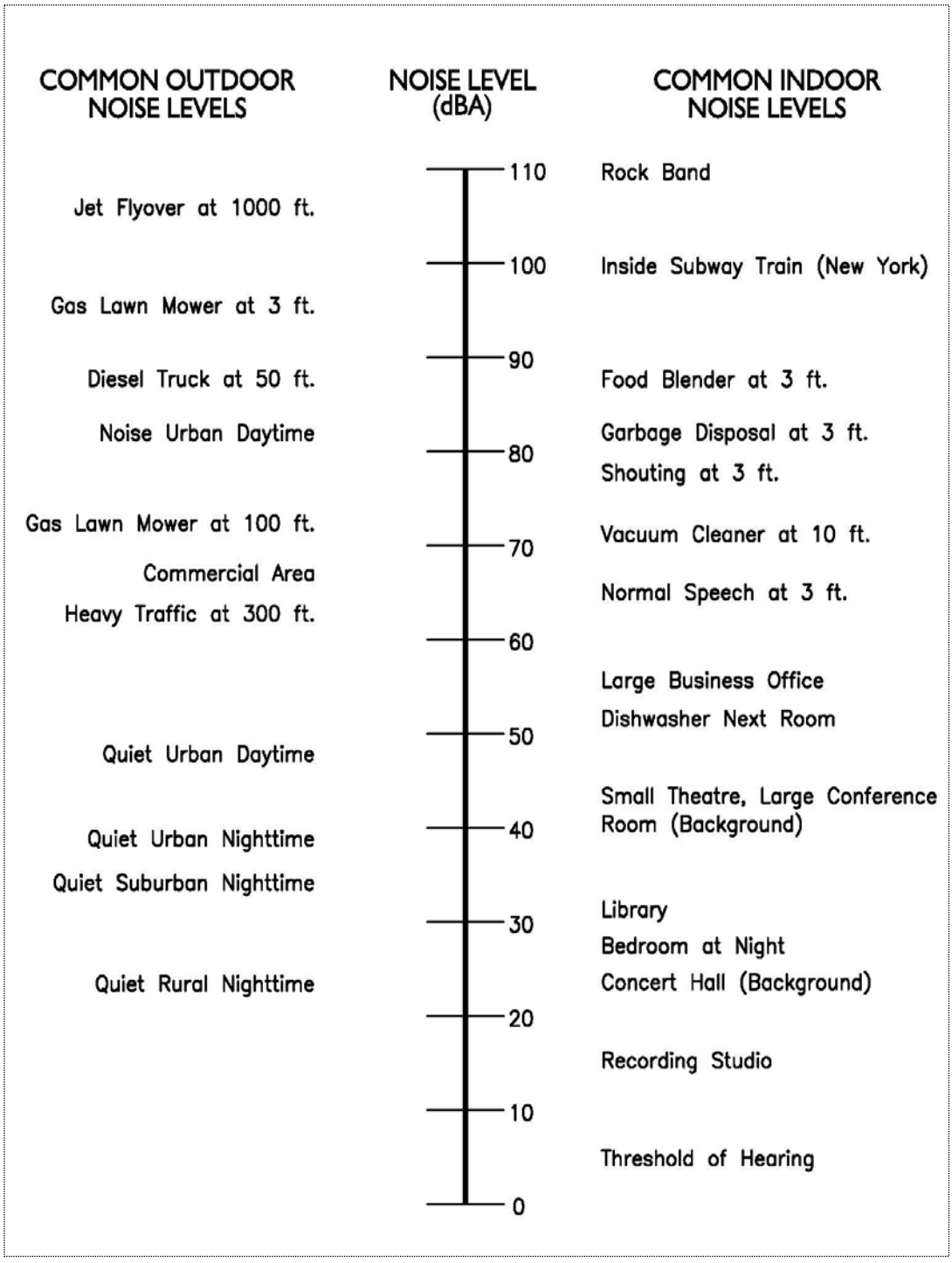
The dBA level which, if it lasted for one (1) second, would produce the same A-weighted sound energy as the actual event.

2.7 Sound Propagation

As sound propagates from a source it spreads geometrically. Sound from a small, localized source (i.e., a point source) radiates uniformly outward as it travels away from the source in a spherical pattern. The sound level attenuates at a rate of 6 dB per doubling of distance. The movement of vehicles down a roadway makes the source of the sound appear to propagate from a line (i.e., line source) rather than a point source. This line source results in the noise propagating from a roadway in a cylindrical spreading versus a spherical spreading that results from a point source. The sound level attenuates for a line source at a rate of 3 dB per doubling of distance.

As noise propagates from the source, it is affected by the ground and atmosphere. Noise models use hard site (reflective surfaces) and soft site (absorptive surfaces) to help calculate predicted noise levels. Hard site conditions assume no excessive ground absorption between the noise source and the receiver. Soft site conditions such as grass, soft dirt or landscaping attenuate noise at an additional rate of 1.5 dB per doubling of distance. When added to the geometric spreading, the excess ground attenuation results in an overall noise attenuation of 3 dB per doubling of distance for a line source and 6.0 dB per doubling of distance for a point source.

Figure 1
Typical Sound Levels from Indoor and Outdoor Noise Sources[2]



[2] Source: AASHSTO. 1993. Guide on Evaluation and Abatement of Traffic Noise

2.8 Vibration Descriptors

Ground-borne vibrations consist of rapidly fluctuating motions within the ground that have an average motion of zero. The effects of ground-borne vibrations typically only cause a nuisance to people, but at extreme vibration levels, damage to buildings may occur. Although ground-borne vibration can be felt outdoors, it is typically only an annoyance to people indoors where the associated effects of the shaking of a building can be notable. Ground-borne noise is an effect of ground-borne vibration and only exists indoors since it is produced from noise radiated from the motion of the walls and floors of a room and may also consist of the rattling of windows or dishes on shelves.

Several different methods are used to quantify vibration amplitude.

PPV

Known as the peak particle velocity (PPV) which is the maximum instantaneous peak in vibration velocity, typically given in inches per second.

RMS

Known as the root mean squared (RMS) can be used to denote vibration amplitude.

VdB

A commonly used abbreviation to describe the vibration level (VdB) for a vibration source.

2.9 Vibration Perception

Typically, developed areas are continuously affected by vibration velocities of 50 VdB or lower. These continuous vibrations are not noticeable to humans whose threshold of perception is around 65 VdB. Outdoor sources that may produce perceptible vibrations are usually caused by construction equipment, steel-wheeled trains, and traffic on rough roads, while smooth roads rarely produce perceptible ground-borne noise or vibration. To counter the effects of ground-borne vibration, the Federal Transit Administration (FTA) has published guidance relative to vibration impacts. According to the FTA, fragile buildings can be exposed to ground-borne vibration levels of 0.3 inches per second without experiencing structural damage.

2.10 Vibration Propagation

There are three main types of vibration propagation: surface, compression, and shear waves. Surface waves, or Rayleigh waves, travel along the ground's surface. These waves carry most of their energy along an expanding circular wavefront, similar to ripples produced by throwing a rock into a pool of water. P-waves, or compression waves, are body waves that carry their energy along an expanding spherical wavefront. The particle motion in these waves is longitudinal (i.e., in a "push-pull" fashion). P-waves are analogous to airborne sound waves. S-waves, or shear waves, are also body waves that carry energy along an expanding spherical wavefront. However, unlike P-waves, the particle motion is transverse, or side-to-side and perpendicular to the direction of propagation.

As vibration waves propagate from a source, the vibration energy decreases in a logarithmic nature and the vibration levels typically decrease by 6 VdB per doubling of the distance from the vibration source. As stated above, this drop-off rate can vary greatly depending on the soil but has been shown to be effective enough for screening purposes, in order to identify potential vibration impacts that may need to be studied through actual field tests.

2.11 Construction Related Vibration Level Prediction

Operational activities are separated into two different categories. The vibration can be transient or continuous in nature. Each category can result in varying degrees of ground vibration, depending on the equipment used on the site. Operation of equipment causes ground vibrations that spread through the ground and diminish in strength with distance. Buildings in the vicinity of the project area site respond to these vibrations with varying results ranging from no perceptible effects at the low levels to slight damage at the highest levels. The thresholds from Caltrans Transportation and Construction Induced Vibration Guidance Manual in the table below provide general guidelines as to the maximum vibration limits for when vibration becomes potentially annoying.

Table 1
Vibration Annoyance Potential Criteria

Human Response	PPV (in/sec)	
	Transient Sources	Continuous/Frequent Intermittent Sources
Barely perceptible	0.04	0.01
Distinctly perceptible	0.25	0.04
Strongly perceptible	0.90	0.10
Severe	2.00	0.40

Note: Transient sources create a single isolated vibration event, such as blasting or drop balls. Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.

The Caltrans Transportation and Construction Induced Vibration Guidance Manual provides general thresholds and guidelines as to the vibration damage potential from vibratory impacts. The table below provides general vibration damage potential thresholds:

Table 2
Vibration Damage Potential Threshold Criteria

Structure and Condition	PPV (in/sec)	
	Transient Sources	Continuous/Frequent Intermittent Sources
Extremely fragile historic buildings ruin ancient monuments	0.12	0.08
Fragile buildings	0.20	0.10
Historic and some old buildings	0.50	0.25
Older residential structures	0.50	0.30
New residential structures	1.00	0.50
Modern industrial/commercial buildings	2.00	0.50

Soil conditions have an impact on how vibration propagates through the ground. The Caltrans Transportation and Construction Induced Vibration Guidance Manual provides suggested "n" values based on soil class. The table below outlines the manual's suggested values and description.

Table 3
Suggested "n" Values Based on Soil Classes

Soil Class	Description of Soil Material	Suggested Value of "n"
I	Weak or soft soils: loose soils, dry or partially saturated peat and muck, mud, loose beach sand, and dune sand.	1.4
II	Most sands, sandy clays, silty clays, gravel, silts, weathered rock.	1.3
III	Hard soils: densely compacted sand, dry consolidated clay, consolidated glacial till, some exposed rock.	1.1
IV	Hard, component rock: bedrock, freshly exposed hard rock.	1.0

3.0 Regulatory Setting

The proposed project is located in the City of Perris and noise regulations are imposed by state and local government agencies. The applicable noise regulations are discussed below.

3.1 State of California Noise Regulations

The State of California has established noise insulation standards as outlined in Title 24 of the Building Standards Code which in some cases requires acoustical analyses to outline exterior noise levels and to ensure interior noise levels do not exceed the interior threshold.

Noise insulation design standards for residential dwellings are established in the 2019 California Building Code, Title 24, Part 2, Volume 1, Section 1206 Sound Transmission. The City is required by the State Housing Law to adopt these State codes as minimum performance standards. The City may enact stricter noise standards throughout the city or on a case-by-case basis if deemed necessary. In brief, the Title 24 noise standards require the following for allowable interior noise levels:

1. Interior noise levels due to exterior sources must not exceed a community noise equivalent level (CNEL) or a day-night level (LDN) of 45 dBA, in any habitable room.

2. Penetrations or openings in sound rated assemblies must be treated to maintain required ratings.

3.2 City of Perris Noise Regulations

The City of Perris outlines their noise regulations and standards within the General Plan, Noise Element and the Municipal Code, Chapter 7.34, Noise Control.

For purposes of this analysis, the City of Perris's noise element is used to evaluate the project's noise/land use compatibility and ensure the project is consistent with the established plans, policies and programs for noise control within the City. The Perris General Plan Noise Element and Municipal Code Noise Control are provided in Appendix A.

3.2.1 Noise/Land Use Compatibility

The City of Perris Noise Element establishes planning criteria for determining a development's noise/land use compatibility based on the community noise equivalent level (CNEL). Table 4 summarizes the City's Noise/Land Use Compatibility guidelines for land uses applicable to this project:

Table 4
Noise/Land Use Compatibility Guidelines

Land Use	Noise Limit (dBA CNEL)			
	Clearly Compatible	Normally Compatible	Normally Incompatible	Clearly Incompatible
Residential - Single Family	<60	60-65	65-75	>75

The City of Perris defines the noise compatibility categories as follows:

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

Normally Compatible: New construction or development should be undertaken only after detailed analysis of the noise reduction requirements are made and needed noise insulation features in the design are determined. Conventional construction, with closed windows and fresh air supply systems or air conditioning, will normally suffice.

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

Clearly Incompatible: New construction or development should generally not be undertaken.

3.2.2 Municipal Code Noise Standards

Table 5 shows the City of Perris's Residential Noise Standards, as established in the Municipal Code, Chapter 7.34, Noise Control.
The noise standards shown in Table 5 shall apply to residential properties, unless otherwise specifically identified by the Municipal Code.

Table 5
City of Perris Residential Noise Standards

Location	Time Period	Maximum Noise Level
Exterior	Daytime (7am - 10pm)	80 dBA
	Nighttime (10pm – 7am)	60 dBA

3.2.3 Construction Noise Regulation:

The City of Perris Municipal Code Chapter 7.34 - Noise Control, exempts the noise associated with construction and demolition activity noise:

1. It is unlawful for any person between the hours of 7:00 p.m. of any day and 7:00 a.m. of the following day, or on a legal holiday, with the exception of Columbus Day and Washington's birthday, or on Sundays to erect, construct, demolish, excavate, alter or repair any building or structure in such a manner as to create disturbing, excessive or offensive noise. Construction activity shall not exceed 80 dBA in residential zones in the city.

2. Section 18-63 of the Municipal Code, "Enumeration of Prohibited Noises" provides an exemption for noise from construction and repair work as long as these activities are limited to between the hours of 7:00 AM and 6:00 PM on weekdays.

4.0 Study Method and Procedures

The following section describes the measurement procedures, measurement locations, and noise modeling procedures and assumptions used in the noise analysis.

4.1 Measurement Procedures and Criteria

Noise measurements are taken to determine the existing noise levels. A noise receiver or receptor is any location in the noise analysis in which noise might produce an impact. The following criteria are used to select measurement locations and receptors:

- Locations expected to receive the highest noise impacts, such as the first row of houses
- Locations that are acoustically representative and equivalent of the area of concern
- Human land usage
- Sites clear of major obstruction and contamination

RK conducted the sound level measurements in accordance with Caltrans technical noise specifications. All measurement equipment meets American National Standards Institute (ANSI) specifications for sound level meters (S1.4-1983 identified in Chapter 19.68.020.AA).

A Piccolo-II Type 2 integrating-averaging level meter was used to conduct noise measurements at the project site and property boundaries.

The Leq, Lmin, Lmax, L2, L8, L25, and L50 statistical data were recorded over the measurement time period intervals and the information was utilized to define the noise characteristics for the project. The following gives a brief description of the Caltrans Technical Noise Supplement procedures for sound level measurements:

- Microphones for sound level meters were placed approximately five (5) feet above the ground for all noise measurements
- Sound level meters were calibrated before and after each measurement
- Following the calibration of equipment, a windscreen was placed over the microphone
- Frequency weighting was set on "A" and slow response
- Results of the noise measurements were recorded on field data sheets
- Temperature and sky conditions were observed and documented

Appendix B includes photos, field sheets, and measured noise data.

4.2 Traffic Noise Modeling

Traffic noise from vehicular traffic was projected using a version of the FHWA Traffic Noise Prediction Model (FHWA-RD-77-108). The FHWA model arrives at the predicted noise level through a series of adjustments to the key input parameters. The following outlines the key adjustments made to the computer model for the roadway inputs:

- Roadway classification – (e.g. freeway, major arterial, arterial, secondary, collector, etc.),
- Roadway Active Width – (distance between the center of the outer most travel lanes on each side of the roadway)
- Average Daily Traffic (ADT) Volumes, Travel Speeds, Percentages of automobiles, medium trucks, and heavy trucks
- Roadway grade and angle of view
- Site Conditions (e.g. soft vs. hard)
- Percentage of total ADT which flows each hour throughout a 24-hour period

The following outlines key adjustments to the computer model for the project site parameter inputs:

- Vertical and horizontal distances (Sensitive receptor distance from noise source)
- Noise barrier vertical and horizontal distances (Noise barrier distance from sound source and receptor).
- Traffic noise source spectra
- Topography

Future roadway noise levels are projected based on the *Pacific Lantana (TTM 37907 PLN 22-00014) Traffic Study* (November 2022), prepared by ALBERT A. WEBB ASSOCIATES.

Table 6 indicates the roadway parameters utilized for this study.

Table 6
Roadway Parameters

Roadway	Classification[1]	Lanes	Opening Year ADT[2]	Project ADT[2]	Opening Year Plus Project ADT[2]	Speed (MPH)	Site Conditions
A Street	Secondary Arterial	4	10,584	521	11,105	40	Hard
Metz Road	Collector	2	2,328	0	2,328	35	Hard

[1] Source: City of Perris General Plan Circulation Element.

[2] Source: *Pacific Lantana (TTM 37907 PLN 22-00014) Traffic Study* (November 2022), prepared by ALBERT A. WEBB ASSOCIATES.

Tables 7 and 8 indicate the vehicle distribution and truck mix utilized for all roadways in this study area.

Table 7
Vehicle Distribution (Truck Mix) for Arterial Roadways[1,2]

Motor-Vehicle Type	Daytime % (7 AM - 7 PM)	Evening % (7 PM - 10 PM)	Night % (10 PM - 7 AM)	Total % of Traffic Flow
Automobiles	69.5	12.9	9.6	92.00
Medium Trucks	1.44	0.06	1.5	3.00
Heavy Trucks	2.4	0.1	2.5	5.00

[1] Roadway classification and average daily traffic (ADT) volume capacity is based on County of Riverside General Plan.

[2] Vehicle percentages specified are indicated in a memo published by County of Riverside Department of Environmental Health.

Table 8
Vehicle Distribution (Truck Mix) for Collector Roadways[1,2]

Motor-Vehicle Type	Daytime % (7 AM - 7 PM)	Evening % (7 PM - 10 PM)	Night % (10 PM - 7 AM)	Total % of Traffic Flow
Automobiles	73.6	13.6	10.22	97.42
Medium Trucks	0.9	0.04	0.9	1.84
Heavy Trucks	0.35	0.04	0.35	0.74

[1] Roadway classification and average daily traffic (ADT) volume capacity is based on County of Riverside General Plan.

[2] Vehicle percentages specified are indicated in a memo published by County of Riverside Department of Environmental Health.

4.3 Interior Noise Modeling

The interior noise level is the difference between the projected exterior noise level at the structure's façade and the noise reduction provided by the structure itself. Typical building construction will provide a conservative 12 dBA noise level reduction with a "windows open" condition and a very conservative 20 dBA noise level reduction with "windows closed". RK estimated the interior noise level by subtracting the building shell design from the estimated exterior noise level.

The interior noise analysis is based on industry standards for building noise reduction established by the Federal Highway Administration (FHWA), the 2013 Caltrans Technical Noise Supplement to the Traffic Noise Analysis Protocol (TeNS), the California Office of Noise Control Catalog of STC and IIC Ratings for Wall and Floor/Ceiling Assemblies, and the California Building Standards Code, Title 24.

The TeNS manual shows that the noise reduction due to building exteriors with ordinary sash windows (windows closed) is at least 20 decibels. By providing upgraded STC rated windows, the project design is considered adequate to meet interior noise standards. The building's exterior walls will be constructed per the latest building code insulation requirements and provide occupants with the most protection from exterior noise. Insulated exterior walls, designed per the latest California Building Standards, would provide a minimum of STC 35-40. Windows, on the other hand, are one of the acoustically weakest parts of the structure. Therefore, for a conservative estimate of preliminary interior noise, the building's noise reduction potential is limited to the STC of the windows.

4.4 Construction Noise Modeling

The construction noise analysis utilizes the Federal Highway Administration (FHWA) Roadway Construction Noise Model, together with several key construction parameters. Key inputs include distance to the sensitive receiver, equipment usage, and baseline parameters for the project site. This study evaluates the maximum potential exterior noise impacts during each phase of construction. Noise levels were projected at an average distance of 20 feet from the nearest expected location of onsite construction activity to the residential receptors to the north of the project site.

- Construction phasing and equipment usage assumptions are referenced from *Tract 37907 (Pacific Lantana) Project Air Quality and Greenhouse Gas Analysis, City of Perris*, September 2021, by RK Engineering Group.

4.5 Construction Vibration Modeling

The construction vibration assessment is based on the methodology set-forth within the Caltrans Transportation and Construction Induced Vibration Guidance Manual. The vibration impacts from vibratory rollers and compactors, heavy truck loading and bulldozer activity is analyzed. All vibratory activity is analyzed as a continuous and/or frequent event and is required to comply with the applicable guidance thresholds criteria. It is expected that vibration levels will be highest during paving phase. No impact pile driving is expected as part of this project.

Vibratory impacts were calculated from the site area property line to the closest sensitive receptors and structures using the reference vibration levels, soil conditions and the reference equation *PPV= PPV ref (25/D) ^ n (in/sec)* (from Caltrans Manual) where:

PPV = reference measurement at 25 feet from vibration source
D = distance from equipment to property line
n= vibration attenuation rate through ground (n=1.0 was utilized for this study)

5.0 Existing Noise Environment

The existing noise environment for the project site and surrounding areas has been established based on noise measurement data collected by RK. Noise measurement data indicates that the ambient noise consist of just environmental noise includes noise from leaves rustling and chirping birds, very minimal traffic noise propagating from the adjacent roadways, as well as activities from the surrounding properties are the main sources of ambient noise at the project site and surrounding area.

5.1 24-Hour Noise Measurement Results

In order to establish the ambient noise environment, RK conducted two (2) 24-hour noise measurements at the project study area.

Noise levels were measured on September 16, 2021 using a Piccolo-II Type 2 integrating-averaging sound level meters. The information was utilized to establish the noise characteristics of the existing ambient environment

The noise monitoring locations were selected based on the proximity and location to adjacent sensitive receptors. Exhibit C graphically illustrates the location of the long-term measurements.

- Noise monitoring location one (L-1) was taken along the western property line at approximately 30 feet from the northern property line and approximately 40 feet from the centerline of the existing McKimball Road.

- Noise monitoring location two (L-2) was taken at the northeast corner of Metz Road and A Street at approximately 60 feet from the centerline of A Street and approximately 110 feet from the centerline of Metz Road.

Noise monitoring locations represent the existing ambient noise levels near the adjacent noise sensitive land uses and the project site.

Appendix B includes photographs, field sheets and measured noise data.

Noise measurements are summarized in Table 9 and Table 10 below.

Table 9
24 Noise Measurement Results, L-1[1]

Time	Leq (dBA)	Time	Leq (dBA)
12:00 AM	48.4	12:00 PM	52.3
1:00 AM	48.5	1:00 PM	47.2
2:00 AM	50.1	2:00 PM	49.1
3:00 AM	49.3	3:00 PM	53.9
4:00 AM	55.2	4:00 PM	50.7
5:00 AM	53.4	5:00 PM	49.7
6:00 AM	55.1	6:00 PM	50.3
7:00 AM	56.0	7:00 PM	52.8
8:00 AM	48.6	8:00 PM	51.8
9:00 AM	50.9	9:00 PM	53.9
10:00 AM	46.2	10:00 PM	49.7
11:00 AM	48.0	11:00 PM	47.8
24-Hour CNEL			**58.5**

[1] L-1 was taken along the western property line at approximately 30 feet from the northern property line and approximately 40 feet from the centerline of the existing McKimball Road. L-1 was recorded on 09/16/2021.

Table 10
24 Noise Measurement Results, L-2[1]

Time	Leq (dBA)	Time	Leq (dBA)
12:00 AM	55.5	12:00 PM	60.4
1:00 AM	57.8	1:00 PM	61.4
2:00 AM	57.8	2:00 PM	61.7
3:00 AM	58.0	3:00 PM	61.6
4:00 AM	60.5	4:00 PM	62.7
5:00 AM	63.0	5:00 PM	62.8
6:00 AM	62.4	6:00 PM	63.6
7:00 AM	65.7	7:00 PM	62.5
8:00 AM	62.8	8:00 PM	61.2
9:00 AM	61.3	9:00 PM	60.0
10:00 AM	65.8	10:00 PM	57.9
11:00 AM	61.4	11:00 PM	55.8
24-Hour CNEL			**66.9**

[1] L-2 was taken at the northeast corner of Metz Road and A Street at approximately 60 feet from the centerline of A Street and approximately 110 feet from the centerline of Metz Road. L-2 was recorded on 09/16/2021.

6.0 Operational Noise Impacts

A noise analysis has been performed to determine whether the proposed project would result in a substantial increase in ambient noise levels in the vicinity of the site. Additionally, the noise analysis examines whether the project can meet the City of Perris and State of California requirements for residential exterior and interior noise exposure. The State of California requires that interior noise levels due to exterior sources must not exceed a community noise equivalent level (CNEL) or a day-night level (LDN) of 45 dBA, in any habitable room.

6.1 Project Operational Noise Impacts

The project is consistent with the General Plan Land Use Designation and consists of single-family residential housing. On-site noise would include typical neighborhood noise, such as motor vehicle traffic, HVAC equipment and outdoor activities at the community center/pool. Many project noise sources will be screened behind the proposed six-foot property line walls that will shield backyard areas of the site. Thus, most of the typical on-site outdoor residential activity and HVAC equipment would be screened from the neighboring property's line of sight. As a result, the project is not expected to generate on-site stationary noise that would adversely affect the existing ambient conditions in the vicinity of the site.

The project will also contribute additional traffic along A Street which may affect roadway noise levels. A roadway noise impact analysis has been prepared to determine whether the project would cause a substantial permanent increase in ambient noise levels in the vicinity of the project site due to traffic generated by the project.

Based on the *Pacific Lantana (TTM 37907, PLN 22-00014) Traffic Study*, prepared in November 2022 by ALBERT A. WEBB ASSOCIATES, the proposed project is anticipated to generate approximately 868 daily trips.

Per the City of Perris General Plan, noise levels of up to 60.0 dBA CNEL are considered Clearly Compatible for single family residential land uses. To help determine whether the project would generate a significant permanent increase in ambient noise levels in the vicinity of the project, the following quantifiable thresholds of significance have been used for this analysis. The project impact would be considered significant if:

- Without project noise levels are 60.0 dBA CNEL or lower, and the project causes noise levels to increase above 65 dBA CNEL, or

- Without project noise levels are above 60.0 dBA CNEL and the project results in an increase of 3.0 dBA or more above Without Project conditions.

A change of 3 dBA is considered barely perceptible by the average human ear[3], and is a commonly used threshold in assessing potentially significant increases in community noise exposure.

Table 11 shows the roadway noise levels for Opening Year and Opening Year Plus Project conditions. Operational roadway noise calculation sheets are provided in Appendix C.

As shown in Table 11, the proposed project will not result in a significant permanent increase in roadway noise levels along adjacent roadways. Hence, the project's roadway source noise impacts will be less than significant.

Table 11
Roadway Noise Impacts – Opening Year Conditions[1, 2]

Roadway	Segment	Roadway Noise Levels at Nearest Receptors to Centerline (dBA CNEL)			
		Opening Year Without Project Conditions	Opening Year With Project Conditions	Increase as a Result of Project	Significant impact (?)[3]
A Street	North of Project Driveway	74.8	75.0	0.2	No

1 Roadway noise is projected using a version of the FHWA Traffic Noise Prediction Model (FHWA-RD-77-108).

2 Opening Year Without Project and Opening Year With Project volumes are referenced from the *Pacific Lantana (TTM 37907, PLN 22-00014) Traffic Impact Study* (November 2022) prepared by ALBERT A. WEBB ASSOCIATES.

3 A significant impact would occur if Without Project noise levels are 60.0 dBA CNEL or lower, and the project causes noise levels to increase above 60.0 dBA CNEL *OR* Without Project noise levels are above 60.0 dBA CNEL and the project results in an increase of 3.0 dBA or more above Without Project conditions.

6.2 Noise/Land Use Compatibility

Traffic noise impacts from A street and Metz Road are analyzed at the proposed project site and are compared to the City's Noise Standards for determining the project's noise/land use compatibility.

Traffic noise along A street and Metz Road will be the main sources of noise impacting the project site. The nearest first row residential lots will be set back approximately 77 feet

[3] Caltrans Technical Noise Supplement to the Traffic Noise Analysis Protocol (Tens Manual). September 2013. Section 2.2.1.1 Human Response to Changes in Noise Levels.

from the centerline of A street and 63 feet from the centerline of Metz Road. As previously mentioned, the project is proposing to build a six (6) foot CMU block wall along the property lines facing the external roadways to help reduce noise impacts.

To be conservative, future noise/land use compatibility at the proposed project site is assessed using the future roadway capacity volumes contained in the City of Perris General Plan Circulation Element. Per the General Plan, A Street is classified as a Secondary Arterial Roadway and has a future roadway capacity of 32,300 ADT, while Metz Road is classified as a Collector Street and has a future roadway capacity of 11,700.

Table 12 indicates the noise level projections to the backyard habitable areas and the facades of the residential units nearest the subject roadways. Future exterior noise levels on the project site range from 60.1 dBA CNEL along the A Street and 54.0 dBA CNEL along Metz Road.

Table 12
Future Exterior Roadway Noise Levels (dBA CNEL)[1]

Roadway	Exterior Façade Study Locations	Noise Level at Facade	Noise/Land Use Compatibility
A Street	Backyard/Patio	60.1	Normally Compatible
Metz Road	Backyard/Patio	54.0	Clearly Compatible

[1] Exterior noise levels calculated 5-feet above pad elevation, perpendicular to subject roadway.

Based on the City of Perris General Plan Noise/Land Use Compatibility Guidelines, the project site falls within the Clearly Compatible to Normally Compatible range for Residential – Single Family development.

The roadway calculation sheets are provided in Appendix C.

6.3 Airport Land Use Compatibility

6.3.1 Perris Valley Airport

The Riverside County Airport Land Use Commission governs 16 airports in Riverside County, including the Perris Valley Airport in Perris. In November 2004, the ALUC adopted the Riverside County Airport Land Use Compatibility Plan (ALUCP) Policy Document, which establishes land use, noise and safety policies in the vicinity of airports throughout Riverside County, including compatibility criteria and maps for the influence areas of individual

airports. The ALUCP also establishes procedural requirements for compatibility review of development proposals related to the Perris Valley Airport Influence Area.

The Perris Valley Airport is located approximately one and half (1.5) miles to the northwest of the project site. A noise/land use compatibility assessment has been performed based on the project's location to the Perris Valley Airport. The noise contour maps for the Perris Valley Airport are provided in Exhibit D.

The project is located outside of the 60 dB Ldn noise contour limit; therefore, the exterior noise impact from the airport would be within the allowable limits for residential land uses and the project is considered compatible with the surrounding land use and noise environment. Noise from airport operations is expected to generate a less than significant impact on the proposed project.

6.3.2 March Air Reserve Base / Inland Port Airport

In addition to the Perris Valley Airport, the project site is also located within the area subject to the Airport Land Use Plan for the March Air Reserve Base / Inland Port Airport. The March Air Reserve Base / Inland Port Airport is located approximately 4.5 miles north-northwest of the proposed project site.

The proposed project site is located outside of the 60 dB CNEL noise contour limit. Therefore, the exterior noise impact from the airport would be within the allowable limits for residential land uses and the project is considered compatible with the surrounding land use and noise environment. Noise from airport operations are expected to generate a less than significant impact on the proposed project.

The noise contour map for the March Air Reserve Base / Inland Port Airport are provided in Exhibit E.

6.4 Future Interior Noise

A preliminary interior noise analysis has been performed for the first row of habitable dwellings facing adjacent roadways using a typical "windows open" and "windows closed" condition. A "windows open" condition assumes 12 dBA of noise attenuation from the exterior noise level. A "windows closed" condition" assumes 20 dBA of noise attenuation from the exterior noise level.

California standard building shell and residential windows are expected to provide adequate attenuation to meet interior noise standards with a window open and windows closed condition.

Table 13 indicates the future interior noise levels along the adjacent roadways.

Table 13
Future Interior Noise Levels (dBA CNEL)[1]

Roadway	Exterior Façade Study Location	Exterior Noise Level at Façade	Required Interior Noise Reduction	Interior Noise Level w/Standard Windows (STC ~ 25)		STC Rating
				"Windows Open" [1]	"Windows Closed" [2]	
A Street	1st Floor (All lots along A Steet)	60.1	15.1	48.1	40.1	25
	2nd Floor (All lots along A Street)	68.7	23.7	56.7	48.7	27
Metz Road	1st Floor (All lots along Metz Road)	54.0	9.0	42.0	34.0	25
	2nd Floor (All lots along Metz Road)	62.9	17.9	50.9	42.9	25

[1] A minimum of 12 dBA noise reduction is assumed with the "windows open" condition.
[2] A minimum of 20 dBA noise reduction is assumed with the "windows closed" condition.

6.5 Operational Design Features

The following recommendations are provided to help ensure the proposed project meets the City of Perris and State of California requirements for residential interior noise exposure:

1. A six-foot high noise barrier wall will be provided to shield all habitable backyard areas facing exterior roadways and adjacent properties. The designed noise screening will only be accomplished if the barrier's weight is at least 3.5 pounds per square foot of face area without decorative cutouts or line-of-site openings between the shielded areas and the project site. All gaps (except for weep holes) should be filled with grout or caulking to avoid flanking.

   The noise control barrier may be constructed using one, or any combination of the following materials:

   - Masonry block;
   - Stucco veneer over wood framing (or foam core), or 1-inch thick tongue and groove wood of sufficient weight per square foot;
   - Transparent glass (3/8-inch-thick), acrylic, polycarbonate, or other transparent material with sufficient weight per square foot.

2. The project should incorporate building construction techniques and insulation that is consistent with California Title 24 Building Standards to achieve the minimum interior noise standard of 45 dBA CNEL for all residential units.

3. For proper acoustical performance, all exterior windows, doors, and sliding glass doors should have a positive seal and leaks/cracks must be kept to a minimum.

7.0 Construction Noise and Vibration Impacts

Temporary construction noise and vibration impacts have been assessed from the project site to the surrounding adjacent land uses. The degree of construction noise will vary depending on the type of construction activity taking place and the location of the activity relative to the surrounding properties.

The City of Perris Municipal Code, Section 7.34.060 regulates construction noise within City boundaries. Section 7.34.060 states the following:

- It is unlawful for any person between the hours of 7:00 p.m. of any day and 7:00 a.m. of the following day, or on a legal holiday, with the exception of Columbus Day and Washington's birthday, or on Sundays to erect, construct, demolish, excavate, alter or repair any building or structure in such a manner as to create disturbing, excessive or offensive noise. Construction activity shall not exceed 80 dBA in residential zones in the city.

This assessment analyzes potential noise impacts during all expected phases of construction, including; site preparation, grading, building construction, paving, and architectural coating.

Construction phasing and equipment usage assumptions are referenced from the *Tract 37907 (Pacific Lantana) Air Quality and Greenhouse Gas Analysis, City of Perris, September 2021, by RK Engineering Group.*

7.1 Typical Construction Noise Levels

Table 14 shows typical construction noise levels compiled by the Environmental Protection Agency (EPA) for common type construction equipment. Typical construction noise levels are used to estimate potential project construction noise levels at the adjacent sensitive receptors.

Table 14
Typical Construction Noise Levels[1]

Type	Noise Levels (dBA) at 50 Feet
Earth Moving	
Compactors (Rollers)	73 - 76
Front Loaders	73 - 84
Backhoes	73 - 92
Tractors	75 - 95
Scrapers, Graders	78 - 92
Pavers	85 - 87
Trucks	81 - 94
Materials Handling	
Concrete Mixers	72 - 87
Concrete Pumps	81 - 83
Cranes (Movable)	72 - 86
Cranes (Derrick)	85 - 87
Stationary	
Generators	71 - 83
Compressors	75 - 86
Other	
Vibrators	68 - 82
Saws	71 - 82

[1] Referenced Noise Levels from the Environmental Protection Agency (EPA)

7.2 Construction Noise Impact Analysis

Noise levels are calculated based on an average distance of equipment to the nearest adjacent property. The project's estimated construction noise levels have been calculated using the Federal Highway Administration Roadway Construction Noise Model Version 1.1.

The nearest residential land uses to the project are located along the northern boundary of the project site. Construction noise levels have been modeled at 20 feet from the nearest expected location of onsite construction activity to the habitable back yards of the adjacent receptors. Project-related construction noise levels are assessed based on the maximum expected noise level for each phase of construction.

Table 15 shows the worst-case noise level impacts at the adjacent residential homes. Construction noise calculation worksheets are provided in Appendix D.

Table 15
Project Construction Noise Levels

Phase	Equipment	Quantity	Equipment Noise Level at 20 ft (dBA Lmax)	Maximum Noise Level (dBA Lmax)[1]
Site Preparation	Rubber Tired Dozers	3	89.7	92.0
	Tractors/Loaders/Backhoes	4	92.0	
Grading	Excavators	2	88.7	93.0
	Graders	1	93.0	
	Rubber Tired Dozers	1	89.7	
	Scrapers	2	91.5	
	Tractors/Loaders/Backhoes	2	92.0	
Building Construction	Cranes	1	88.5	92.0
	Forklifts	3	83.0	
	Generator Sets	1	88.6	
	Tractors/Loaders/Backhoes	3	92.0	
	Welders	1	92.0	
Paving	Pavers	2	85.2	92.0
	Paving Equipment	2	85.2	
	Tractors/Loaders/Backhoes	2	92.0	
Architectural Coating	Air Compressors	1	85.6	85.6
Worst Case Construction Phase Noise Level (dBA Lmax)				**93.0**
City of Perris Construction Noise Threshold				80
Potential significant impact (yes / no)				**Yes**

[1] Maximum noise level from one piece of equipment.

As shown in Table 16, project construction noise levels are expected to be above the recommended 80 dB Lmax noise threshold provided by the City of Perris for adverse community reaction at the adjacent residential.

In order to help reduce the construction noise impacts several mitigation measures are recommended to reduce construction noise impacts to the surrounding sensitive land uses:

Construction Mitigation Measures

MM-1 The project developer shall post a sign in a readily visible location at the project site. All notices and signs shall indicate the dates and duration of construction activities, as well as provide a telephone number where residents can enquire about the construction process and register complaints to a designated construction noise disturbance coordinator.

MM-2 The project developer shall ensure that all contractors implement construction best management practices to reduce construction noise levels. Best management practices would include the following:

- All construction equipment shall be equipped with muffles and other suitable noise attenuation devices (e.g., engine shields).
- Grading and construction contractors shall use quieter equipment as opposed to noisier equipment (such as rubber-tired equipment rather than track equipment), to the maximum extent feasible.
- If feasible, electric hook-ups shall be provided to avoid the use of generators. If electric service is determined to be infeasible for the site, only whisper-quiet generators shall be used (i.e., inverter generators capable of providing variable load.
- Use electric air compressors and similar power tools rather than diesel equipment, where feasible.
- Locate staging area, generators and stationary construction equipment as far from the adjacent residential homes as feasible.
- Construction-related equipment, including heavy-duty equipment, motor vehicles, and portable equipment, shall be turned off when not in use for more than 5 minutes.

MM-3 The project developer shall build the proposed CMU block perimeter walls during the early phases of construction to help shield adjacent homes from construction noise.

7.3 Construction Vibration

To determine the vibratory impacts during construction, reference construction equipment vibration levels were utilized and then extrapolated to the façade of the nearest adjacent structures. The nearest sensitive receptors are the residential structures located adjacent to the northern property line. All structures surrounding the project site are "new residential structures". No historical or fragile buildings are known to be located within the vicinity of the site.

The construction of the proposed project would not require the use of substantial vibration inducing equipment or activities, such as pile drivers or blasting. The main sources of vibration impacts during construction of the project would be the operation of equipment such as bulldozer activity during demolition, loading trucks during grading and excavation, and vibratory rollers during paving. The construction vibration assessment utilizes the referenced vibration levels and methodology set-forth within the Caltrans Transportation and Construction Induced Vibration Guidance Manual. Table 16 shows the referenced vibration levels.

Table 16
Typical Construction Vibration Levels[1]

Equipment	Peak Particle Velocity (PPV) (inches/second) at 25 feet	Approximate Vibration Level (LV) at 25 feet
Piledriver (impact)	1.518 (upper range)	112
	0.644 (typical)	104
Piledriver (sonic)	0.734 upper range	105
	0.170 typical	93
Clam shovel drop (slurry wall)	0.202	94
Hydro mill	0.008 in soil	66
(slurry wall)	0.017 in rock	75
Vibratory Roller	0.210	94
Hoe Ram	0.089	87
Large bulldozer	0.089	87
Caisson drill	0.089	87
Loaded trucks	0.076	86
Jackhammer	0.035	79
Small bulldozer	0.003	58

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

Table 17 shows the project's construction-related vibration analysis at the nearest structures to the project construction area. Construction impacts are assessed from the closest area on the project site to the nearest adjacent structure.

Table 17
Construction Vibration Impact Analysis

Construction Activity	Distance to Nearest Structure (ft)	Duration	Calculated Vibration Level - PPV (in/sec)	Damage Potential Level	Annoyance Criteria Level
Large Bulldozer	25	Continuous/Frequent	0.210	Historic and old buildings	Strongly perceptible
Vibratory Roller	25	Continuous/Frequent	0.089	Extremely fragile historic buildings, ruins, ancient monuments	Distinctly perceptible
Loaded Trucks	25	Continuous/Frequent	0.076	Extremely fragile historic buildings, ruins, ancient monuments	Distinctly perceptible

As shown in Table 17, project related construction activity is not expected to cause any potential damage to the nearest structures. The annoyance potential of vibration from construction activities would range from "distinctly perceptible" to "strongly perceptible".

Construction vibration calculation worksheets are shown in Appendix D.

7.4 Construction Project Design Features

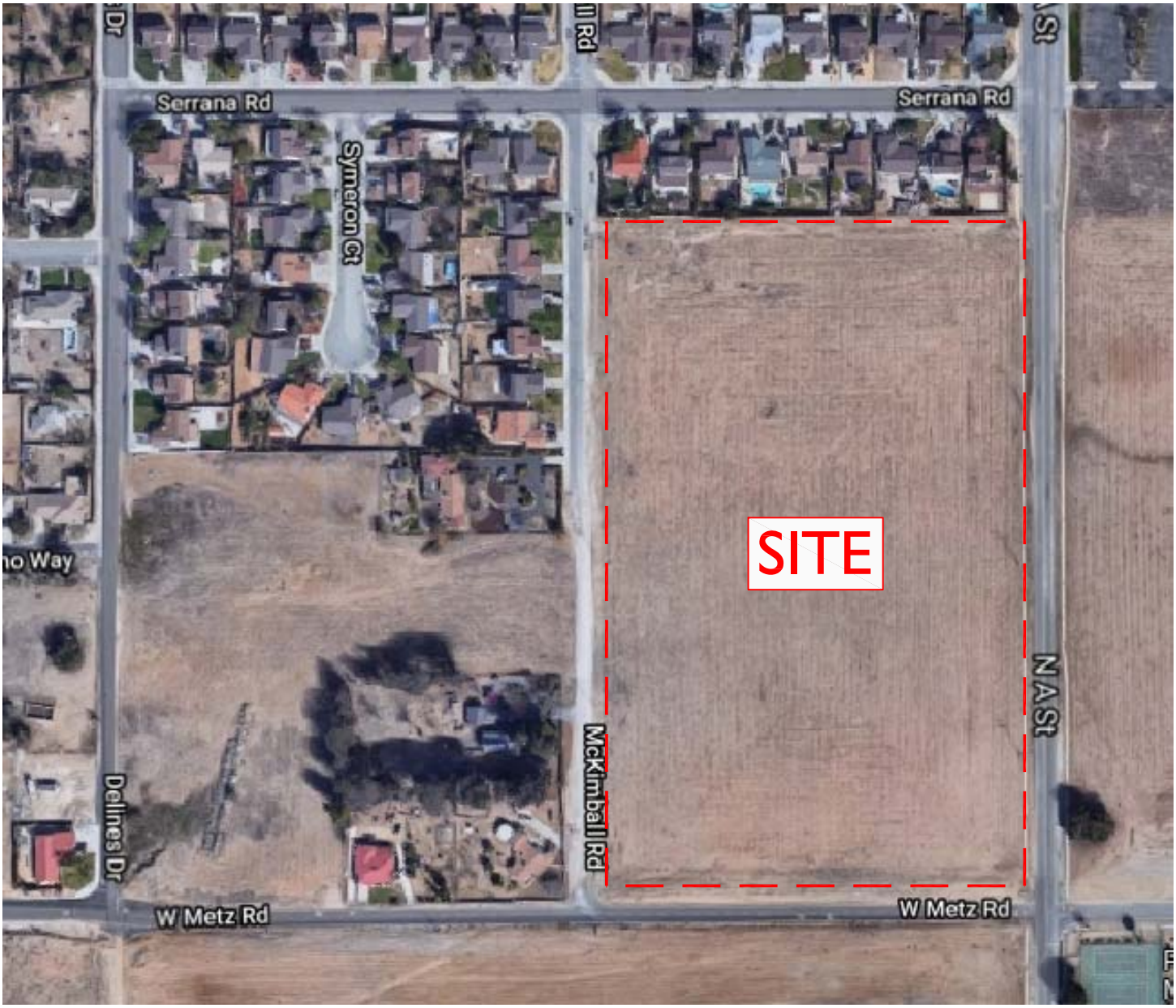
The following project design features will be implemented during construction to help ensure compliance with the required noise standards in the County.

DF-5 Construction-related noise activities shall comply with the requirements set forth in the City of Perris Municipal Code Chapter 7.34:

1. It is unlawful for any person between the hours of 7:00 p.m. of any day and 7:00 a.m. of the following day, or on a legal holiday, with the exception of Columbus Day and Washington's birthday, or on Sundays to erect, construct, demolish, excavate, alter or repair any building or structure in such a manner as to create disturbing, excessive or offensive noise. Construction activity shall not exceed 80 dBA in residential zones in the city.

Exhibits

Exhibit A
Location Map



N

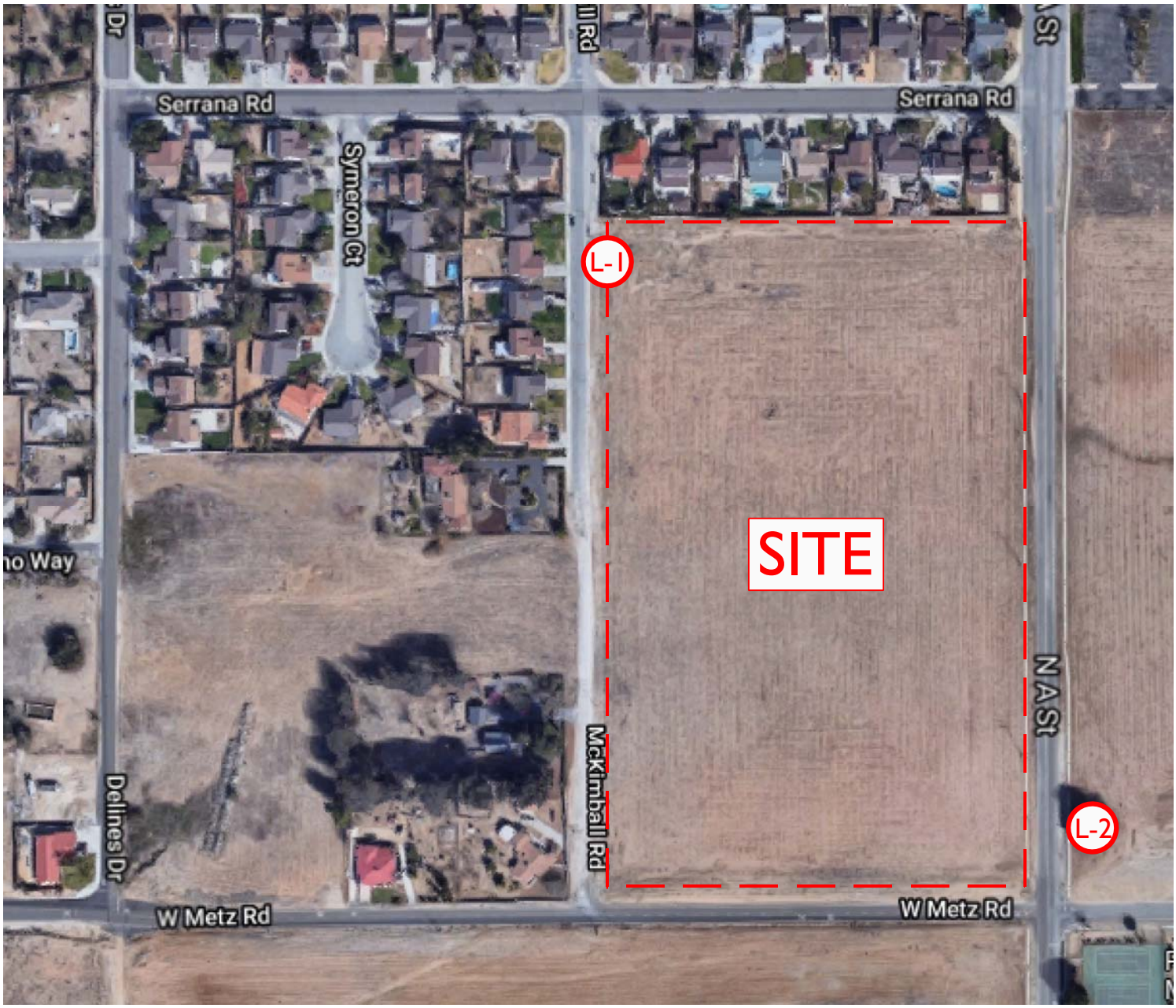
Exhibit B

Site Plan

N

Exhibit C

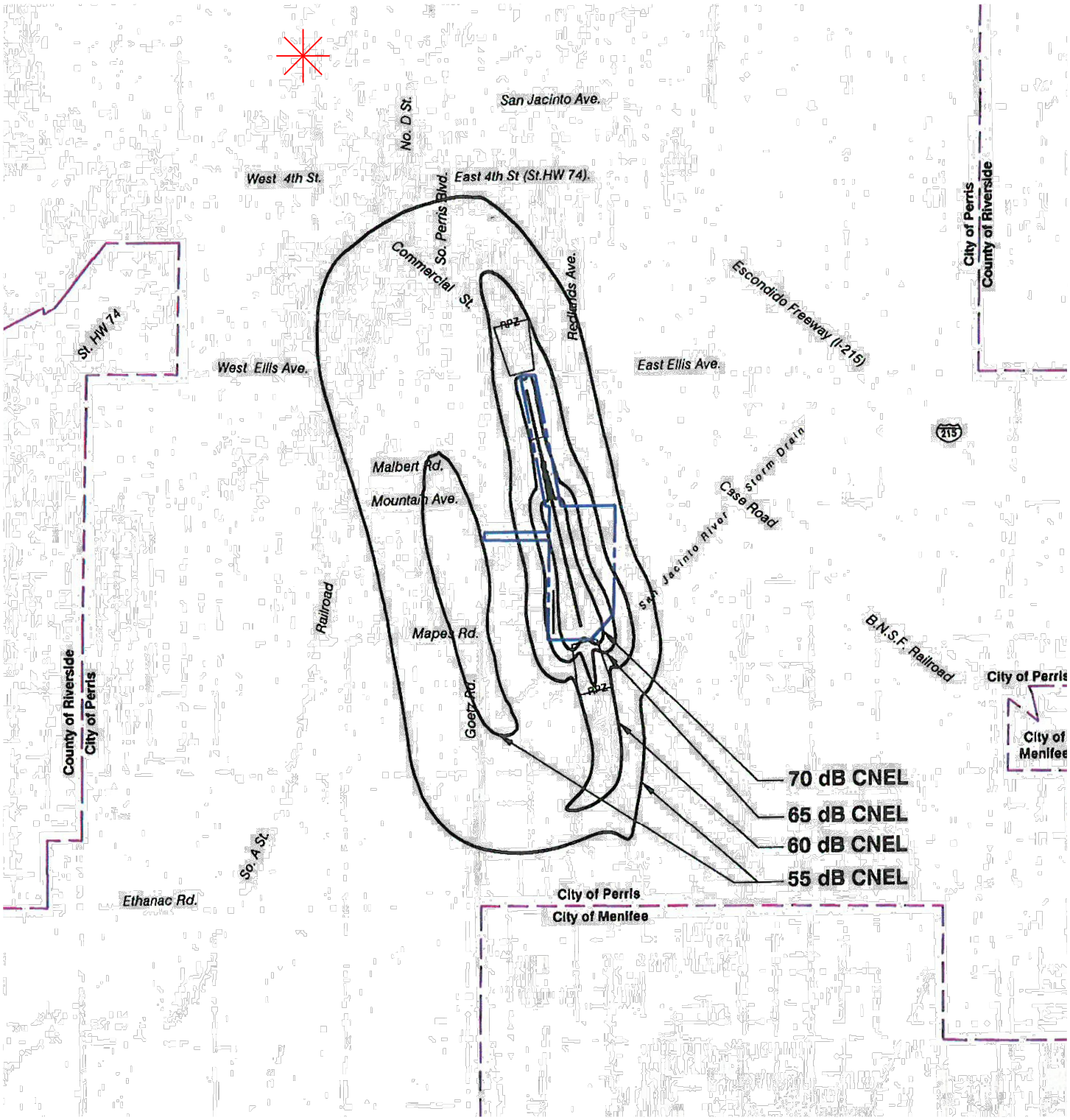
Noise Monitoring Location



N

Exhibit D

Perris Valley Airport Noise Contour Map



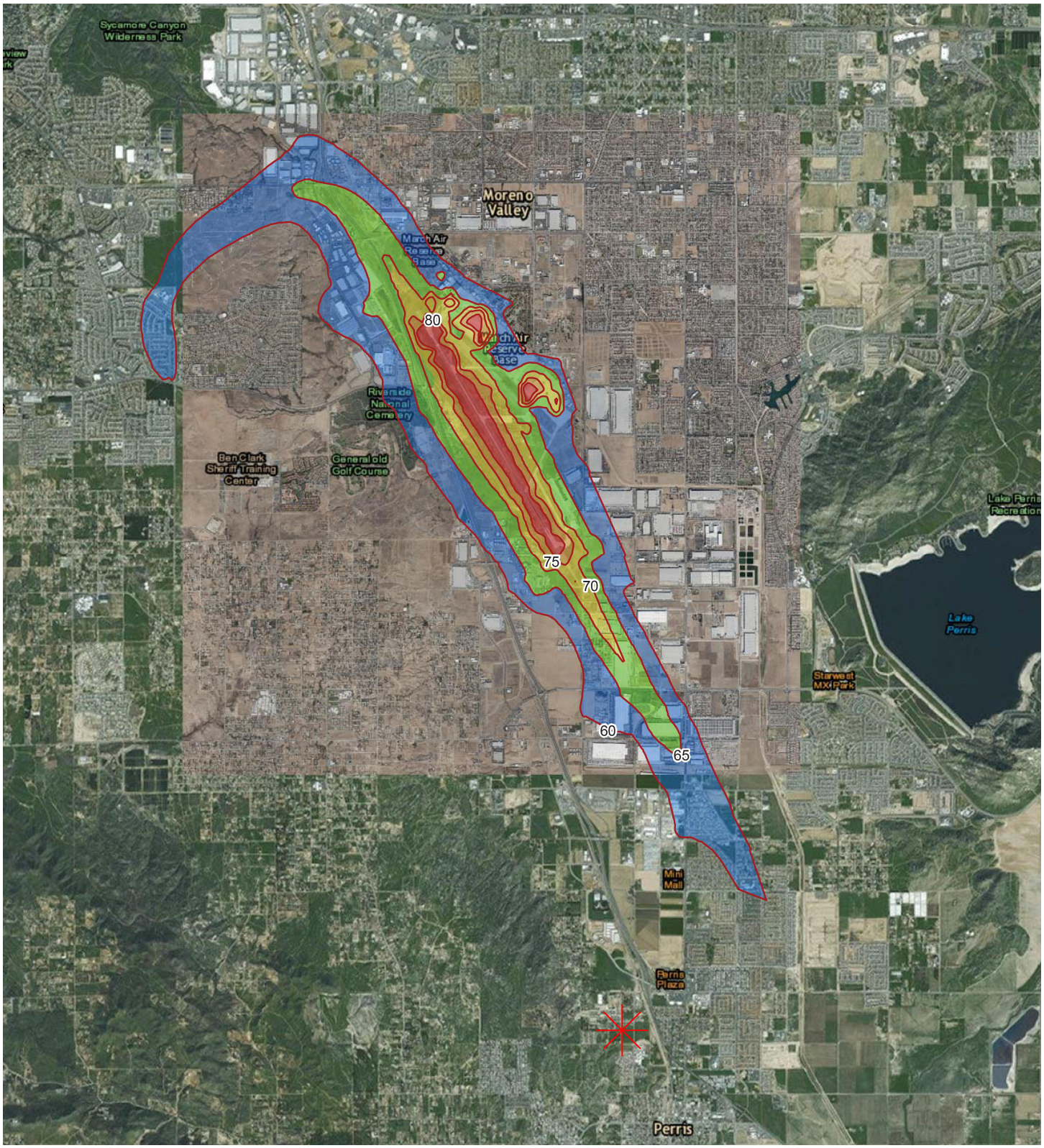
Legend:

✳ = Project Site

N

Exhibit E

March Air Reserve Base / Inland Port Airport Contour Map



Legend:

✳ = Project Site

N

Appendices

Appendix A

City of Perris
General Plan Noise Element and
Municipal Code Noise Control

Noise Element

(City Council Adoption – August 30, 2005)
(2014 March Air Reserve Base/Inland Port Airport Land Use Compatibility Plan Amendment - City Council Adoption– August 30, 2016)

Table of Contents

List of Tables

List of Exhibits

List of Appendices

This Page Left Intentionally Blank

Introduction

Defining land use patterns in accordance with anticipated noise levels is essential to creating and maintaining a high quality of life. The Noise Element provides a description of the noise environment of the City of Perris as it is now and for the future. The noise environment is characterized from the results of noise surveys conducted at many locations within the City using meters to measure sound intensity.

The Noise Element identifies both stationary and mobile noise sources in the City which include: vehicle traffic; air traffic; the railroad; Perris Auto Speedway; March Inland Port; and the Perris Valley Airport and Skydiving Center. These are the most significant noise generators within the City of Perris and should be considered in decisions relative to placement of noise sensitive land uses.\

The Noise Element is generally divided into three sections:

I. ***Existing Noise Conditions*** provides a description and explanation of the methods used to gather data and the effects different noise levels have on people. Noise standards for particular land uses are included. This section provides noise level data for the City measured at multiple locations

II. ***Future Noise Conditions*** discusses the mobile and stationary noise sources as defined above. The existing and projected impacts of these noise sources on sensitive land uses and sensitive receptors are set forth.

The ***Strategy for Action*** sets forth the steps to be taken by the City of Perris to assure that land use decisions include consideration of noise impacts and are consistent with the objectives of the Noise Element.

Noise Fundamentals

Definition of Sound

Sound is a pressure wave transmitted through the air. It is described in terms of loudness or amplitude (measured in decibels), frequency or pitch (measured in Hertz [Hz] or cycles per second), and duration (measured in seconds or minutes).

Characteristics of Sound

Sound is greatly impacted by the physical surroundings; for example, an object such as a wall that blocks the line-of-sight to a noise source attenuates the noise. If a receptor is located behind the wall, but has a view of the source, the wall will do little to attenuate the noise. Additionally, a receptor located on the same side of the wall as the noise source may experience an increase in the perceived noise level as the wall can reflect noise back to the receptor, compounding the noise.

Measurement of Sound

The standard unit of measurement of the loudness of sound is the decibel (dBA). The decibel system of measuring sound gives a rough correlation of the intensity of sound and its perceived loudness to the human ear. Ambient sounds generally range from 30 dBA (very quiet) to 100 dBA (very loud).

Unlike linear units such as inches or pounds, decibels are measured on a logarithmic scale, representing points on a sharply rising curve. On a logarithmic scale, a 10 decibel increase is 10 times more intense than a 1 decibel increase, while a 20 decibel increase is 100 times more intense, and a 30 decibel increase is 1,000 times more intense. For example, a sound as quiet as human breathing measures 10 times greater than no sound.

Sound dissipates exponentially with distance from the noise source. This phenomenon is known as "spreading loss." For a stationary source, sound levels decrease by approximately 6 decibels for each doubling of distance from the source. Noise produced by a line source, such as highway traffic or a moving train, decreases by 3 decibels for each doubling of distance from the source in a reflective (hard site) environment. Line source noise in a relatively flat environment with absorptive vegetation (soft site) decreases by 4.5 decibels for each doubling of distance.

The Noise Equivalent Level (Leq) is a measurement used to describe a sound level that is exceeded for a percentage of an observation period. For example, the L50 noise level represents the noise level that is exceeded 50 percent of the time; half the time the noise level exceeds this level and half the time the noise level is less than this level. This level is also representative of the level that is exceeded 30 minutes in an hour. Similarly, the L02, L08, and L25 values represent the noise levels that are exceeded 2, 8, and 25 percent of the time or 1, 5, and 15 minutes per hour. These "L" values are used to demonstrate compliance of stationary noise sources with local noise regulations.

The human ear is not equally sensitive to all frequencies. Sound waves below 16 Hz are not heard at all and are felt as a vibration. Similarly, while people with extremely sensitive hearing can hear sounds as high as 20,000 Hz, most people cannot hear above 15,000 Hz. In all cases, hearing acuity falls off rapidly above about 10,000 Hz and below about 200 Hz. Since the human ear is not equally sensitive to sound at all frequencies, a special frequency-dependent rating scale is used

to relate noise to human sensitivity. The A weighted decibel scale (dBA) compensates by discriminating against frequencies in a manner approximating the sensitivity of the human ear. Most people can detect changes in sound levels of approximately 3 dBA under normal, quiet conditions. Changes of 1 to 3 dBA are detectable under quiet, controlled conditions and changes of less than 1 dBA are usually indiscernible. A change of 5 dBA is readily discernable to most people in an exterior environment whereas a 10-dBA change is perceived as a doubling (or halving) of the sound.

People are more sensitive to unwanted noise intrusion during the evening and at night. Two different descriptors are commonly used reflect this circumstance, the Community Noise Equivalent Level (CNEL) and the Day-Night Noise Level (Ldn). The CNEL descriptor requires that an artificial increment of 5 dBA be added to the actual noise level for the hours from 7:00 PM to 10:00 PM and 10 dBA for the hours from 10:00 PM to 7:00 AM. The Ldn descriptor uses the same methodology except that there is no artificial increment added to the hours between 7:00 PM and 10:00 PM. Both descriptors give roughly the same 24-hour noise level with the CNEL being only slightly more restrictive e.g. higher. A 12-hour Leq is often applied to the noise environments of sensitive land uses that are not occupied on a continual basis. This descriptor is actually more appropriate to those uses, e.g. schools and churches that are not typically occupied at night when noise levels are weighted to compensate for relaxation and sleep.

Psychological and Physiological Effects of Noise

"Noise" is defined as unwanted sound, and is known to have several adverse effects on people, including hearing loss, speech and sleep interference, impaired physiological responses, and annoyance. Based on these known adverse effects of noise, the federal government, the State of California, and many local governments have established criteria to protect public health and safety and to prevent disruption of certain human activities.

In general, noise can affect the average person in the following ways:

- Sound levels that exceed 40 to 45 dBA are generally considered to be excessive for sleeping areas within a residence.
- Speech intelligibility is impaired when sound levels exceed 60 dBA. The amount of interference increases when distance between speaker and listener increases.
- Sound levels exceeding 85 dBA experienced for long durations of time on a daily basis may result in severe temporary or permanent hearing loss. State and federal safety and health regulations currently protect workers from levels of exposure that exceed 90 dBA over the duration of an 8-hour workday.
- Human response to frequent noise levels loud enough to startle or alarm has been linked to such chronic stress symptoms such as, high blood pressure, exhaustion, and ulcers.

Exposure to high noise levels affects our entire system; prolonged noise exposure in excess of 75 dBA can increase body tensions, and thereby affect blood pressure, functions of the heart, and the nervous system. Physical damage to human hearing begins at prolonged exposure to noise levels higher than 85 dBA. Extended periods of noise exposure above 90 dBA can 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 referred to as the threshold of feeling. As the sound reaches 140 dBA, the tickling sensation is replaced by the feeling of pain; this is known as the threshold of pain. A sound level of 190 dBA will rupture the eardrum and permanently damage the inner ear.

Regulatory Standards

To limit population exposure to physically and/or psychologically damaging, as well as intrusive noise levels, the federal government, the State of California, various County governments, and most municipalities in the State have established standards and ordinances to control noise. Pertinent regulatory standards are summarized below.

Federal Regulations

Occupational Health and Safety Administration
The federal government regulates occupational noise exposure common in the workplace through the Occupational Health and Safety Administration (OSHA) under the United States Environmental Protection Agency (EPA). Such limitations apply to the operation of construction equipment and may apply to industrial land uses. Noise exposure of this type is dependent on work conditions and is addressed through a facility's Health and Safety Plan, as required under OSHA, and will not be addressed further in this analysis.

U.S. Department of Housing and Urban Development
The U.S. Department of Housing and Urban Development (HUD) has set a goal of 65 dBA Ldn as a desirable maximum exterior standard for residential units developed under HUD funding. (This level is also generally accepted within the State of California.) While HUD does not specify acceptable interior noise levels, standard construction of residential dwellings constructed under State of California Code of Regulations Title 24 standards typically provide a minimum of 20 dBA sound attenuation with the windows closed. Based on this premise, the interior Ldn should not exceed 45 dBA.

Environmental Protection Agency
The federal government regulates railroad operations in the United States. Train noise is preempted from direct local control by the federal Noise Control Act (Public Law 90-411, as amended). The EPA is charged with regulating railroad noise under the Noise Control Act. These regulations appear in the Code of Federal Regulations, Title 40, Chapter 1, Part 201. While these regulations remain in force, the EPA Office of Noise Abatement and Control was closed in 1982, leaving enforcement of the EPA regulations to the Federal Railroad Administration (FRA). Representatives of the EPA, however, have indicated that states and localities may, at their option, enforce the federal regulation. Table 1 summarizes the EPA operating noise standards for older and newer railroad equipment. (Note that these values are in terms of the Lmax, which is the loudest noise level emitted by the source. The Lmax can be considerably greater than the Leq)

The Federal Rail Administration adopted the EPA railroad noise standards as its noise regulations (CFR 49, Chapter 11, part 210) for the purpose of enforcement. The standards provide specific noise limits for stationary and moving locomotives, moving railroad cars, and associated railroad operations in terms of A-weighted sound level at a specified measurement location. These regulations are pre-emptive, and states and local

governments cannot set more stringent limits for railroad equipment than required by these federal regulations.

The FRA recently issued an Interim Final Rule that requires the sounding of a locomotive horn while a train is approaching and entering a public highway-rail crossing, to warn approaching motorists. This rule includes an exception for circumstances in which there is not a significant risk of life or serious personal injury, use of the locomotive horn is impractical, or safety measures fully compensate for the absence of the warning provided by the horn.

Under the new rule, communities can ban train whistles if there is a low risk of collision or if they implement safety measures, such as installing crossing gates that block traffic in both directions, or install cameras that photograph people pulling around gates so that they may be issued traffic violations. The rule also allows the use of an automated horn system installed at the crossing as a substitute for the train horn. The rule also requires that the horns be sounded 15 to 20 seconds before arrival at the crossing, rather than from a quarter-mile away, and establishes a maximum 110 decibels, down from the commonly found 114 decibels.

Table N-1: Summary of EPA/FRA Railroad Noise Standards

Noise Sources	Operating Conditions	Measured Distance (Feet)	Standard (dBA)
Non-Switcher Locomotives built on or before 12/31/79	Stationary	100	73
	Idle Stationary	100	93
	Non-Idle Moving	100	95
Switcher Locomotives plus Non-Switcher Locomotives built after 12/31/79	Stationary	100	70
	Idle Stationary	100	87
	Non-Idle Moving	100	90
Rail Cars	Speed < 45 mph	100	88
	Speed > 45 mph	100	93
	Coupling	50	92

Non-Switcher Locomotives – A "road engine that is used in long-haul railcar movement.
Switcher Locomotives –A smaller engine that is used in shuttling railcars.
Railcar – The car(s) pulled by a train engine.
Idle Stationary – Siting at idle
Stationary – Sitting at idle and measured 100 ft from the center line of the track where the train is idling
Non-Idle Moving – Moving along the rails

State of California Regulations

California Code of Regulations, Part 2, Title 24, Appendix Chapter 35, Section 3501 establishes the State Noise Insulation Standards, which limit the interior noise level exposure within new hotels, motels, dormitories, long-term care facilities, apartment houses and dwellings. This state standard indicates that interior noise levels attributable to exterior noise sources shall not exceed 45 dB (CNEL or Ldn) in any habitable room.

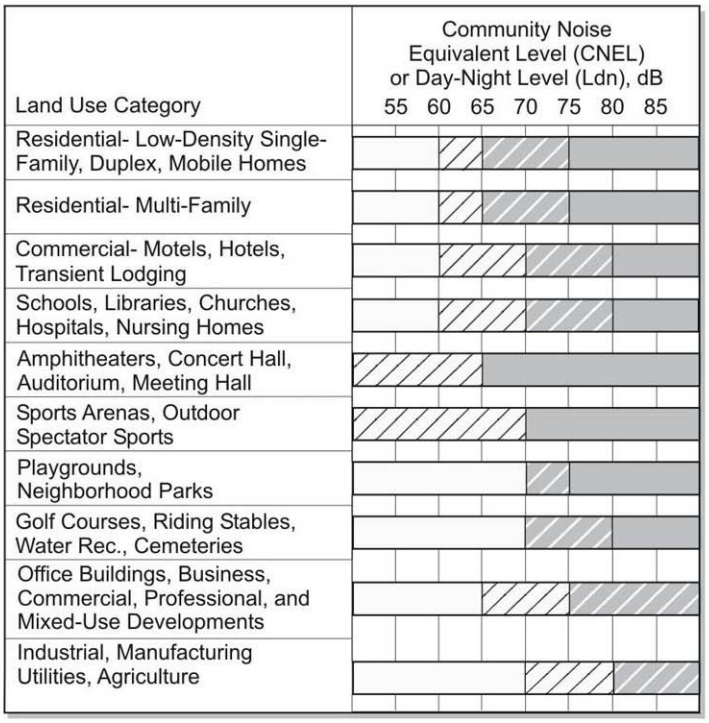
Exhibit N-1 presents a land use compatibility chart for community noise prepared by the State of California, Department of Health. It identifies normally acceptable, conditionally acceptable and clearly unacceptable noise levels for siting various new land uses. A conditionally acceptable designation implies new construction or development should be undertaken only after a detailed analysis of the noise reduction requirements for each land use is made and the needed noise insulation features are incorporated in the design. By comparison, a normally acceptable designation indicates that standard construction can occur with no special noise reduction requirements.

Municipal Code

Chapter 16.22 of the Perris Municipal Code regulates new development including "sensitive receptors" located near arterials, railroads and the airport. "Sensitive receptors" refers to types of land uses that are adversely affected by various noise sources. Such land uses are defined in Section 16.22.020 of the Municipal Code to include: residences, schools, libraries, hospitals, churches, offices, hotels, motels, and outdoor recreational areas. Factors used to define sensitive receptors include the potential for interference with speech communication, the need for freedom from noise intrusion, the potential for sleep interference, and subjective judgment.

"Noise impacted projects" are defined as residential projects, or portions thereof, which are exposed to an exterior noise level of 60 dBA CNEL or greater. Such projects must include noise insulation design and construction assemblies that achieve an exterior-to-interior noise reduction sufficient to keep interior noise levels to a maximum of 45 dBA CNEL. This standard applies to any habitable room furnished for normal use with doors and windows closed. Specific construction techniques and materials that will achieve various levels of noise reduction are defined. Specifications for preparation of an acceptable acoustical report are also defined.

Exhibit N-1: Land Use/Noise Compatibility Guidelines



Nature of the noise environment where the CNEL or Ldn level is:

Below 55 dB
Relatively quiet suburban or urban areas, no arterial streets within 1 block, no freeways within 1/4 mile.

55-65 dB
Most somewhat noisy urban areas, near but not directly adjacent to high volumes of traffic.

65-75 dB
Very noisy urban areas near arterials, freeways or airports.

75+ dB
Extremely noisy urban areas adjacent to freeways or under airport traffic patterns. Hearing damage with constant exposure outdoors.

Normally Acceptable
Specific land use is satisfactory, based on the assumption that any building is 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 noise reduction requirements is made and needed noise insulation features included in design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning, will normally suffice.

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

Clearly Unacceptable
New construction or development should generally not be undertaken.

The Community Noise Equivalent Level (CNEL) and Day-Night Noise Level (Ldn) are measures of the 24-hour noise environment. They represent the constant A-weighted noise level that would be measured if all the sound energy received over the day were averaged. In order to account for the greater sensitivity of people to noise at night, the CNEL weighting includes a 5-decibel penalty on noise between 7:00 p.m. and 10:00 p.m. and a 10-decibel penalty on noise between 10:00 p.m. and 7:00 a.m. of the next day. The Ldn includes only the 10-decibel weighting for late-night noise events. For practical purposes, the two measures are equivalent for typical urban noise environments.

Source: State of California, Department of Health, City of Monterey Park.

Existing Noise Conditions

Noise Sources

A variety of noise sources presently occur in the planning area. Mobile noise sources produce a major effect on the ambient noise environment. These sources include automobile traffic, aircraft overflights, and train movements. The primary noise source is automotive traffic along the streets and highway network. Traffic noise is generated by the friction of tires on pavement, together with the sounds of engines and exhausts. Generally, higher traffic volumes and speeds equal higher noise levels along the roadway. Accordingly, the highest traffic noise levels are typically found along freeway and highway corridors.

The mix of vehicles also directly affects noise levels e.g. noise along a truck route would typically be higher than noise levels along a comparable route that did not allow trucks. Street grades can also make a difference, since vehicles, and trucks in particular, make more noise when climbing grades, compared to travel along a relatively flat road surface, as the engines work harder (and louder) to propel the vehicle uphill.

A number of stationary sources also generate noise on a regular basis. Much of this noise occurs at industrial sites that are generally located away from sensitive land uses. Other notable stationary sources include auto racing events at the Perris Auto Speedway located adjacent to the City at the Lake Perris State Recreational Area, and motorcycle racing events at the Starwest Motocross Park, just south of the Speedway.

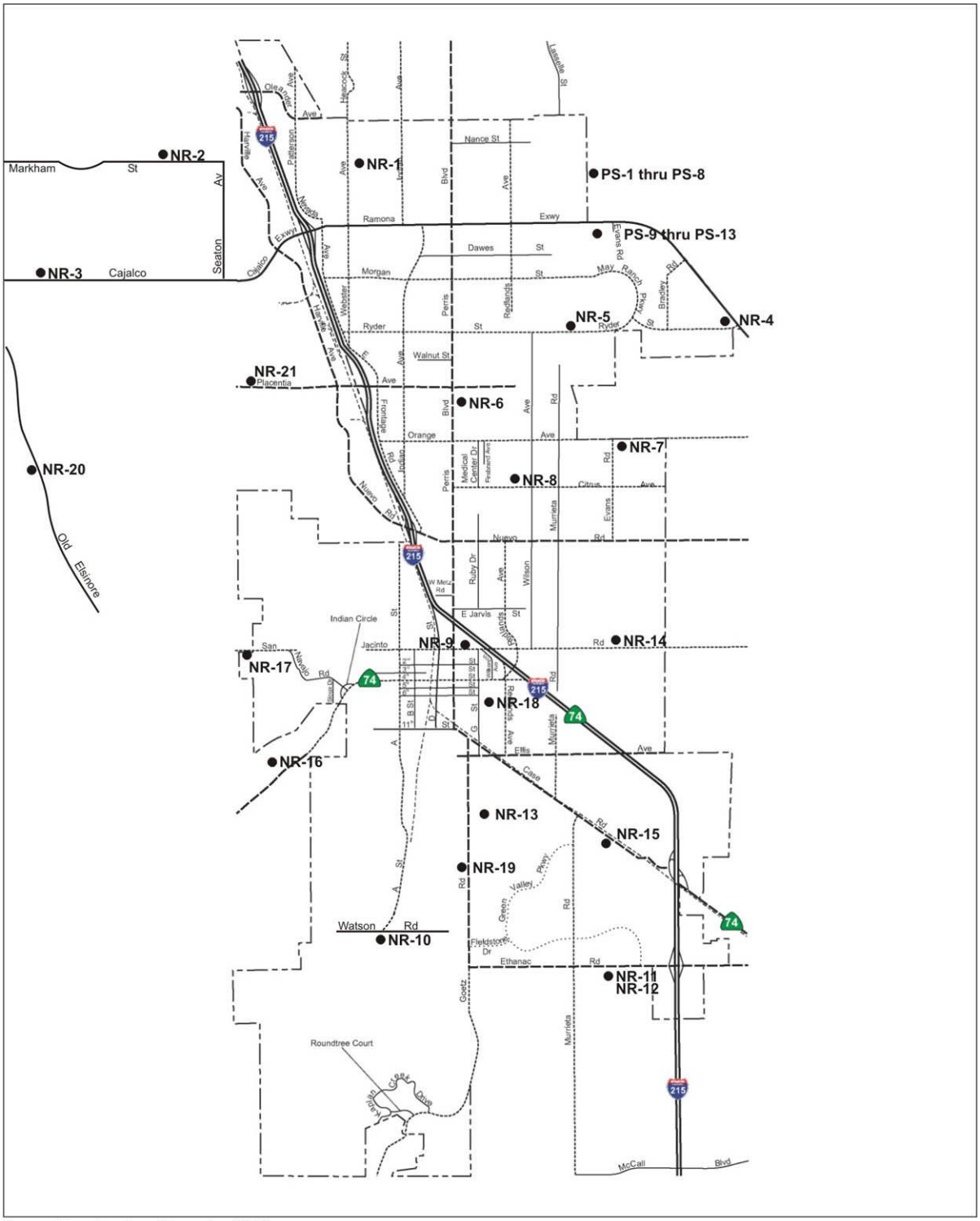
Noise Surveys

Noise Survey measurements were taken throughout the City. These surveys were then used to assess existing noise impacts on sensitive land uses and receptors. A separate survey was conducted around the Perris Auto Speedway due to its close proximity to the May Ranch residential development.

Citywide Ambient Noise Survey

Field monitoring was conducted on Monday, Tuesday, and Wednesday, December 8, 9, and 10, 2003. Noise levels were recorded at 21 separate locations, as shown on Exhibit N-2. The locations were selected to include existing or planned sensitive land uses, and to capture the various vehicle mixes on City streets for subsequent use in the Caltrans Sound32 Noise Prediction Model. Monitoring results are listed in Table N-2. A description of the acoustical environment at each location/time period is located in Appendix A.

Exhibit N-2: Noise Monitoring Locations



Source: Synectecology, December 2003.

Table N-2: Citywide Noise Level Measurements

Monitoring Location	Leq (dBA)	L02 (dBA)	L08 (dBA)	L25 (dBA)	L50 (dBA)	Lmin (dBA)	Lmax (dBA)
Monday, December 8, 2003							
NR-1	53.5	63.3	56.2	49.9	47.5	41.4	72.7
NR-2	62.0	70.7	66.4	61.1	54.6	46.5	78.4
NR-3	70.3	77.5	74.5	71.2	67.8	49.4	84.4
NR-4	71.9	79.1	76.5	73.7	69.0	47.6	83.0
NR-5	62.0	68.4	65.5	62.6	59.3	48.4	79.5
NR-6	68.4	74.1	72.1	69.9	67.2	52.9	82.8
NR-7	60.9	67.2	65.2	62.6	58.4	40.1	72.5
NR-8	60.3	68.1	63.4	59.7	56.0	46.2	80.6
Tuesday, December 9, 2003							
NR-9	59.5	68.0	63.0	57.5	53.5	48.1	76.3
NR-10	51.1	61.9	56.4	46.1	43.4	39.8	63.8
NR-11	62.3	71.5	67.3	61.6	51.4	33.2	77.4
NR-12	69.5	77.2	76.2	70.2	63.4	45.4	77.7
NR-13	69.1	72.1	70.9	69.8	68.7	64.1	75.2
NR-14	64.3	74.0	70.1	62.1	48.9	31.6	80.1
NR-15	61.7	70.0	66.8	61.9	51.6	36.1	76.5
NR-16	62.3	70.8	67.8	62.3	54.1	40.9	77.9
NR-17	63.5	70.1	67.8	65.1	60.4	45.9	75.0
Wednesday, December 10, 2003							
NR-18	55.0	64.1	60.6	52.6	48.9	44.8	67.6
NR-19	62.5	71.9	67.8	62.2	53.1	35.5	76.3
NR-20	64.1	72.3	70.1	64.4	55.3	39.4	76.9
NR-21	58.8	69.3	59.2	49.3	43.4	40.1	77.4

The Leq represents the equivalent sound level and is the numeric value of a constant level that over the given period of time transmits the same amount of acoustic energy as the actual time-varying sound level. The L02, L08, L25, and L50 are the levels that are exceeded 2, 8, 25, and 50 percent of the time, respectively. Alternatively, these values represent the noise level that would be exceeded for 1, 5, 15, and 30 minutes during a 1-hour period. The Lmin and Lmax represent the minimum and maximum root-mean-square noise levels obtained over a period of 1 second.

Perris Auto Speedway Noise Modeling

Perris Auto Speedway is a privately operated auto and truck racing venue located inside the Lake Perris State Recreation Area. It is the only ½ mile clay track in the western United States and it operates from February through November, with racing competition on Saturday nights and open practice on Wednesdays. A variety of racing events are held, including stock cars, super stocks, dwarf cars, sprint cars, light trucks, cruisers, hornets, and midgets. Races last from about 2 and ½ minutes (8 laps) to over 8 and ½ minutes (30 laps), between 6:30 and 10:00 PM.

The survey at the Perris Auto Speedway includes 13 separate readings obtained on the evening of November 22, 2003. Monitoring locations are shown in Exhibit N-2 (noted as PS-1 thru PS-13) and meter readings are listed in Table N-3 Locations were selected to capture the noise generated by racing activities at the speedway boundary and in the nearest part of the May Ranch residential community to the south. Because of the proximity of Lake Perris Drive, it was difficult to obtain racing noise levels measurements without also including road traffic noise. The fact that racing was conducted in "heats" that only last approximately 2 to 8 minutes increased the difficulty in obtaining representative measurements.

The first eight readings were obtained directly in front of the Speedway entrance at the Lake Perris Drive right-of-way. This placed the meter approximately 575 feet from the actual track. The other five readings were obtained in front of the residential units in the closest proximity to the speedway, located to the south at a distance of about 1,900 feet from the track. Characteristics of the noise environment at each monitoring site are described in Appendix B.

Table N-3: Perris Auto Speedway Noise Level Measurements

Monitoring Location	Leq (dBA)	L02 (dBA)	L08 (dBA)	L25 (dBA)	L50 (dBA)	Lmin (dBA)	Lmax (dBA)
Outside main entrance, approximately 575 feet from speedway track							
PS-1	77.5	80.5	80.1	78.6	77.8	70.9	80.9
PS-2	73.6	76.4	75.8	74.6	73.7	63.4	77.0
PS-3	82.2	84.9	84.3	83.5	82.0	77.7	85.1
PS-4	79.8	83.9	82.4	81.1	79.6	65.5	87.5
PS-5	77.3	83.2	81.2	79.2	74.5	65.6	83.6
PS-6	83.0	88.1	86.1	84.5	82.5	74.2	90.4
PS-7	82.8	87.9	86.0	84.0	82.7	74.2	88.3
PS-8	82.8	87.8	86.1	84.4	81.8	73.6	88.3
In nearest residential area, approximately 1,900 feet from speedway track							
PS-9	67.0	75.0	69.6	68.3	65.3	56.5	76.4
PS-10	64.5	72.9	68.9	66.5	60.3	51.6	73.6
PS-11	62.4	72.2	66.4	61.0	57.1	50.5	72.4
PS-12	70.3	78.0	72.9	70.9	68.7	60.9	79.4
PS-13	47.4	52.3	49.5	47.7	46.6	43.9	55.7

The Leq represents the equivalent sound level and is the numeric value of a constant level that over the given period of time transmits the same amount of acoustic energy as the actual time-varying sound level. The L02, L08, L25, and L50 are the levels that are exceeded 2, 8, 25, and 50 percent of the time, respectively. Alternatively, these values represent the noise level that would be exceeded for 1, 5, 15, and 30 minutes during a 1-hour period. The Lmin and Lmax represent the minimum and maximum root-mean-square noise levels obtained over a period of 1 second.

Traffic Noise Modeling

Listed in Table N-4 located below are the results of modeling the existing noise levels generated along City routes using the "hard site" analysis, which assumes the area between the roadway and the noted CNEL location is comprised of reflective surfaces. Table N-5 presents the modeling results for the same routes, assuming the "soft site" (sound absorptive) conditions. Detailed spreadsheets that include roadway type (e.g., truck routes) and modeled speeds are included in Appendix sections D-G.

Table N-4: Existing Traffic Noise Levels (Hard Site Modeling)

Table N-4: Existing Traffic Noise Levels (Hard Site Modeling)						
Street Name	**Segment**	**Existing ADT Volumes**	**Existing CNEL (dBA @ 50 Feet from centerline)**	**Distance to 70 CNEL**	**Distance to 65 CNEL**	**Distance to 60 CNEL**
11th Street	A Street - B Street	4,631	62.4	9	27	86
11th Street	D Street - Perris Boulevard	6,041	63.5	11	35	112
2nd Street	B Street - C Street	1,800	56.9	2	8	24
2nd Street	D Street - Perris Boulevard	900	53.8	1	4	12
5th Street	B Street - C Street	1,100	54.7	1	5	15
5th Street	D Street - Perris Boulevard	2,200	57.7	3	9	30
6th Street	B Street - C Street	800	53.3	1	3	11
6th Street	D Street - Perris Boulevard	600	52.1	1	3	8
A Street	5th Street - 6th Street	5,625	61.8	8	24	76
A Street	South of Nuevo Road	5,348	65.1	16	51	161
C Street	2nd Street - San Jacinto Road	5,000	61.3	7	21	67
C Street	3rd Street - 2nd Street	8,700	63.7	12	37	117
C Street	5th Street - 4th Street	100	44.3	0	0	1
Cajalco Expressway	Harville Avenue - I-215	14,500	73.0	100	316	1,001
Case Road	G Street - Ellis Avenue	1,975	61.9	8	24	77
Case Road	West of I-215	2,958	65.7	19	59	186
D Street	11th Street - 6th Street	5,400	63.8	12	38	121
D Street	2nd Street - San Jacinto Road	12,500	67.5	28	88	279
D Street	3rd Street - 2nd Street	2,800	61.0	6	20	63
D Street	5th Street - 4th Street	7,389	65.2	17	52	165
D Street	5th Street - 6th Street	7,389	65.2	17	52	165
D Street	San Jacinto Road - I-215	14,710	68.2	33	104	329
Ethanac Road	Goetz Road - Murrieta Road	2,200	64.0	13	40	126
Ethanac Road	I-215 - SR-74	4,400	67.0	25	80	253
Ethanac Road	Murrieta Road - I-215	4,133	66.8	24	75	237
Goetz Road	Kaplan Creek Drive - Ethanac Road	1,900	65.0	16	50	158
Goetz Road	North of Fieldstone Drive	2,127	65.5	18	56	176
Goetz Road	Roundtree Court - Kaplan Creek Drive	3,001	65.4	17	54	172

Table N-4: Existing Traffic Noise Levels (Hard Site Modeling)						
Street Name	**Segment**	**Existing ADT Volumes**	**Existing CNEL (dBA @ 50 Feet from centerline)**	**Distance to 70 CNEL**	**Distance to 65 CNEL**	**Distance to 60 CNEL**
I-215	Case Road - Redlands Avenue	63,000	82.1	810	2,560	8,097
I-215	Ethanac Road - Case Road	51,000	80.5	558	1,764	5,579
I-215	North of Oleander Avenue	84,000	83.6	1,157	3,658	11,568
I-215	Nuevo Road - Placentia Avenue	70,000	82.9	964	3,048	9,640
I-215	Perris Boulevard - Nuevo Road	67,000	82.7	923	2,918	9,227
I-215	Ramona Expressway - Oleander Avenue	81,000	83.5	1,115	3,527	11,155
I-215	Redlands Avenue - Perris Boulevard	57,000	82.0	785	2,482	7,850
Indian Avenue	Dawes Street - Ramona Expressway	1,800	61.5	7	22	70
Lasselle Street	At City Boundary, North of Murrietta Road	8,393	65.7	19	59	187
May Ranch Parkway	Morgan Street - Ryder Street	1,500	58.3	3	11	34
Murrieta Road	Ethanac Road - Case Road	1,300	60.0	5	16	50
Murrieta Road	McCall Boulevard - Ethanac Road	3,600	64.5	14	44	140
Navajo Road	Sioux Drive - 4th Street	9,811	66.4	22	69	219
Navajo Road	Sioux Drive - Indian Circle	9,811	66.4	22	69	219
Nuevo Road	I-215 - Perris Boulevard	23,486	71.5	71	224	708
Nuevo Road	Wilson Avenue - Murrietta Road	6,950	66.2	21	66	209
Orange Avenue	Firebrand Avenue - Wilson Avenue	6,584	66.0	20	63	198
Orange Avenue	Frontage Road - Indian Avenue	3,956	62.5	9	28	88
Orange Avenue	Perris Boulevard - Wilson Avenue	6,584	66.0	20	63	198
Perris Boulevard	2nd Street - 4th Street	12,544	69.7	46	147	465
Perris Boulevard	4th Street - 5th Street	7,229	67.2	34	107	337
Perris Boulevard	6th Street - 11th Street	6,707	68.0	31	99	313
Perris Boulevard	Citrus Avenue - Nuevo Road	22,754	75.0	157	497	1,570

Table N-4: Existing Traffic Noise Levels (Hard Site Modeling)						
Street Name	**Segment**	**Existing ADT Volumes**	**Existing CNEL (dBA @ 50 Feet from centerline)**	**Distance to 70 CNEL**	**Distance to 65 CNEL**	**Distance to 60 CNEL**
Perris Boulevard	Dawes Street - Morgan Street	16,765	72.8	96	304	962
Perris Boulevard	E Jarvis Street - W Metz Road	18,581	71.4	69	218	689
Perris Boulevard	Morgan Street - Dawes Street	16,765	72.8	96	304	962
Perris Boulevard	North of Nance Street	17,464	74.6	145	458	1,449
Perris Boulevard	Placentia Avenue - Walnut Street	17,974	73.1	103	326	1,032
Placentia Avenue	East of Perris Boulevard	2,700	62.1	8	26	81
Placentia Avenue	Indian Avenue - Perris Boulevard	1,076	58.1	3	10	32
Ramona Expressway	Bradley Road - Ryder Street	10,500	72.4	87	276	871
Ramona Expressway	Evans Road - Bradley Road	11,700	72.9	97	307	971
Ramona Expressway	I-215 - Nevada Avenue	29,400	76.1	203	642	2,029
Ramona Expressway	Indian Avenue - Perris Boulevard	19,600	75.1	163	514	1,626
Ramona Expressway	Nevada Avenue - Webster Avenue	24,000	76.0	199	630	1,992
Ramona Expressway	Perris Boulevard - Redlands Avenue	23,577	75.9	196	619	1,956
Ramona Expressway	Redlands Avenue - Evans Road	13,500	73.5	112	354	1,120
Ramona Expressway	Webster Avenue - Indian Avenue	19,000	75.0	158	499	1,577
Redlands Avenue	San Jacinto Road - I-215	13,418	70.2	52	165	521
Rider Street	Bradley Road - Ramona Expressway	1,700	60.1	5	16	51
Rider Street	Indian Avenue - Perris Boulevard	2,100	61.0	6	20	63
Rider Street	Wilson Avenue - May Ranch Parkway	3,700	63.5	11	35	111
San Jacinto Road	Wilson Avenue - Murrieta Road	3,750	64.6	15	46	146

Table N-4: Existing Traffic Noise Levels (Hard Site Modeling)						
Street Name	**Segment**	**Existing ADT Volumes**	**Existing CNEL (dBA @ 50 Feet from centerline)**	**Distance to 70 CNEL**	**Distance to 65 CNEL**	**Distance to 60 CNEL**
SR-74	B Street - C Street	24,300	72.6	90	285	901
SR-74	C Street - D Street	23,600	72.4	87	277	875
SR-74	D Street - Perris Boulevard	19,100	70.0	50	158	501
SR-74	East of I-215	22,756	72.3	84	267	843
SR-74	Indian Circle - Navajo Road	17,200	74.8	149	473	1,495
SR-74	Wilkerson Avenue - Redlands Avenue	19,800	71.7	73	232	734
Webster Avenue	Ramona Expressway - Oleander Avenue	14,400	68.1	32	102	322

Table N-5: Existing Traffic Noise Levels (Soft Site Modeling)

Table N-5: Existing Traffic Noise Levels (Soft Site Modeling)						
Street Name	**Segment**	**Existing ADT Volumes**	**Existing CNEL (dBA @ 50 Feet from centerline)**	**Distance to 70 CNEL**	**Distance to 65 CNEL**	**Distance to 60 CNEL**
11th Street	A Street - B Street	4,631	61.4	13	29	62
11th Street	D Street - Perris Boulevard	6,041	62.5	16	34	74
2nd Street	B Street - C Street	1,800	55.9	6	12	26
2nd Street	D Street - Perris Boulevard	900	52.8	4	8	17
5th Street	B Street - C Street	1,100	53.7	4	9	19
5th Street	D Street - Perris Boulevard	2,200	56.7	7	14	30
6th Street	B Street - C Street	800	52.3	3	7	15
6th Street	D Street - Perris Boulevard	600	51.1	3	6	13
A Street	5th Street - 6th Street	5,625	60.8	12	26	57
A Street	South of Nuevo Road	5,348	64.0	20	43	92
C Street	2nd Street - San Jacinto Road	5,000	60.3	11	24	52
C Street	3rd Street - 2nd Street	8,700	62.7	16	35	76
C Street	5th Street - 4th Street	100	43.3	1	2	4
Cajalco Expressway	Harville Avenue - I-215	14,500	72.0	68	147	316
Case Road	G Street - Ellis Avenue	1,975	60.9	12	26	57
Case Road	West of I-215	2,958	64.6	22	47	101
D Street	11th Street - 6th Street	5,400	62.8	17	36	77
D Street	2nd Street - San Jacinto Road	12,500	66.5	29	63	135
D Street	3rd Street - 2nd Street	2,800	60.0	11	23	50
D Street	5th Street - 4th Street	7,389	64.2	20	44	95
D Street	5th Street - 6th Street	7,389	64.2	20	44	95
D Street	San Jacinto Road - I-215	14,710	67.2	32	70	150
Ethanac Road	Goetz Road - Murrieta Road	2,200	62.9	17	36	78
Ethanac Road	I-215 - SR-74	4,400	65.9	27	58	124
Ethanac Road	Murrieta Road - I-215	4,133	65.7	26	55	119
Goetz Road	Kaplan Creek Drive - Ethanac Road	1,900	64.0	20	43	92
Goetz Road	North of Fieldstone Drive	2,127	64.5	21	46	99
Goetz Road	Roundtree Court - Kaplan Creek Drive	3,001	64.3	21	45	96

Table N-5: Existing Traffic Noise Levels (Soft Site Modeling)						
Street Name	**Segment**	**Existing ADT Volumes**	**Existing CNEL (dBA @ 50 Feet from centerline)**	**Distance to 70 CNEL**	**Distance to 65 CNEL**	**Distance to 60 CNEL**
I-215	Case Road - Redlands Avenue	63,000	81.1	274	591	1,274
I-215	Ethanac Road - Case Road	51,000	79.4	211	454	979
I-215	North of Oleander Avenue	84,000	82.5	343	739	1,592
I-215	Nuevo Road - Placentia Avenue	70,000	81.8	304	654	1,409
I-215	Perris Boulevard - Nuevo Road	67,000	81.6	295	635	1,369
I-215	Ramona Expressway - Oleander Avenue	81,000	82.4	335	721	1,553
I-215	Redlands Avenue - Perris Boulevard	57,000	80.9	265	570	1,229
Indian Avenue	Dawes Street - Ramona Expressway	1,800	60.5	12	25	54
Lasselle Street	At City Boundary, North of Murrietta Road	8,393	64.7	22	48	103
May Ranch Parkway	Morgan Street - Ryder Street	1,500	57.3	7	15	33
Murrieta Road	Ethanac Road - Case Road	1,300	59.0	9	20	43
Murrieta Road	McCall Boulevard - Ethanac Road	3,600	63.5	18	39	85
Navajo Road	Sioux Drive - 4th Street	9,811	65.4	25	53	115
Navajo Road	Sioux Drive - Indian Circle	9,811	65.4	25	53	115
Nuevo Road	I-215 - Perris Boulevard	23,486	70.4	53	115	247
Nuevo Road	Wilson Avenue - Murrietta Road	6,950	65.1	24	51	110
Orange Avenue	Firebrand Avenue - Wilson Avenue	6,584	64.9	23	49	106
Orange Avenue	Frontage Road - Indian Avenue	3,956	61.5	14	29	63
Orange Avenue	Perris Boulevard - Wilson Avenue	6,584	64.9	23	49	106
Perris Boulevard	2nd Street - 4th Street	12,544	68.6	40	87	187
Perris Boulevard	4th Street - 5th Street	7,229	66.1	27	59	127
Perris Boulevard	6th Street - 11th Street	6,707	65.8	26	56	121

Table N-5: Existing Traffic Noise Levels (Soft Site Modeling)						
Street Name	**Segment**	**Existing ADT Volumes**	**Existing CNEL (dBA @ 50 Feet from centerline)**	**Distance to 70 CNEL**	**Distance to 65 CNEL**	**Distance to 60 CNEL**
Perris Boulevard	Citrus Avenue - Nuevo Road	22,754	74.0	92	198	427
Perris Boulevard	Dawes Street - Morgan Street	16,765	71.7	65	141	303
Perris Boulevard	E Jarvis Street - W Metz Road	18,581	70.3	52	113	243
Perris Boulevard	Morgan Street - Dawes Street	16,765	71.7	65	141	303
Perris Boulevard	North of Nance Street	17,464	73.6	87	188	405
Perris Boulevard	Placentia Avenue - Walnut Street	17,974	72.0	68	147	318
Placentia Avenue	East of Perris Boulevard	2,700	61.0	13	27	58
Placentia Avenue	Indian Avenue - Perris Boulevard	1,076	57.0	7	15	32
Ramona Expressway	Bradley Road - Ryder Street	10,500	71.4	62	134	288
Ramona Expressway	Evans Road - Bradley Road	11,700	71.9	67	144	310
Ramona Expressway	I-215 - Nevada Avenue	29,400	75.1	109	235	506
Ramona Expressway	Indian Avenue - Perris Boulevard	19,600	74.1	94	203	437
Ramona Expressway	Nevada Avenue - Webster Avenue	24,000	75.0	108	232	500
Ramona Expressway	Perris Boulevard - Redlands Avenue	23,577	74.9	106	229	494
Ramona Expressway	Redlands Avenue - Evans Road	13,500	72.5	73	158	341
Ramona Expressway	Webster Avenue - Indian Avenue	19,000	74.0	92	199	428
Redlands Avenue	San Jacinto Road - I-215	13,418	69.2	44	95	205
Rider Street	Bradley Road - Ramona Expressway	1,700	59.0	9	20	43
Rider Street	Indian Avenue - Perris Boulevard	2,100	59.9	11	23	49

Table N-5: Existing Traffic Noise Levels (Soft Site Modeling)						
Street Name	**Segment**	**Existing ADT Volumes**	**Existing CNEL (dBA @ 50 Feet from centerline)**	**Distance to 70 CNEL**	**Distance to 65 CNEL**	**Distance to 60 CNEL**
Rider Street	Wilson Avenue - May Ranch Parkway	3,700	62.4	16	33	72
San Jacinto Road	Wilson Avenue - Murrieta Road	3,750	63.6	19	41	87
SR-74	B Street - C Street	24,300	71.6	63	137	295
SR-74	C Street - D Street	23,600	71.4	62	134	289
SR-74	D Street - Perris Boulevard	19,100	69.0	43	93	199
SR-74	East of I-215	22,756	71.3	61	131	282
SR-74	Indian Circle - Navajo Road	17,200	73.7	88	189	407
SR-74	Wilkerson Avenue - Redlands Avenue	19,800	70.7	55	119	257
Webster Avenue	Ramona Expressway - Oleander Avenue	14,400	67.1	32	69	148

As expected, the highest noise levels occur along the I-215 freeway and the main streets of the arterial system, including Perris Boulevard, SR 74, Ramona Expressway, and Cajalco Expressway. Calculated noise levels above 60 dBA CNEL are projected for considerable distances along many of these segments. In fact, many of the modeled roadways could produce noise levels in excess of 60 dBA CNEL at distances well in excess of 100 feet.

Existing residential development is found along the City's major and secondary streets and highways, and in a number of areas homes are exposed to calculated exterior noise levels above 60 dBA CNEL. Examples of such noise impacted residential areas include:

- Laurel Palms Apartments, located immediately east of the D Street on-ramp to the northbound I-215 Freeway. Habitable yards and bedroom windows face the freeway, with no intervening sound barriers.
- Single family homes, churches and schools along Perris Boulevard, between Nuevo Road and the I-215 Freeway. Relatively deep front yards, side yards and windowed rooms face the street, with no intervening sound barriers.
- Single-family residential neighborhood along the east side of Perris Boulevard, between Nuevo Road and Placentia Avenue. Homes back up to Perris Boulevard, with roughly a 10-foot setback from the street to a solid wall barrier along the rear property line.
- Manufactured home subdivision along east side of Perris Boulevard, just south of Rider Street. Single-story homes back up to Perris Boulevard, with small, roughly 10-foot setbacks from the street to a solid wall barrier along the rear property line.
- Older mobile home parks along north side of Nuevo Road, between Perris Boulevard and Plum Tree. Front and side yards, and habitable interior spaces face the street, with no intervening barriers.

Railroad Noise Review

Railroad noise is dependent on the number of engines and railcars, the average speed, the percentage of operations that take place at night, the type of rails, and the presence of "at-grade" crossings that require the engineer to sound a warning horn/whistle. An at-grade crossing raises the noise produced by approximately 10 dBA. A similar increase would require that ten times as many operations occur if a horn were not sounded. Because horn noise contains much higher sound energy than the energy generated by a moving train, it has a profound impact on calculated CNEL levels, causing the average of all sound levels throughout the day to increase, despite the momentary nature of the horn blow event itself.

The San Jacinto Branch Line railroad tracks traverse a portion of the planning area, extending south from Riverside along the west side of the I-215 Freeway, continuing along "D" Street in central Perris, then transitioning to the east along Case Road. The tracks are owned by the Riverside County Transportation Commission. Freight service rights were retained by Burlington Northern Santa Fe Railroad (BNSF), which operates two freight trains a day (one in the daylight hours, the other at various times of the night) within the planning area. An average freight train is reported to included three engines and up to 25 railcars.

The Orange Empire Railway Museum operates a tourist train service that shuttles passengers between the downtown area and the Orange Empire Railway Museum along a spur that begins at an intersection with the main tracks just north of 7th Street and runs southward to the museum south of Mountain Avenue. Service is offered every half-hour between 9 AM and 6 PM on Saturdays and Sundays. Additional service is offered on holidays and by charter on weekdays. A typical train includes a locomotive with 2 to 4 railcars. Individual trolley cars are also part of this tourist service line.

At-grade crossings for the main line operated by BNSF freight service are located at: San Jacinto Avenue, 2nd Street, 4th Street, D Street, Perris Boulevard, and Case/Mapes Road. At-grade rail crossings for the tourist train service occur at 7th Street, 11th Street, and Ellis Avenue.

March Inland Port Noise Review

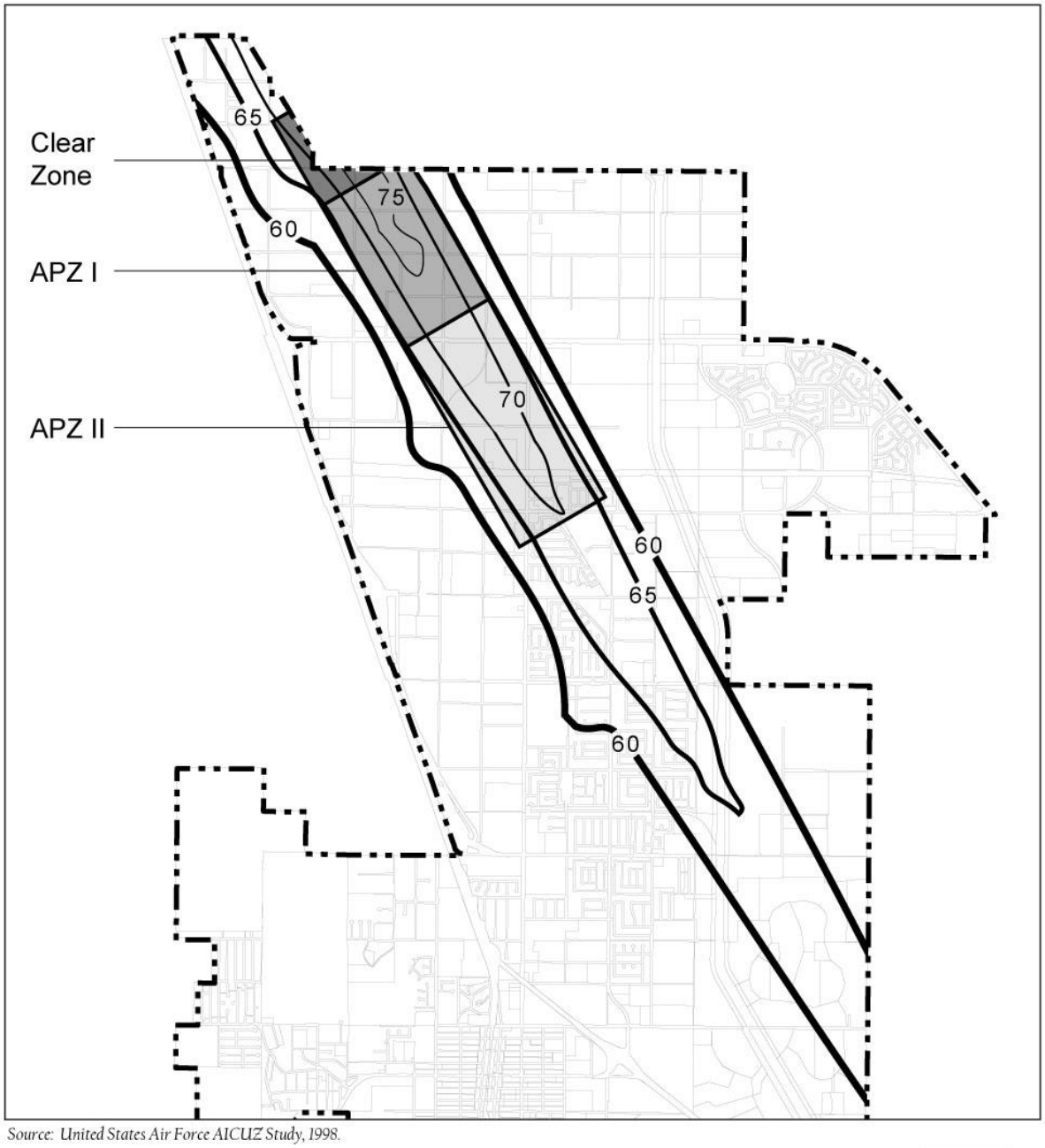
Located immediately north of the planning area, the March Inland Port is a joint military/civilian use air transport facility, that includes air cargo freight traffic. This facility is expected to play an increasingly important role in transportation of goods and cargo for the southern California region. Existing flight patterns affect a large portion of Perris, along a path that bisects the planning area in a northwest/southeast alignment. Noise contours above 65 dBA CNEL fall within several existing residential neighborhoods located east of Perris Boulevard, between Rider Street and Nuevo Road. Noise contours and accident potential zones associated with air traffic projected onto the Perris planning area are shown in Exhibit 17 of the Safety Element.

Perris Valley Airport Noise Review

The privately-operated Perris Valley Airport is a center for skydiving enthusiasts from throughout the western United States and has operated in its present location for many years. Aircraft typically consist of Twin Otter Turbo Prop, 20-passenger planes equipped with jet engines and propellers. On a peak weekend skydiving day, with optimal weather conditions and a day-long stream of skydiving customers, approximately 60 separate flights may occur. There are occasional night flights, according to the facility operator. Use of a DC-9 jet is planned for higher altitude skydiving excursions.

Modeling of 24-hour average noise contours associated with air traffic originating at this facility was not performed as part of this analysis; however, the noise levels measured at monitoring locations NR-11 and NR-12 are indicative of a range of noise levels that occur within the flight paths, for various numbers of minutes, at various times of the day.

Exhibit N-3: Noise Contours and Accident Potential Zones for March Inland Port

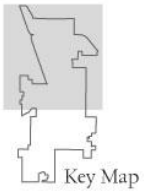


Source: United States Air Force AICUZ Study, 1998.

Legend

—#— Contour Lines

City Boundary



Not to Scale

Future Noise Conditions

Long Range Development Impacts

Over the long term, as growth occurs throughout the planning area, noise levels will gradually increase, primarily due to increased volumes of vehicular traffic generated both within and outside of Perris. Other significant contributors to higher noise levels will include increased air cargo traffic associated with March Inland Port, recreational flights originating at the Perris Valley Airport, and miscellaneous noises occurring at industrial and commercial uses, particularly where such uses involve exterior operations and large parking lots. Residential growth will expose more residents to a variety of exterior noise sources, and existing homes, schools, libraries, hospitals, churches, offices, hotels, motels, and outdoor recreational areas will be exposed to incremental increases in ambient noise levels.

Mobile & Stationary Noise Impacts

Roadway Noise Impacts on Existing Land Uses

Long-term noise impacts affecting existing sensitive receptors/land uses will stem primarily from increased automobile and truck traffic throughout the street and highway network in the planning area. This impact will be gradual, since traffic volumes will change incrementally due to ongoing development that will occur at different times, places and at a variety of intensities, both within and outside of the planning area.

Typically, gradual changes in noise levels will not be detectable by a person with average hearing. Over the long-term, however, increased traffic noise could significantly increase ambient noise levels that already exceed the City's 60 dBA CNEL exposure guideline for sensitive receptors.

Traffic noise will increase along those roadways where higher volumes are projected to occur, and the impact will be most pronounced in those areas where existing sensitive receptors are adjacent to streets or highways that are planned to be widened as defined in the Circulation Element. If roadway widening occurs along the side of a road adjacent to a sensitive receptor, the noise source will be closer to the receptor than under present conditions. The combination of higher traffic volumes and closer proximity could result in a significant noise impact if no noise barrier and/or noise attenuation measures are included.

Table N-6 presents projected changes in noise levels along existing roadways, based on the Circulation Element network and the year 2030 traffic volume projections developed for this network. As a reasonable worst case scenario, the noise levels shown are based on "hard site" (reflective surface) modeling. The assessment reflects the change in the vehicle mix when re-designating auto routes as truck routes. As expected, the greatest noise increases are projected in those areas where most new development will occur.

Much of future development will occur in outlying areas. Much of the area to be developed is currently serviced by unpaved roads and is sparsely developed. Once these roads are improved, traffic levels are expected to increase. As a result noise levels are expected to increase in excess of 10 dBA CNEL in the long term.

The number of sensitive receptors exposed to unacceptable levels of traffic noise will increase inasmuch as many receptors are located along roadway segments projected to experience substantial increases in noise level. Those areas are listed below in Table N-7. Also noted in Table N-7 are the roadway segments proposed for widening in the Circulation Element. Such widening may bring the roadway noise source closer to sensitive receptors.

Table N-6: Long-Term Changes in Existing Roadway Noise Levels

Table N-6: Long-Term Changes in Existing Roadway Noise Levels						
Street Name	**Segment**	**Existing ADT Volumes**	**Existing CNEL (dBA @ 50 Feet)**	**Future ADT Volumes**	**Future CNEL (dBA @ 50 Feet)**	**Difference (dBA CNEL)[1]**
11th Street	A Street - B Street	4,631	62.4	3,100	60.6	**-1.8**
11th Street	D Street - Perris Boulevard	6,041	63.5	9,600	65.5	2.0
A Street	5th Street - 6th Street	5,625	61.8	7,900	63.3	1.5
A Street	South of Nuevo Road	5,348	65.1	7,500	66.6	1.5
Cajalco Expressway	Harville Avenue - I-215	14,500	73.0	32,400	76.5	**3.5**
Case Road	G Street - Ellis Avenue	1,975	61.9	10,500	70.8	**8.9**
Case Road	West of I-215	2,958	65.7	8,900	71.7	**6.0**
D Street	11th Street - 6th Street	5,400	63.8	8,900	66.0	2.2
D Street	2nd Street - San Jacinto Road	12,500	67.5	23,400	70.2	2.7
D Street	3rd Street - 2nd Street	2,800	61.0	23,400	70.2	**9.2**
D Street	5th Street - 4th Street	7,389	65.2	23,400	70.2	**5.0**
D Street	5th Street - 6th Street	7,389	65.2	8,900	66.0	0.8
D Street	San Jacinto Road - I-215	14,710	68.2	23,400	70.2	2.0
Ethanac Road	Goetz Road - Murrieta Road	2,200	64.0	17,600	73.1	**9.1**
Ethanac Road	I-215 - SR-74	4,400	67.0	18,700	73.3	**6.3**
Ethanac Road	Murrieta Road - I-215	4,133	66.8	17,600	73.1	**6.3**
Goetz Road	Kaplan Creek Drive - Ethanac Road	1,900	65.0	12,900	71.7	**6.7**
Goetz Road	North of Fieldstone Drive	2,127	65.5	13,300	72.6	**7.1**
Goetz Road	Roundtree Court - Kaplan Creek Drive	3,001	65.4	2,500	64.6	-0.8
I-215	Case Road - Redlands Avenue	63,000	82.1	138,500	85.5	**3.4**
I-215	Ethanac Road - Case Road	51,000	80.5	124,900	84.4	**3.9**
I-215	North of Oleander Avenue	84,000	83.6	180,200	87.0	**3.4**
I-215	Nuevo Road - Placentia Avenue	70,000	82.9	160,500	86.5	**3.6**
I-215	Perris Boulevard -	67,000	82.7	160,500	86.5	**3.8**

Table N-6: Long-Term Changes in Existing Roadway Noise Levels						
Street Name	**Segment**	**Existing ADT Volumes**	**Existing CNEL (dBA @ 50 Feet)**	**Future ADT Volumes**	**Future CNEL (dBA @ 50 Feet)**	**Difference (dBA CNEL)[1]**
	Nuevo Road					
I-215	Ramona Expressway - Oleander Avenue	81,000	83.5	176,500	86.9	**3.4**
I-215	Redlands Avenue - Perris Boulevard	57,000	82.0	137,000	85.5	**3.5**
Indian Avenue	Dawes Street - Ramona Expressway	1,800	61.5	1,900	63.4	1.9
May Ranch Parkway	Morgan Street - Ryder Street	1,500	58.3	22,500	70.0	**11.7**
Murrieta Road	Ethanac Road - Case Road	1,300	60.0	9,700	68.8	**8.8**
Murrieta Road	McCall Boulevard - Ethanac Road	3,600	64.5	7,600	65.3	0.8
Navajo Road	Sioux Drive - 4th Street	9,811	66.4	7,600	65.3	-1.1
Navajo Road	Sioux Drive - Indian Circle	9,811	66.4	7,600	65.3	-1.1
Nuevo Road	I-215 - Perris Boulevard	23,486	71.5	18,200	72.3	0.8
Nuevo Road	Wilson Avenue - Murrietta Road	6,950	66.2	15,400	69.7	**3.5**
Orange Avenue	Firebrand Avenue - Wilson Avenue	6,584	66.0	9,100	67.4	1.4
Orange Avenue	Frontage Road - Indian Avenue	3,956	62.5	1,400	58.0	-4.5
Orange Avenue	Perris Boulevard - Wilson Avenue	6,584	66.0	6,700	66.1	0.1
Perris Boulevard	2nd Street - 4th Street	12,544	69.7	24,000	72.5	2.8
Perris Boulevard	4th Street - 5th Street	7,229	67.2	7,000	67.1	-1.1
Perris Boulevard	6th Street - 11th Street	6,707	66.9	7,000	67.1	0.2
Perris Boulevard	Citrus Avenue - Nuevo Road	22,754	75.0	17,600	73.9	-1.1
Perris Boulevard	Dawes Street - Morgan Street	16,765	72.8	24,900	74.6	1.8
Perris Boulevard	E Jarvis Street - W Metz Road	18,581	71.4	25,700	72.8	1.4
Perris Boulevard	Morgan Street - Dawes Street	16,765	72.8	24,900	74.6	1.8

Table N-6: Long-Term Changes in Existing Roadway Noise Levels						
Street Name	**Segment**	**Existing ADT Volumes**	**Existing CNEL (dBA @ 50 Feet)**	**Future ADT Volumes**	**Future CNEL (dBA @ 50 Feet)**	**Difference (dBA CNEL)[1]**
Perris Boulevard	North of Nance Street	17,464	74.6	27,000	76.5	0.9
Perris Boulevard	Placentia Avenue - Walnut Street	17,974	73.1	25,500	74.7	1.6
Placentia Avenue	East of Perris Boulevard	2,700	62.1	6,100	65.7	**3.6**
Placentia Avenue	Indian Avenue - Perris Boulevard	1,076	58.1	29,600	74.4	**16.3**
Ramona Expressway	Bradley Road - Ryder Street	10,500	72.4	39,300	78.1	**5.7**
Ramona Expressway	Evans Road - Bradley Road	11,700	72.9	39,500	78.2	**5.3**
Ramona Expressway	I-215 - Nevada Avenue	29,400	76.1	55,800	78.9	2.8
Ramona Expressway	Indian Avenue - Perris Boulevard	19,600	75.1	37,800	78.0	2.9
Ramona Expressway	Nevada Avenue - Webster Avenue	24,000	76.0	43,900	78.6	2.6
Ramona Expressway	Perris Boulevard - Redlands Avenue	23,577	75.9	41,600	78.4	2.5
Ramona Expressway	Redlands Avenue - Evans Road	13,500	73.5	45,700	78.8	**5.3**
Ramona Expressway	Webster Avenue - Indian Avenue	19,000	75.0	43,900	78.6	3.6
Redlands Avenue	San Jacinto Road - I-215	13,418	70.2	24,700	72.8	2.6
Rider Street	Bradley Road - Ramona Expressway	1,700	60.1	4,700	64.5	**4.4**
Rider Street	Indian Avenue - Perris Boulevard	2,100	61.0	4,600	66.3	**5.3**
Rider Street	Wilson Avenue - May Ranch Parkway	3,700	63.5	10,700	68.1	**4.6**
San Jacinto Road	Wilson Avenue - Murrieta Road	3,750	64.6	6,300	66.9	2.3
SR-74	B Street - C Street	24,300	72.6	34,500	74.1	1.5
SR-74	C Street - D Street	23,600	72.4	34,500	74.1	1.7
SR-74	D Street - Perris Boulevard	19,100	70.0	22,100	70.6	0.6
SR-74	East of I-215	22,756	72.3	7,500	67.5	-4.8

Table N-6: Long-Term Changes in Existing Roadway Noise Levels						
Street Name	**Segment**	**Existing ADT Volumes**	**Existing CNEL (dBA @ 50 Feet)**	**Future ADT Volumes**	**Future CNEL (dBA @ 50 Feet)**	**Difference (dBA CNEL)[1]**
SR-74	Indian Circle - Navajo Road	17,200	74.8	29,000	77.0	2.2
SR-74	Wilkerson Avenue - Redlands Avenue	19,800	71.7	14,600	70.3	-1.4
Webster Avenue	Ramona Expressway - Oleander Avenue	14,400	68.1	5,200	65.9	-2.2
Bold values denote an audible and potentially significant increase.						

Table N-7: Existing Sensitive Receptor Areas Impacted by Long-Term Increases in Roadway Traffic Noise

Roadway Segment	Affected Sensitive Receptor(s)	Projected Change in Noise Levels	Roadway Widening Also Planned?
D Street, between San Jacinto Road and I-215	Residential	68.2 to 70.2 (+2 dBA)	Yes-from 2 to 4 lanes
Goetz Road, from Kaplan Creek Drive to Ethanac Road	Residential	65 to 71.7 (+6.7 dBA)	Yes-from 2 to 4 lanes
Goetz Road, north of Fieldstone Drive	Residential	65.5 to 72.6 (+7.1 dBA)	Yes-2 to 6 lanes
I-215, between Perris Boulevard and Nuevo Road	Residential	82.7 to 86.5 (+3.8 dBA)	Yes-from 6 to 8 lanes by 2038
I-215, between Redlands Avenue and Perris Boulevard	Residential	82 to 85.5 (+3.5 dBA)	Yes-from 6 to 8 lanes by 2038
Nuevo Road, between Wilson Avenue. and Murrieta Road	Residential	66.2 to 69.7 (+3.5dBA)	Yes-2 to 6 lanes
Placentia Avenue, east of Perris Boulevard	Residential and Park	62.1 to 65.7 (+3.6 dBA)	Yes-2 to 6 lanes
Ramona Expressway, between Bradley Road. and Rider Street	Residential	72.4 to 78.1 (+5.7 dBA)	Yes-4 to 6 lanes
Rider Street, between Indian Avenue and Perris Boulevard	Residential	61 to 66.3 (+5.3 dBA)	Yes-2 to 4 lanes

Roadway Noise Impacts on Future Land Uses

Future development along roadways projected to generate noise levels above 60 dBA CNEL could expose residences, schools, churches, libraries, hospitals, and other sensitive receptors to significant noise impacts. Table N-8 and N-9 present the projected year 2030 roadway noise contours based on "hard site" (reflective surfaces) and "soft site" (absorptive surfaces) modeling, respectively.

The projected daily traffic volumes are from the Circulation Element. Actual noise levels will depend on the terrain at the time of build out and in all probability lie somewhere between those predicted in Tables N-8 and N-9. The distances do not account for the presence of barriers that may provide acoustic shielding to more distant receptors. Based on the standards set forth in Chapter 16.22 of the Municipal Code and on the Noise/Land Use Compatibility Guidelines illustrated in Exhibit N-1, placement of noise sensitive lands uses within areas exposed to 60 dBA or higher roadway noise levels could result in significant noise exposure impacts.

Note that there are several areas where the projected 60 dBA CNEL overlaps areas of sensitive land uses. These sensitive land uses, which include schools and churches, will be exposed to long-term noise levels that exceed 60 dBA CNEL. Sensitive land uses near the I-215 Freeway, SR-74, and the expressways are particularly vulnerable and problematic.

The projected traffic noise levels on a number of other roads are also estimated to exceed 60 dBA CNEL. These include designated truck routes that pass by existing residential development, major arterial roads, and many of the secondary arterial roads
.

Table N-8: Long-Term Roadway Noise Levels (Hard Site Analysis)

Table N-8: Long-Term Roadway Noise Levels (Hard Site Analysis)						
Street Name	**Segment**	**Future ADT Volumes**	**Future CNEL (dBA @ 50 Feet from centerline)**	**Distance to 70 CNEL**	**Distance to 65 CNEL**	**Distance to 60 CNEL**
7th Street	Redlands - SR 74	4,600	62.1	15	32	69
11th Street	West of "A"	3,200	59.8	10	22	48
11th Street	A Street - D Street	3,100	59.6	10	22	47
11th Street	D Street - G Street	9,600	64.5	22	46	100
A Street	North of San Jacinto	7,500	65.5	25	54	115
A Street	San Jacinto - 4th (SR 74)	13,300	67.9	36	79	169
A Street	4th Street - 11th Street	7,900	62.3	15	33	71
A Street	11th Street - Ellis Avenue	7,900	62.3	15	33	71
A Street	Ellis Avenue - Mountain	10,000	65.5	25	54	116
A Street	Mountain - Mapes	10,000	65.5	25	54	116
A Street	Mapes - Watson	8,500	66.0	27	58	125
Bradley	Ramona Expressway - Rider Street	1,700	57.8	8	17	36
Cajalco Expressway	West of Haines	22,700	73.1	80	172	371
Cajalco Expressway	Haines - Old Elsinore	21,800	72.9	78	168	361
Cajalco Expressway	Old Elsinore - Day	24,900	73.5	85	183	395
Cajalco Expressway	Day - Seaton	24,000	74.2	95	205	442
Cajalco Expressway	Seaton - Harville	25,400	74.4	99	213	459
Cajalco Expressway	Harville Avenue - I-215	32,400	75.5	116	251	540
Case Road	Perris - Goetz	10,300	70.5	54	117	252
Case Road	Goetz - Ellis	10,500	69.7	48	103	222
Case Road	Ellis - Murietta	17,700	73.7	88	190	408
Case Road	Murietta - I-215	8,900	70.7	56	120	258
Citrus	Perris - Redlands	600	52.5	3	7	16
Citrus	Redlands - Wilson	5,800	63.1	17	38	81
Citrus	Wilson - Murrieta	1,900	58.3	8	18	38
Citrus	West of Evans	800	54.5	5	10	22

Table N-8: Long-Term Roadway Noise Levels (Hard Site Analysis)						
Street Name	**Segment**	**Future ADT Volumes**	**Future CNEL (dBA @ 50 Feet from centerline)**	**Distance to 70 CNEL**	**Distance to 65 CNEL**	**Distance to 60 CNEL**
D Street	I-215 - 4th Street	23,400	69.2	44	95	205
D Street	4th Street - 11th	8,900	65.0	23	50	108
Dunlap	Orange - Citrus	15,500	68.6	40	87	187
Dunlap	Citrus - Nuevo	9,200	66.3	28	61	132
Dunlap	Nuevo - San Jacinto Road	12,200	67.6	34	74	160
Dunlap	San Jacinto - Ellis	ND[1]	—	—	—	—
East Frontage Road	Rider - Placentia	3,700	63.6	19	40	87
East Frontage Road	Placentia - Orange	2,200	61.3	13	28	61
East Frontage Road	Orange - Indian	2,200	61.3	13	28	61
East Frontage Road	Indian - Nuevo Road	2,100	61.1	13	28	59
Ellis Avenue	West of SR 74	12,800	69.0	43	92	198
Ellis Avenue	SR 74 - A Street	14,900	70.3	53	113	244
Ellis Avenue	A Street - Goetz Road	17,400	71.0	58	126	271
Ellis Avenue	Goetz Road - Case Road	17,800	71.1	59	128	275
Ellis Avenue	Case Road - Redlands	19,400	71.5	63	135	291
Ellis Avenue	Redlands - Murietta	11,200	69.1	43	94	202
Ellis Avenue	Murietta - Evans	11,700	69.3	45	96	208
Ethanac Road	West of Sophie	11,100	70.0	50	107	230
Ethanac Road	Sophie - River Road	11,100	70.0	50	107	230
Ethanac Road	River Road - Goetz Road	14,100	71.0	58	125	270
Ethanac Road	Goetz Road - Murrieta Road	17,600	72.0	68	145	313
Ethanac Road	Murrieta Road - Green Valley Pkwy	16,100	71.6	64	137	295
Ethanac Road	Green Valley Pkwy - I-215	17,600	72.0	68	145	313
Ethanac Road	I-215 - SR-74	18,700	72.2	70	151	326
Ethanac Road	East of SR 74	24,100	73.3	83	179	386
Evans Road	Oleander - Ramona Parkway	20,400	72.6	74	160	346
Evans Road	Ramona Parkway - Morgan	22,500	73.0	80	171	369
Evans Road	Morgan - Rider	14,800	71.2	60	130	279
Evans Road	Rider Street - Placentia	13,500	70.8	57	122	263

Table N-8: Long-Term Roadway Noise Levels (Hard Site Analysis)						
Street Name	**Segment**	**Future ADT Volumes**	**Future CNEL (dBA @ 50 Feet from centerline)**	**Distance to 70 CNEL**	**Distance to 65 CNEL**	**Distance to 60 CNEL**
Evans Road	Placentia - Orange	12,800	70.6	55	118	253
Evans Road	Orange - Citrus	12,400	70.4	53	115	248
Evans Road	Citrus - Nuevo	12,100	70.3	53	113	244
Evans Road	Nuevo Road - Murietta	10,800	69.8	49	105	226
Evans Road	Murietta - San Jacinto	9,500	69.3	45	96	208
Evans Road	San Jacinto Road - I-215	14,500	71.1	59	128	275
Evans Road	I-215 - Ellis Avenue	12,600	70.5	54	116	251
Fieldstone	Goetz - Green River Parkway	700	56.4	6	13	29
“G” Street	San Jacinto - 4th (SR 74)	23,100	66.9	31	67	145
“G” Street	4th - Case	14,900	65.0	23	50	108
Goetz Road	Case - Ellis	9,000	69.9	50	107	230
Goetz Road	Ellis - Mountain	7,500	69.2	44	95	204
Goetz Road	Mountain - Mapes	12,900	71.5	63	136	292
Goetz Road	Mapes - Fieldstone Dr.	13,300	71.6	64	139	298
Goetz Road	Fieldstone Dr. - Ethanac	12,500	72.2	70	150	324
Goetz Road	Ethanac - Valley Road	12,900	70.6	55	118	255
Goetz Road	South of Valley Road	2,500	63.5	18	40	85
Green River Parkway	Murietta - Ethanac	100	44.7	1	2	5
Green River Parkway	Murietta - Fieldstone	100	44.7	1	2	5
Green River Parkway	Fieldstone Dr. - Murietta	200	47.7	2	4	8
Harville	Oleander - Markham	11,100	69.5	46	99	213
Harville	Markham - Ramona Expressway	11,300	69.5	47	100	216
Harville	Ramona Expressway - Placentia	5,200	67.6	34	74	160
I-215	North of Oleander	180,200	85.9	570	1,229	2,647
I-215	Oleander - Ramona Expressway	176,500	85.8	563	1,212	2,611
I-215	Ramona Expressway - Placentia	160,500	85.4	528	1,138	2,451
I-215	Placentia Avenue - Nuevo	160,500	85.4	528	1,138	2,451
I-215	Nuevo Road - SR 74 (4th Street)	159,500	85.3	526	1,133	2,440
I-215	SR 74 - Evans	137,000	84.5	461	993	2,139
I-215	Evans - Case	138,500	84.5	464	1,000	2,154

Table N-8: Long-Term Roadway Noise Levels (Hard Site Analysis)						
Street Name	**Segment**	**Future ADT Volumes**	**Future CNEL (dBA @ 50 Feet from centerline)**	**Distance to 70 CNEL**	**Distance to 65 CNEL**	**Distance to 60 CNEL**
I-215	Case - Ethanac	124,900	83.3	383	825	1,778
I-215	South of Ethanac	124,500	83.3	382	824	1,775
Indian Avenue	North of Oleander Avenue	4,100	66.5	29	63	136
Indian Avenue	Oleander - Markham	4,300	65.8	26	57	122
Indian Avenue	Markham - Ramona	3,000	64.3	21	45	96
Indian Avenue	Ramona Expressway - Rider Street	1,900	62.3	15	33	71
Indian Avenue	Rider - Placentia	5,400	64.9	23	49	106
Indian Avenue	Placentia - Orange	5,500	65.0	23	50	108
Indian Avenue	Orange - E. Frontage Road	6,300	65.6	25	55	118
Jarvis	Perris - Redlands	5,000	62.5	16	34	73
Mapes	Goetz - “A”	6,100	63.4	18	39	84
Mapes	“A” - McPherson	1,300	56.6	6	14	30
Mapes	McPherson - Sophie	1,300	56.6	6	14	30
Mapes	Sophie - Mountain	1,300	56.6	6	14	30
Mapes	Mountain - Marie	4,300	61.8	14	31	66
Markham	West of Harville	13,700	69.3	45	96	207
Markham	I-215 - Harville	100	45.5	1	3	5
Markham	Wade - Patterson	100	45.5	1	3	5
Markham	Patterson - Webster	2,100	58.7	9	19	41
Markham	Webster - Indian	2,900	60.1	11	24	51
Markham	Indian - Perris	2,900	60.1	11	24	51
Markham	Perris - Redlands	1,400	57.0	7	15	31
May Ranch Parkway	Evans - Rider Street	22,500	69.0	43	93	200
McPherson	North of Mountain	1,700	57.0	7	15	32
McPherson	Mapes - Watson	ND	—	—	—	—
McPherson	Watson - Ethanac	ND	—	—	—	—
Morgan	Nevada - Webster	2,300	60.3	11	24	52
Morgan	Webster - Indian	2,100	61.8	14	31	66
Morgan	Indian - Perris	4,600	65.2	24	52	112
Morgan	Perris - Redlands	6,700	65.0	23	50	107
Morgan	East of Evans - Evans	800	55.7	6	12	26

Table N-8: Long-Term Roadway Noise Levels (Hard Site Analysis)						
Street Name	**Segment**	**Future ADT Volumes**	**Future CNEL (dBA @ 50 Feet from centerline)**	**Distance to 70 CNEL**	**Distance to 65 CNEL**	**Distance to 60 CNEL**
Mountain	West of SR 74	5,900	63.2	18	38	82
Mountain	SR 74 - Sophie	4,800	63.5	18	40	86
Mountain	Sophie - McPherson	4,400	63.1	17	38	81
Mountain	McPherson - "A" Street	2,800	57.8	8	16	36
Murrieta Road	Placentia - Orange	4,600	62.1	15	32	69
Murrieta Road	Nuevo Road - Evans	7,200	61.9	14	31	67
Murrieta Road	Case Road - Green Valley Pkwy	9,300	67.6	35	74	160
Murrieta Road	Green Valley Pkwy -Green Valley Pkwy So.	9,700	67.8	35	76	165
Murrieta Road	Green Valley Pkwy So. - Ethanac	8,900	67.4	34	72	156
Murrieta Road	Ethanac - McCall	3,400	64.3	21	45	97
Navajo Road	NW of 4th	7,600	64.3	21	45	97
Nevada Frontage Rd	Markham - Ramona Pkwy	2,600	62.0	15	32	68
Nevada Frontage Rd	Ramona Pkwy - Morgan	4,500	64.4	21	46	99
Nevada Frontage Rd	Morgan - Rider	4,200	64.1	20	44	94
Nuevo Road	Webster - I-215	4,300	66.7	30	65	141
Nuevo Road	I-215 to East Frontage Road	17,900	71.1	59	128	276
Nuevo Road	East Frontage Road - Perris Boulevard	18,200	71.2	60	130	279
Nuevo Road	Perris Boulevard - Redlands Avenue	17,700	69.2	44	95	205
Nuevo Road	Redlands Avenue - Wilson	18,000	69.3	45	96	207
Nuevo Road	Wilson Avenue - Murrietta Road	15,400	68.6	40	87	186
Nuevo Road	Murrietta Road - Evans	20,500	73.0	79	171	369
Nuevo Road	Evans - Dunlap	17,500	72.3	72	154	332
Nuevo Road	East of Dunlap	17,500	72.3	72	154	332
Old Elsinore Road	Oleander - Ramona	8,300	67.1	32	69	148
Old Elsinore Road	Ramona - Rider	13,800	69.3	45	97	208
Old Elsinore Road	Rider - Mack	11,500	68.5	40	86	185

Table N-8: Long-Term Roadway Noise Levels (Hard Site Analysis)						
Street Name	**Segment**	**Future ADT Volumes**	**Future CNEL (dBA @ 50 Feet from centerline)**	**Distance to 70 CNEL**	**Distance to 65 CNEL**	**Distance to 60 CNEL**
Old Elsinore Road	Mack - Nuevo	12,600	70.0	50	108	232
Old Elsinore Road	Nuevo - San Jacinto	11,100	69.5	46	99	213
Oleander Avenue	West of Harville	16,200	70.0	50	108	232
Oleander Avenue	Harville - I-215	25,300	71.9	67	145	312
Oleander Avenue	I-215 - Patterson	16,200	71.6	64	138	296
Oleander Avenue	Patterson - Heacock	13,400	70.8	56	121	261
Oleander Avenue	Heacock - Indian	7,600	68.3	39	83	179
Oleander Avenue	Indian Avenue - Perris Boulevard	7,300	68.1	38	81	174
Oleander Avenue	Perris Boulevard - Laselle	5,500	65.3	24	52	113
Orange Avenue	West of I-215	3,500	60.9	12	27	58
Orange Avenue	E. Frontage Road - Indian Avenue	1,400	57.0	7	15	31
Orange Avenue	Indian Road - Perris	4,600	62.1	15	32	69
Orange Avenue	Perris Boulevard - Redlands	6,700	65.0	23	50	107
Orange Avenue	Redlands - Wilson	9,100	66.3	28	61	131
Orange Avenue	Wilson - Evans	9,300	66.4	29	62	133
Orange Avenue	Evans - Dunlap	4,900	63.6	19	40	87
Patterson	Oleander - Markham	8,900	64.2	21	44	95
Perris Boulevard	North of Oleander	34,600	75.8	122	262	565
Perris Boulevard	Oleander - Markham	27,000	75.5	117	251	541
Perris Boulevard	Markham - Ramona	26,000	75.3	114	245	528

Table N-8: Long-Term Roadway Noise Levels (Hard Site Analysis)						
Street Name	**Segment**	**Future ADT Volumes**	**Future CNEL (dBA @ 50 Feet from centerline)**	**Distance to 70 CNEL**	**Distance to 65 CNEL**	**Distance to 60 CNEL**
Perris Boulevard	Ramona Expressway - Morgan	24,900	73.5	85	183	395
Perris Boulevard	Morgan - Rider	25,600	73.6	87	187	402
Perris Boulevard	Rider Street - Placentia Avenue	25,500	73.6	86	186	401
Perris Boulevard	Placentia Avenue - Orange	24,600	73.4	84	182	392
Perris Boulevard	Orange - Citrus	17,200	72.8	76	164	354
Perris Boulevard	Citrus - Nuevo	17,600	72.9	78	167	360
Perris Boulevard	Nuevo - E. Jarvis Avenue	25,700	71.7	65	140	301
Perris Boulevard	E. Jarvis - San Jacinto	27,900	72.1	69	148	318
Perris Boulevard	San Jacinto - 4th	24,000	71.4	62	134	288
Perris Boulevard	4th Street - 11th	7,000	66.0	27	58	125
Perris Boulevard	11th - Ellis	7,000	63.2	17	38	81
Placentia Avenue	West of Harville	14,200	69.4	46	99	212
Placentia Avenue	Harville - I-215	14,600	71.1	60	128	277
Placentia Avenue	I-215 - East Frontage Road	ND	—	—	—	—
Placentia Avenue	East Frontage Road - Indian Avenue	30,200	73.4	84	182	391
Placentia Avenue	Indian Avenue - Perris Boulevard	29,600	73.3	83	179	386
Placentia Avenue	Perris Boulevard - Redlands Avenue	6,100	64.6	22	47	101
Placentia Avenue	Redlands Avenue - Wilson	6,100	64.6	22	47	101
Placentia Avenue	Wilson - Murietta	6,300	65.9	27	57	124

Table N-8: Long-Term Roadway Noise Levels (Hard Site Analysis)						
Street Name	**Segment**	**Future ADT Volumes**	**Future CNEL (dBA @ 50 Feet from centerline)**	**Distance to 70 CNEL**	**Distance to 65 CNEL**	**Distance to 60 CNEL**
Placentia Avenue	Murietta - Evans	5,600	65.4	25	53	114
Phillips Street	Mountain - Mapes	ND	—	—	—	—
Phillips Street	Mapes - Ethanac	ND	—	—	—	—
Ramona Expressway	I-215 - Nevada Avenue	55,800	77.9	167	360	776
Ramona Expressway	Nevada Avenue - Webster Avenue	43,900	77.6	161	347	748
Ramona Expressway	Webster Avenue - Indian Avenue	41,400	77.4	155	334	719
Ramona Expressway	Indian Avenue - Perris Boulevard	37,800	77.0	146	314	677
Ramona Expressway	Perris Boulevard - Redlands Avenue	41,600	77.4	155	335	722
Ramona Expressway	Redlands Avenue - Evans Road	45,700	77.8	166	357	768
Ramona Expressway	Evans Road - Bradley Road	39,500	77.2	150	324	697
Ramona Expressway	Bradley Road - Rider Street	39,300	77.1	150	323	695
Ramona Expressway	East of Rider Street	38,700	77.1	148	319	688
Redlands Avenue	Oleander - Markham	ND	—	—	—	—
Redlands Avenue	Markham - Ramona	13,600	69.2	44	96	206
Redlands Avenue	Ramona - Morgan	14,700	69.6	47	101	217
Redlands Avenue	Morgan - Rider	16,500	70.1	51	109	235
Redlands Avenue	Rider Street - Placentia Avenue	21,400	71.2	60	130	279
Redlands Avenue	Placentia Avenue - Orange	21,200	68.8	41	89	192
Redlands Avenue	Orange - Citrus	15,700	69.9	49	105	227
Redlands Avenue	Citrus - Nuevo	18,400	65.9	27	58	125

Table N-8: Long-Term Roadway Noise Levels (Hard Site Analysis)						
Street Name	**Segment**	**Future ADT Volumes**	**Future CNEL (dBA @ 50 Feet from centerline)**	**Distance to 70 CNEL**	**Distance to 65 CNEL**	**Distance to 60 CNEL**
Redlands Avenue	Nuevo - E. Jarvis Avenue	24,700	71.8	66	143	307
Redlands Avenue	E. Jarvis - San Jacinto	24,400	71.8	66	141	305
Redlands Avenue	San Jacinto Road - I-215	24,700	71.8	66	143	307
Redlands Avenue	I-215 - 4th (SR 74)	26,400	69.7	48	103	222
Redlands Avenue	4th - Ellis	18,600	67.4	34	72	156
Rider Street	West of Alexander	4,300	61.8	14	31	66
Rider Street	Alexander - Old Elsinore	8,300	64.7	22	48	103
Rider Street	Old Elsinore - Marie	4,600	63.3	18	39	83
Rider Street	Marie - Harville	11,600	67.3	33	72	154
Rider Street	Nevada - Webster	3,900	62.6	16	35	75
Rider Street	Webster - Indian	3,600	64.2	20	44	95
Rider Street	Indian Avenue - Perris Boulevard	4,600	65.2	24	52	112
Rider Street	Perris - Wilson	4,000	62.7	16	35	76
Rider Street	Wilson - Redlands	3,700	62.4	16	33	72
Rider Street	Redlands - Evans	10,700	67.0	32	68	146
Rider Street	Evans - May Ranch Pkwy	4,900	63.6	19	40	87
Rider Street	May Ranch Pkwy - Bradley	6,100	64.6	22	47	101
Rider Street	Bradley - Ramona	4,700	63.4	18	39	85
River Road	Watson - Ethanac	6,700	63.0	17	37	79
San Jacinto Road	East of “A” Street	6,000	63.3	18	38	83
San Jacinto Road	“A” - “D”	6,400	63.6	19	40	86
San Jacinto Road	“D” - Perris	6,800	63.8	19	42	90
San Jacinto Road	Perris - “G”	15,500	67.4	34	72	156
San Jacinto Road	“G” - Redlands	10,500	65.7	26	56	120

Table N-8: Long-Term Roadway Noise Levels (Hard Site Analysis)						
Street Name	**Segment**	**Future ADT Volumes**	**Future CNEL (dBA @ 50 Feet from centerline)**	**Distance to 70 CNEL**	**Distance to 65 CNEL**	**Distance to 60 CNEL**
San Jacinto Road	Redlands - Wilson	3,300	63.1	17	37	80
San Jacinto Road	Wilson - Evans	6,300	65.9	27	57	124
San Jacinto Road	Evans - Dunlap	5,000	64.9	23	49	106
Sophie	Mountain - Mapes	9,000	65.0	23	50	108
SR-74	South of Mountain	32,600	76.4	134	289	623
SR-74	Marie - Mountain	29,600	76.0	126	271	584
SR-74	Mountain - Ellis	33,400	76.5	136	294	633
SR-74	Ellis - Navajo	29,000	75.9	124	267	576
SR-74	Navajo - "A"	34,300	76.7	139	299	644
SR-74	A Street - D Street	34,500	73.1	80	173	372
SR-74	D Street - Perris Boulevard	22,100	69.6	47	102	220
SR-74	Perris Boulevard - "G"	14,400	69.3	45	97	208
SR-74	"G" - Redlands	14,600	69.3	45	97	210
SR-74	East of Redlands	7,500	66.5	29	62	135
Valley Road	South of Goetz	12,300	68.8	42	90	193
Wade	Oleander - Markham	3,300	59.9	11	23	49
Watson	"A" Street - River Road	5,400	62.0	15	32	68
Watson	River Road - McPherson	6,800	63.0	17	37	80
Webster Avenue	Oleander - Markham	5,200	64.8	22	48	104
Webster Avenue	Markham - Ramona	2,000	60.6	12	25	55
Webster Avenue	Ramona Expressway - Morgan	2,000	60.6	12	25	55
Webster Avenue	Morgan - Rider	1200	58.4	8	18	39
Wilson	Rider - Placentia	5,400	62.8	17	36	77
Wilson	Placentia - Orange	4,300	61.8	14	31	66
Wilson	Orange - Citrus	200	46.3	1	3	6
Wilson	Citrus - Nuevo	400	49.3	2	5	10
Wilson	Nuevo - San Jacinto Road	500	50.3	2	5	11

Table N-8: Long-Term Roadway Noise Levels (Hard Site Analysis)						
Street Name	**Segment**	**Future ADT Volumes**	**Future CNEL (dBA @ 50 Feet from centerline)**	**Distance to 70 CNEL**	**Distance to 65 CNEL**	**Distance to 60 CNEL**
[1] ND - No Data.						

Table N-9: Long-Term Roadway Noise Levels (Soft Site Analysis)

Table N-9: Long-Term Roadway Noise Levels (Sift Site Analysis)						
Street Name	**Segment**	**Future ADT Volumes**	**Future CNEL (dBA @ 50 Feet from centerline)**	**Distance to 70 CNEL**	**Distance to 65 CNEL**	**Distance to 60 CNEL**
7th Street	Redlands - SR 74	4,600	63.1	10	32	103
11th Street	West of "A"	3,200	60.8	6	19	59
11th Street	A Street - D Street	3,100	60.6	6	18	58
11th Street	D Street - G Street	9,600	65.5	18	56	178
A Street	North of San Jacinto	7,500	66.6	23	71	226
A Street	San Jacinto - 4th (SR 74)	13,300	69.0	40	127	401
A Street	4th Street - 11th Street	7,900	63.3	11	34	106
A Street	11th Street - Ellis Avenue	7,900	63.3	11	34	106
A Street	Ellis Avenue - Mountain	10,000	66.5	22	71	223
A Street	Mountain - Mapes	10,000	66.5	22	71	223
A Street	Mapes - Watson	8,500	67.1	26	81	256
Bradley	Ramona Expressway - Rider Street	1,700	58.8	4	12	38
Cajalco Expressway	West of Haines	22,700	74.2	130	412	1,303
Cajalco Expressway	Haines - Old Elsinore	21,800	74.0	125	396	1,251
Cajalco Expressway	Old Elsinore - Day	24,900	74.6	143	452	1,429
Cajalco Expressway	Day - Seaton	24,000	75.2	166	524	1,656
Cajalco Expressway	Seaton - Harville	25,400	75.4	175	554	1,753
Cajalco Expressway	Harville Avenue - I-215	32,400	76.5	224	707	2,236
Case Road	Perris - Goetz	10,300	71.5	71	225	711
Case Road	Goetz - Ellis	10,500	70.8	60	191	603
Case Road	Ellis - Murietta	17,700	74.7	147	464	1,469
Case Road	Murietta - I-215	8,900	71.7	74	234	739
Citrus	Perris - Redlands	600	53.5	1	4	11
Citrus	Redlands - Wilson	5,800	64.1	13	41	130
Citrus	Wilson - Murrieta	1,900	59.3	4	13	42
Citrus	West of Evans	800	55.5	2	6	18

Table N-9: Long-Term Roadway Noise Levels (Sift Site Analysis)						
Street Name	**Segment**	**Future ADT Volumes**	**Future CNEL (dBA @ 50 Feet from centerline)**	**Distance to 70 CNEL**	**Distance to 65 CNEL**	**Distance to 60 CNEL**
D Street	I-215 - 4th Street	23,400	70.2	52	165	523
D Street	4th Street - 11th	8,900	66.0	20	63	199
Dunlap	Orange - Citrus	15,500	69.7	47	148	467
Dunlap	Citrus - Nuevo	9,200	67.4	28	88	277
Dunlap	Nuevo - San Jacinto Road	12,200	68.7	37	116	368
Dunlap	San Jacinto - Ellis	ND[1]	—	—	—	—
East Frontage Road	Rider - Placentia	3,700	64.6	14	45	144
East Frontage Road	Placentia - Orange	2,200	62.3	9	27	85
East Frontage Road	Orange - Indian	2,200	62.3	9	27	85
East Frontage Road	Indian - Nuevo Road	2,100	62.1	8	26	82
Ellis Avenue	West of SR 74	12,800	70.0	50	157	497
Ellis Avenue	SR 74 - A Street	14,900	71.4	70	220	695
Ellis Avenue	A Street - Goetz Road	17,400	72.1	81	257	812
Ellis Avenue	Goetz Road - Case Road	17,800	72.2	83	263	831
Ellis Avenue	Case Road - Redlands	19,400	72.6	91	286	905
Ellis Avenue	Redlands - Murietta	11,200	70.2	52	165	523
Ellis Avenue	Murietta - Evans	11,700	70.4	55	173	546
Ethanac Road	West of Sophie	11,100	71.1	64	202	637
Ethanac Road	Sophie - River Road	11,100	71.1	64	202	637
Ethanac Road	River Road - Goetz Road	14,100	72.1	81	256	809
Ethanac Road	Goetz Road - Murrieta Road	17,600	73.1	101	320	1,010
Ethanac Road	Murrieta Road - Green Valley Pkwy	16,100	72.7	92	292	924
Ethanac Road	Green Valley Pkwy - I-215	17,600	73.1	101	320	1,010
Ethanac Road	I-215 - SR-74	18,700	73.3	107	339	1,074
Ethanac Road	East of SR 74	24,100	74.4	138	438	1,384
Evans Road	Oleander - Ramona Parkway	20,400	73.7	117	370	1,171
Evans Road	Ramona Parkway - Morgan	22,500	74.1	129	408	1,292
Evans Road	Morgan - Rider	14,800	72.3	85	269	850
Evans Road	Rider Street - Placentia	13,500	71.9	78	245	775

Table N-9: Long-Term Roadway Noise Levels (Sift Site Analysis)						
Street Name	**Segment**	**Future ADT Volumes**	**Future CNEL (dBA @ 50 Feet from centerline)**	**Distance to 70 CNEL**	**Distance to 65 CNEL**	**Distance to 60 CNEL**
Evans Road	Placentia - Orange	12,800	71.7	73	232	735
Evans Road	Orange - Citrus	12,400	71.5	71	225	712
Evans Road	Citrus - Nuevo	12,100	71.4	69	220	695
Evans Road	Nuevo Road - Murietta	10,800	70.9	62	196	620
Evans Road	Murietta - San Jacinto	9,500	70.4	55	172	545
Evans Road	San Jacinto Road - I-215	14,500	72.2	83	263	832
Evans Road	I-215 - Ellis Avenue	12,600	71.6	72	229	723
Fieldstone	Goetz - Green River Parkway	700	57.4	3	9	27
“G” Street	San Jacinto - 4th (SR 74)	23,100	67.9	31	98	311
“G” Street	4th - Case	14,900	66.0	20	63	201
Goetz Road	Case - Ellis	9,000	70.9	62	196	621
Goetz Road	Ellis - Mountain	7,500	70.2	52	164	518
Goetz Road	Mountain - Mapes	12,900	72.5	89	282	890
Goetz Road	Mapes - Fieldstone Dr.	13,300	72.6	92	290	918
Goetz Road	Fieldstone Dr. - Ethanac	12,500	73.2	104	328	1,037
Goetz Road	Ethanac - Valley Road	12,900	71.7	74	234	741
Goetz Road	South of Valley Road	2,500	64.6	14	45	144
Green River Parkway	Murietta - Ethanac	100	45.7	0	1	2
Green River Parkway	Murietta - Fieldstone	100	45.7	0	1	2
Green River Parkway	Fieldstone Dr. - Murietta	200	48.7	0	1	4
Harville	Oleander - Markham	11,100	70.5	56	176	555
Harville	Markham - Ramona Expressway	11,300	70.5	57	179	565
Harville	Ramona Expressway - Placentia	5,200	68.6	36	113	359
I-215	North of Oleander	180,200	87.0	2,482	7,847	24,816
I-215	Oleander - Ramona Expressway	176,500	86.9	2,431	7,686	24,306
I-215	Ramona Expressway - Placentia	160,500	86.5	2,210	6,989	22,103
I-215	Placentia Avenue - Nuevo	160,500	86.5	2,210	6,989	22,103
I-215	Nuevo Road - SR 74 (4th Street)	159,500	86.4	2,196	6,946	21,965
I-215	SR 74 - Evans	137,000	85.5	1,761	5,568	17,607
I-215	Evans - Case	138,500	85.5	1,780	5,629	17,800

Table N-9: Long-Term Roadway Noise Levels (Sift Site Analysis)						
Street Name	**Segment**	**Future ADT Volumes**	**Future CNEL (dBA @ 50 Feet from centerline)**	**Distance to 70 CNEL**	**Distance to 65 CNEL**	**Distance to 60 CNEL**
I-215	Case - Ethanac	124,900	84.4	1,366	4,320	13,663
I-215	South of Ethanac	124,500	84.4	1,362	4,307	13,619
Indian Avenue	North of Oleander Avenue	4,100	67.5	28	89	283
Indian Avenue	Oleander - Markham	4,300	66.9	25	78	247
Indian Avenue	Markham - Ramona	3,000	65.4	17	54	172
Indian Avenue	Ramona Expressway - Rider Street	1,900	63.4	11	34	109
Indian Avenue	Rider - Placentia	5,400	66.0	20	63	200
Indian Avenue	Placentia - Orange	5,500	66.1	20	64	204
Indian Avenue	Orange - E. Frontage Road	6,300	66.7	23	74	234
Jarvis	Perris - Redlands	5,000	63.5	11	35	112
Mapes	Goetz - “A”	6,100	64.4	14	43	136
Mapes	“A” - McPherson	1,300	57.6	3	9	29
Mapes	McPherson - Sophie	1,300	57.6	3	9	29
Mapes	Sophie - Mountain	1,300	57.6	3	9	29
Mapes	Mountain - Marie	4,300	62.8	10	30	96
Markham	West of Harville	13,700	70.3	53	168	532
Markham	I-215 - Harville	100	46.5	0	1	2
Markham	Wade - Patterson	100	46.5	0	1	2
Markham	Patterson - Webster	2,100	59.7	5	15	47
Markham	Webster - Indian	2,900	61.1	6	20	65
Markham	Indian - Perris	2,900	61.1	6	20	65
Markham	Perris - Redlands	1,400	58.0	3	10	31
May Ranch Parkway	Evans - Rider Street	22,500	70.0	50	159	503
McPherson	North of Mountain	1,700	58.0	3	10	32
McPherson	Mapes - Watson	ND	—	—	—	—
McPherson	Watson - Ethanac	ND	—	—	—	—
Morgan	Nevada - Webster	2,300	61.4	7	22	69
Morgan	Webster - Indian	2,100	62.9	10	31	98
Morgan	Indian - Perris	4,600	66.3	21	68	215
Morgan	Perris - Redlands	6,700	66.1	20	64	202
Morgan	East of Evans - Evans	800	56.8	2	8	24

Table N-9: Long-Term Roadway Noise Levels (Sift Site Analysis)						
Street Name	**Segment**	**Future ADT Volumes**	**Future CNEL (dBA @ 50 Feet from centerline)**	**Distance to 70 CNEL**	**Distance to 65 CNEL**	**Distance to 60 CNEL**
Mountain	West of SR 74	5,900	64.2	13	42	132
Mountain	SR 74 - Sophie	4,800	64.6	14	46	145
Mountain	Sophie - McPherson	4,400	64.2	13	42	133
Mountain	McPherson - "A" Street	2,800	58.8	4	12	38
Murrieta Road	Placentia - Orange	4,600	63.1	10	32	103
Murrieta Road	Nuevo Road - Evans	7,200	62.9	10	31	97
Murrieta Road	Case Road - Green Valley Pkwy	9,300	68.6	36	114	361
Murrieta Road	Green Valley Pkwy -Green Valley Pkwy So.	9,700	68.8	38	119	376
Murrieta Road	Green Valley Pkwy So. - Ethanac	8,900	68.4	35	109	345
Murrieta Road	Ethanac - McCall	3,400	65.3	17	54	170
Navajo Road	NW of 4th	7,600	65.3	17	54	170
Nevada Frontage Rd	Markham - Ramona Pkwy	2,600	63.0	10	32	101
Nevada Frontage Rd	Ramona Pkwy - Morgan	4,500	65.4	17	55	175
Nevada Frontage Rd	Morgan - Rider	4,200	65.1	16	52	163
Nuevo Road	Webster - I-215	4,300	67.7	30	94	297
Nuevo Road	I-215 to East Frontage Road	17,900	72.2	84	264	835
Nuevo Road	East Frontage Road - Perris Boulevard	18,200	72.3	85	269	849
Nuevo Road	Perris Boulevard - Redlands Avenue	17,700	70.3	53	169	533
Nuevo Road	Redlands Avenue - Wilson	18,000	70.4	54	171	542
Nuevo Road	Wilson Avenue - Murrietta Road	15,400	69.7	46	147	464
Nuevo Road	Murrietta Road - Evans	20,500	74.1	129	408	1,290
Nuevo Road	Evans - Dunlap	17,500	73.4	110	348	1,102
Nuevo Road	East of Dunlap	17,500	73.4	110	348	1,102
Old Elsinore Road	Oleander - Ramona	8,300	68.1	32	102	322
Old Elsinore Road	Ramona - Rider	13,800	70.3	54	169	536
Old Elsinore Road	Rider - Mack	11,500	69.5	45	141	446

Table N-9: Long-Term Roadway Noise Levels (Sift Site Analysis)						
Street Name	**Segment**	**Future ADT Volumes**	**Future CNEL (dBA @ 50 Feet from centerline)**	**Distance to 70 CNEL**	**Distance to 65 CNEL**	**Distance to 60 CNEL**
Old Elsinore Road	Mack - Nuevo	12,600	71.0	63	199	630
Old Elsinore Road	Nuevo - San Jacinto	11,100	70.5	56	176	555
Oleander Avenue	West of Harville	16,200	71.0	63	199	629
Oleander Avenue	Harville - I-215	25,300	72.9	98	311	982
Oleander Avenue	I-215 - Patterson	16,200	72.7	93	294	930
Oleander Avenue	Patterson - Heacock	13,400	71.9	77	243	769
Oleander Avenue	Heacock - Indian	7,600	69.4	44	138	436
Oleander Avenue	Indian Avenue - Perris Boulevard	7,300	69.2	42	133	419
Oleander Avenue	Perris Boulevard - Laselle	5,500	66.3	21	68	213
Orange Avenue	West of I-215	3,500	61.9	8	25	78
Orange Avenue	E. Frontage Road - Indian Avenue	1,400	58.0	3	10	31
Orange Avenue	Indian Road - Perris	4,600	63.1	10	32	103
Orange Avenue	Perris Boulevard - Redlands	6,700	66.1	20	64	202
Orange Avenue	Redlands - Wilson	9,100	67.4	27	87	274
Orange Avenue	Wilson - Evans	9,300	67.5	28	89	280
Orange Avenue	Evans - Dunlap	4,900	64.7	15	47	148
Patterson	Oleander - Markham	8,900	65.2	17	52	165
Perris Boulevard	North of Oleander	34,600	76.8	239	755	2,388
Perris Boulevard	Oleander - Markham	27,000	76.5	224	708	2,240
Perris Boulevard	Markham - Ramona	26,000	76.3	216	682	2,157

Table N-9: Long-Term Roadway Noise Levels (Sift Site Analysis)						
Street Name	**Segment**	**Future ADT Volumes**	**Future CNEL (dBA @ 50 Feet from centerline)**	**Distance to 70 CNEL**	**Distance to 65 CNEL**	**Distance to 60 CNEL**
Perris Boulevard	Ramona Expressway - Morgan	24,900	74.6	143	452	1,429
Perris Boulevard	Morgan - Rider	25,600	74.7	147	465	1,470
Perris Boulevard	Rider Street - Placentia Avenue	25,500	74.7	146	463	1,464
Perris Boulevard	Placentia Avenue - Orange	24,600	74.5	141	447	1,412
Perris Boulevard	Orange - Citrus	17,200	73.8	119	375	1,187
Perris Boulevard	Citrus - Nuevo	17,600	73.9	121	384	1,215
Perris Boulevard	Nuevo - E. Jarvis Avenue	25,700	72.8	95	301	953
Perris Boulevard	E. Jarvis - San Jacinto	27,900	73.2	103	327	1,034
Perris Boulevard	San Jacinto - 4th	24,000	72.5	89	281	890
Perris Boulevard	4th Street - 11th	7,000	67.1	25	80	254
Perris Boulevard	11th - Ellis	7,000	64.2	13	41	130
Placentia Avenue	West of Harville	14,200	70.4	55	174	551
Placentia Avenue	Harville - I-215	14,600	72.2	84	265	838
Placentia Avenue	I-215 - East Frontage Road	ND	—	—	—	—
Placentia Avenue	East Frontage Road - Indian Avenue	30,200	74.5	141	446	1,409
Placentia Avenue	Indian Avenue - Perris Boulevard	29,600	74.4	138	437	1,381
Placentia Avenue	Perris Boulevard - Redlands Avenue	6,100	65.7	18	58	184
Placentia Avenue	Redlands Avenue - Wilson	6,100	65.7	18	58	184
Placentia Avenue	Wilson - Murietta	6,300	66.9	24	77	245

Table N-9: Long-Term Roadway Noise Levels (Sift Site Analysis)						
Street Name	**Segment**	**Future ADT Volumes**	**Future CNEL (dBA @ 50 Feet from centerline)**	**Distance to 70 CNEL**	**Distance to 65 CNEL**	**Distance to 60 CNEL**
Placentia Avenue	Murietta - Evans	5,600	66.4	22	69	217
Phillips Street	Mountain - Mapes	ND	—	—	—	—
Phillips Street	Mapes - Ethanac	ND	—	—	—	—
Ramona Expressway	I-215 - Nevada Avenue	55,800	78.9	385	1,218	3,851
Ramona Expressway	Nevada Avenue - Webster Avenue	43,900	78.6	364	1,152	3,643
Ramona Expressway	Webster Avenue - Indian Avenue	41,400	78.4	344	1,086	3,435
Ramona Expressway	Indian Avenue - Perris Boulevard	37,800	78.0	314	992	3,137
Ramona Expressway	Perris Boulevard - Redlands Avenue	41,600	78.4	345	1,092	3,452
Ramona Expressway	Redlands Avenue - Evans Road	45,700	78.8	379	1,199	3,792
Ramona Expressway	Evans Road - Bradley Road	39,500	78.2	328	1,036	3,278
Ramona Expressway	Bradley Road - Rider Street	39,300	78.1	326	1,031	3,261
Ramona Expressway	East of Rider Street	38,700	78.1	321	1,016	3,211
Redlands Avenue	Oleander - Markham	ND	—	—	—	—
Redlands Avenue	Markham - Ramona	13,600	70.2	53	167	528
Redlands Avenue	Ramona - Morgan	14,700	70.6	57	180	571
Redlands Avenue	Morgan - Rider	16,500	71.1	64	203	640
Redlands Avenue	Rider Street - Placentia Avenue	21,400	72.2	83	263	831
Redlands Avenue	Placentia Avenue - Orange	21,200	69.8	47	150	473
Redlands Avenue	Orange - Citrus	15,700	70.9	61	193	609
Redlands Avenue	Citrus - Nuevo	18,400	66.9	25	78	248

Table N-9: Long-Term Roadway Noise Levels (Sift Site Analysis)						
Street Name	**Segment**	**Future ADT Volumes**	**Future CNEL (dBA @ 50 Feet from centerline)**	**Distance to 70 CNEL**	**Distance to 65 CNEL**	**Distance to 60 CNEL**
Redlands Avenue	Nuevo - E. Jarvis Avenue	24,700	72.8	96	303	959
Redlands Avenue	E. Jarvis - San Jacinto	24,400	72.8	95	299	947
Redlands Avenue	San Jacinto Road - I-215	24,700	72.8	96	303	959
Redlands Avenue	I-215 - 4th (SR 74)	26,400	70.7	59	186	590
Redlands Avenue	4th - Ellis	18,600	68.4	35	109	346
Rider Street	West of Alexander	4,300	62.8	10	30	96
Rider Street	Alexander - Old Elsinore	8,300	65.7	19	59	185
Rider Street	Old Elsinore - Marie	4,600	64.4	14	44	139
Rider Street	Marie - Harville	11,600	68.4	35	111	349
Rider Street	Nevada - Webster	3,900	63.7	12	37	117
Rider Street	Webster - Indian	3,600	65.3	17	53	168
Rider Street	Indian Avenue - Perris Boulevard	4,600	66.3	21	68	215
Rider Street	Perris - Wilson	4,000	63.8	12	38	121
Rider Street	Wilson - Redlands	3,700	63.5	11	35	111
Rider Street	Redlands - Evans	10,700	68.1	32	102	322
Rider Street	Evans - May Ranch Pkwy	4,900	64.7	15	47	148
Rider Street	May Ranch Pkwy - Bradley	6,100	65.7	18	58	184
Rider Street	Bradley - Ramona	4,700	64.5	14	45	142
River Road	Watson - Ethanac	6,700	64.0	12	39	124
San Jacinto Road	East of “A” Street	6,000	64.3	13	42	134
San Jacinto Road	“A” - “D”	6,400	64.6	14	45	143
San Jacinto Road	“D” - Perris	6,800	64.8	15	48	152
San Jacinto Road	Perris - “G”	15,500	68.4	35	109	346
San Jacinto Road	“G” - Redlands	10,500	66.7	23	74	235

Table N-9: Long-Term Roadway Noise Levels (Sift Site Analysis)						
Street Name	**Segment**	**Future ADT Volumes**	**Future CNEL (dBA @ 50 Feet from centerline)**	**Distance to 70 CNEL**	**Distance to 65 CNEL**	**Distance to 60 CNEL**
San Jacinto Road	Redlands - Wilson	3,300	64.1	13	41	128
San Jacinto Road	Wilson - Evans	6,300	66.9	24	77	245
San Jacinto Road	Evans - Dunlap	5,000	65.9	19	61	194
Sophie	Mountain - Mapes	9,000	66.0	20	64	201
SR-74	South of Mountain	32,600	77.5	283	896	2,833
SR-74	Marie - Mountain	29,600	77.1	257	813	2,572
SR-74	Mountain - Ellis	33,400	77.6	290	918	2,902
SR-74	Ellis - Navajo	29,000	77.0	252	797	2,520
SR-74	Navajo - "A"	34,300	77.8	298	942	2,980
SR-74	A Street - D Street	34,500	74.1	128	404	1,279
SR-74	D Street - Perris Boulevard	22,100	70.6	58	183	580
SR-74	Perris Boulevard - "G"	14,400	70.3	53	169	534
SR-74	"G" - Redlands	14,600	70.3	54	171	541
SR-74	East of Redlands	7,500	67.5	28	88	278
Valley Road	South of Goetz	12,300	69.8	48	151	477
Wade	Oleander - Markham	3,300	60.9	6	19	61
Watson	"A" Street - River Road	5,400	63.0	10	32	100
Watson	River Road - McPherson	6,800	64.0	13	40	126
Webster Avenue	Oleander - Markham	5,200	65.9	19	61	193
Webster Avenue	Markham - Ramona	2,000	61.7	7	23	74
Webster Avenue	Ramona Expressway - Morgan	2,000	61.7	7	23	74
Webster Avenue	Morgan - Rider	1200	59.5	4	14	44
Wilson	Rider - Placentia	5,400	63.8	12	38	121
Wilson	Placentia - Orange	4,300	62.8	10	30	96
Wilson	Orange - Citrus	200	47.3	0	1	3
Wilson	Citrus - Nuevo	400	50.3	1	2	5
Wilson	Nuevo - San Jacinto Road	500	51.3	1	2	7

Table N-9: Long-Term Roadway Noise Levels (Sift Site Analysis)						
Street Name	**Segment**	**Future ADT Volumes**	**Future CNEL (dBA @ 50 Feet from centerline)**	**Distance to 70 CNEL**	**Distance to 65 CNEL**	**Distance to 60 CNEL**
[1] ND - No Data.						

Railroad Noise Impacts on Existing Land Uses

Like auto traffic, railroad traffic is also expected to increase during the build out period. The Riverside County Transportation Commission (RCTC) reports that Metrolink commuter service is estimated to begin service in the area by 2008-2009, with 8 trains per day. These operations are projected to increase to 16 trains per day by the year 2030. By this time the rails are to be upgraded to continuous welded rail to accommodate the Metrolink service.

Metrolink trains are expected to be composed of one engine and three railcars. Metrolink speed through the project area is estimated at 30 mph and no night operations are expected.

Freight train operations are expected to double to four trains per day by the year 2030. This analysis assumes no change to the current average three engines and 25 railcars through the project area. Train speed is assumed to be 10 mph and half of the operations are assumed to occur between 10:00 PM and 7:00 AM

Future train noise was modeled using the "Wyle" method, which is discussed in Appendix C. Modeling results indicate that the noise associated with future Metrolink operations and two additional freight trains per day would increase noise levels along the tracks by approximately 3.5 to 4 dBA CNEL. Noise levels along the rail segments between the at grade rail crossings are projected to increase from 62.5 to 66 dBA within 200 feet of the centerline of the tracks, while noise levels at grade rail crossings are projected to increase from 72.5 to 76.5 dBA, within 200 feet of the centerline of the tracks. Any existing sensitive receptors within 200 Feet of any rail segment would thus be exposed to a significant, long-term increase in train noise.

To facilitate future Metrolink commuter service, the City has adopted a specific plan for the downtown area that calls for the removal of the crossings at 2nd Street, 5th Street and 6th Street, thereby removing the warning requirement and whistle noise in those locations.

Railroad Noise Impacts on Future Land Uses

Railroad noise modeling predicts that the future 60 dBA CNEL noise level falls at a distance of approximately 502 feet from the centerline of the tracks. This distance is extended to approximately 2,518 feet at grade crossings where a warning horn is sounded. Any noise-sensitive land uses proposed within these distances would require some form of noise attenuation to reduce exterior and interior noise exposure to the levels required by the Perris Municipal Code, Chapter 16.22.

Areas designated in the proposed Land Use Plan for noise-sensitive development along the rail line include land along the west side of Case Road and undeveloped parcels within the downtown area between Nuevo Road and 11th Street. Sensitive land uses may be located within a 502-foot distance to the 60 dBA noise level area, along segments of rail where no at grade crossings occur e.g. west of Case Road. At grade rail crossings, sensitive land uses must be located at a minimum of 2,518 feet from the crossing.

Perris Auto Speedway Impacts on Existing Land Uses

The speedway is located within State-owned park-land and is not subject to the land use policy restrictions set forth in the

Perris General Plan. The General Plan will have no effect on operations at the Speedway and as a result will not have any effect on noise levels generated at the Speedway. These noise levels could negatively impact existing sensitive land uses located to the south, at the nearest edge of May Ranch.

Perris Auto Speedway Impacts on Future Land Uses

The 65 and 60 dBA CNEL noise levels measured from the Speedway fall at distances of 2,040 and 3,628, respectively. New residential development is designated in the Land Use Plan south of Ramona Expressway, within 3,628 feet from the speedway located in the 60 dBA CNEL.

To avoid exposing future homes to significant speedway noise impacts, acoustical studies will be required in conjunction with new development proposals in the 60 dBA CNEL area designated above. The acoustical studies will help identify measures to mitigate exterior and interior noise exposure in accordance with Chapter 16.22 of the Municipal Code and the Noise/Land Use Compatibility Guidelines illustrated in Exhibit N-1.

Air Traffic Noise Impacts

New residential development is planned within the flight pattern located south of The Perris Valley Airport, between Goetz Road and Murrieta Avenue, in the southern edge of the planning area. Additional residential development is planned in the downtown area, within the northern flight path for aircraft departing from the Perris Valley Airport. Future homes in both areas would be exposed to overflight noise impacts that could occur up to 60 times a day on peak days.

The Land Use Plan designates considerable land area for residential development within the March Inland Port flight patterns, including land within the 65 dBA and higher CNEL contours, as illustrated in Exhibit N-3. Acoustical studies will be required to identify appropriate site design and building design measures to reduce exterior and interior noise exposure associated with air traffic originating at March Inland Port, to those levels specified in Chapter 16.22 of the Municipal Code and the /Land Use Compatibility Guidelines illustrated in Exhibit N-1.

Noise Compatibility between Different Land Uses

There are a number of areas where the Land Use Plan identifies adjoining residential and commercial or industrial uses. The potential for noise incompatibilities will exist along those edges, where the commercial or industrial uses contain exterior operations, such as truck loading areas and large parking lots. In these situations normal business operations could generate substantial noise levels on adjoining residential properties.

Significant noise impacts can be avoided through site design and operational controls that place exterior activities away from residential properties. For example; prohibit exterior operations, including truck loading/ unloading, during more sensitive later night and early morning hours. This issue can be minimized through careful consideration of potential noise impacts during the project site plan process.

Strategy for Action

Goals, Policies and Implementation Measures

Goal I – Land Use Siting

Future land uses compatible with projected noise environments

Policy I.A
The State of California Noise/Land Use Compatibility Criteria shall be used in determining land use compatibility for new development.

Implementation Measures

I.A.1 All new development proposals will be evaluated with respect to the State Noise/Land Use Compatibility Criteria. Placement of noise sensitive uses will be discouraged within any area exposed to exterior noise levels that fall into the "Normally Unacceptable" range and prohibited within areas exposed to "Clearly Unacceptable" noise ranges.

I.A.2 Site plans for new residential development near roadway and train noise sources shall incorporate increased building setbacks and/or provide for sufficient noise barriers for usable exterior yard areas so that the noise exposure in those areas does not exceed the levels considered "Normally Acceptable" in The State of California Noise/Land Use Compatibility Criteria

I.A.3 Acoustical studies shall be prepared for all new development proposals involving noise sensitive land uses, as defined in Section 16.22.020J of the Perris Municipal Code, where such projects are adjacent to roadways and within existing or projected roadway CNEL levels of 60 dBA or greater.

I.A.4 As part of any approvals of noise sensitive projects where reduction of exterior noise to 65 dBA is not reasonably feasible, the City will require the developer to issue disclosure statements to be identified on all real estate transfers associated with the affected property that identifies regular exposure to roadway noise.

I.A.5 No new residential dwellings shall be placed in areas with mitigated or unmitigated exterior noise levels that exceed 70 dBA CNEL.

Goal II – Existing Sensitive Receptors

Roadway improvements compatible with existing with existing noise-sensitive land uses

Policy II.A
Appropriate measures shall be taken in the design phase of future roadway widening projects to minimize impacts on existing sensitive noise receptors.

Implementation Measures

II.A.1 In the design of future roadway widening projects adjacent to existing sensitive land uses, first priority will be given to widening on the opposite side of the street where no sensitive land uses occur.

II.A.2 Use of quieter roadway surface materials, incorporation of solid noise barriers between the sensitive land use and the roadway will be implemented where feasible, to reduce exterior noise levels within adjacent sensitive land uses to a maximum of 60 dBA CNEL.

II.A.3 Where construction of a solid barrier is economically or practically infeasible e.g. along front yards where driveways would prohibit continuation of the wall, retrofitting of homes with noise attenuation features will be implemented to reduce interior noise to 45 dBA CNEL.

II.A.4 Reduction of posted speed limits will be implemented, wherever it can be accomplished without increasing traffic congestion.

II.A.5 Work proactively with Caltrans to facilitate construction of sound barriers and/or retrofit existing noise impacted structures with noise attenuation features, along those segments of I-215 that abut existing noise impacted land uses.

Goal III – Train Noise

Future land uses compatible with noise from rail traffic

Policy III.A
Mitigate existing and future noise impacts resulting from train movement.

Implementation Measures

III.A.1 The City will work proactively with BNSF and Riverside County Transportation Commission to replace aging rail with new continuous welded rail, and to install sound-deadening matting leading to, from, and between the rails where public roads cross tracks in residential areas

III.A.2 Acoustical and vibration studies will be prepared for all new development proposals involving noise sensitive land uses within 500 feet of the BNST railroad tracks. Wherever these studies determine that exterior living areas in the proposed development plan would be exposed to noise levels of 60 dBA or greater, the plans shall incorporate setbacks and/or building design/noise insulation measures to reduce exterior noise levels to no more than 65 dBA and ensure that interior noise levels do not exceed 45 dBA CNEL.

III.A.3 As part of any approvals of noise sensitive projects where reduction of exterior noise to 65 dBA is not reasonably feasible, the City will require the developer to issue disclosure statements that identify regular exposure to train noise. This disclosure shall be issued at the time of initial and all subsequent sales of the affected properties.

III.A.4 No new residential dwellings shall be placed in areas with mitigated or unmitigated exterior exposure to train noise levels in excess of 70 dBA CNEL.

Goal IV – Air Traffic Noise

Future land uses compatible with noise from air traffic

Policy IV.A
Reduce or avoid the existing and potential future impacts from air traffic on new sensitive noise land uses in areas where air traffic noise is 60 dBA CNEL or higher.

Implementation Measures

IV.A.1 As part of any approvals for new sensitive land uses within the 60 dBA CNEL or higher noise contours associated with March Inland Port, and for such new uses within the flight paths associated with the Perris Valley Skydiving Center, the City will require the developer to issue disclosure statements identifying exposure to regular aircraft noise. This disclosure shall be issued at the time of initial and all subsequent sales of the affected properties.

IV.A.2 All new development proposals in the noise contour areas of 60 dBA and above will be evaluated with respect to the State Noise/Land Use Compatibility Criteria.

Goal V – Stationary Source Noise

Future non-residential land uses compatible with noise sensitive land uses

Policy V.A
New large scale commercial or industrial facilities located within 160 feet of sensitive land uses shall mitigate noise impacts to attain an acceptable level as required by the State of California Noise/Land Use Compatibility Criteria.

Implementation Measures

V.A.1 An acoustical impact analysis shall be prepared for new industrial and large scale commercial facilities to be constructed within 160 feet of the property line of any existing noise sensitive land use. This analysis shall document the nature of the commercial or industrial facility as well as all interior or exterior facility operations that would generate exterior noise.
The analysis shall document the placement of any existing or proposed noise-sensitive land uses situated within the 160-foot distance. The analysis shall determine the potential noise levels that could be received at these sensitive land uses and specify specific measures to be employed by the large scale commercial or industrial facility to ensure that these levels do not exceed 60 dBA CNEL at the property line of the adjoining sensitive land use.
No development permits or approval of land use applications shall be issued until the acoustic analysis is received and approved by the City Staff.

References

California Air Resources Board, EMFAC2002 Computer Model, Version 2.2, September 23, 2002

Caltrans, Sound32 Noise Prediction Model, Release 07/30/91

Caltrans, *Technical Analysis Notes*, March 13, 1991

Caltrans, *Technical Noise Supplement to the Traffic Noise Analysis Protocol*, October 1998

Caltrans, *Traffic Noise Analysis Protocol for New Highway Construction and Reconstruction Projects*, October 1998

City of Perris, *Draft Land Use Element Update*, September 2003.

City of Perris, *Draft Circulation Element Update*, September 2003

City of Perris *General Plan Noise Element*, 1985.

City of Perris, Municipal Code, Chapter 16.22 CONSTRUCTION LOCATED NEAR ARTERIALS, RAILROADS AND AIRPORTS, December 1987

Conaster, Pat, Perris Valley Skydiving Center, Personal Communication, November 19, 2003.

Federal Railroad Administration, *Interim Final Rule on the Use of Locomotive Horns at Highway Rail Grade Crossings*, December 19, 2003.

Federal Register 83, No. 41, Group 15. Occupational Noise, Article 105 Control of Noise Exposure, October 3, 1983

Milakovich, Mark, Burlington, Northern and Santa Fe Railroad, Person Communication, December 15, 2003.

U.S. Department of Housing and Urban Development, A Guide to HUD Environmental Criteria and Standards Contained in 24 CFR Part 51, August 1984

U.S. Environmental Protection Agency, Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances, Bolt, Beranek, and Newman, 1971

Wiggins, Stephanie, Riverside County Transportation Commission. Personal Communication, December 9, 2003.

www.perrisautospeedway.com, December 18, 2003

Appendix A: Citywide Noise Measurement Detail

Noise Measurements

Ambient noise measurements were taken at 21 locations throughout the planning area to determine actual existing noise levels from various sources, at various times of the day, and to use this data to calibrate mathematical modeling of traffic and other noise sources. The characteristics of the noise environment at each location at the time of the noise measurements are described in this section.

Noise monitoring was performed using a Quest Technologies Model 2900 Type 2 Integrating/logging Sound Level Meter. The unit meets the American National Standards Institute (ANSI) Standard S1.4-1983 for Type 2, International Electrotechnical Commission (IEC) Standard 651 - 1979 for Type 2, and IEC Standard 651 - 1979 for Type 2 sound level meters. The unit was field calibrated prior to the first reading of each day using a Quest Technologies QC-10 calibrator. The calibration was then rechecked after the last obtained reading of the day. In all cases, no meter "drift" was noted. The accuracy of the equipment is maintained through a program established through the manufacturer and is traceable to the National Bureau of Standards. The calibration meets the requirements of ANSI Standard S1.4-1984 and IEC Standard 942: 1988 for Class 1 equipment.

Monday, December 8, 2003
On Monday, December 8, 2003 the meter was field-calibrated at 10:22 AM the calibration was rechecked at 5:05 PM and no meter drift was noted. Eight readings were obtained during the day.

NR-1 - This reading was obtained in the field along the north side of Markham Street across from the residence located at 637 Markham. Specifically, the meter was placed 50 feet north of the centerline of travel (grease stain) of the near, westbound lane and approximately 270 feet west of Brennen Avenue. The area to the south of Markham is designated in the proposed Land Use Plan as "Rural Residential/Agriculture" and the reading at NR-1 is considered representative of noise levels found in that area. The reading started at 10:28 AM. Markham Street traffic included five eastbound autos. Westbound traffic included eight autos, one medium truck, and one heavy truck. Noise sources included local traffic, but background traffic was also notable. Other sources identified as part of "background noise" included construction activities and aircraft overflights.

NR-2 - This reading was obtained within the sphere-of-influence in the field across from the residence located at 22625 Markham Street. The area is also designated for "Rural Residential/ Agriculture" and most of the homes in the area are of modular design. The meter was placed 50 feet north of the centerline of the near, westbound lane and approximately 760 feet west of Donna Lane. The reading started at 11:08 AM. Markham Street traffic included 39 autos, two medium trucks, and one heavy truck (actually a farm tractor). Westbound traffic included 28 autos and two medium trucks. Local traffic was the dominant noise source, but background and freeway traffic were also notable. Other noted sources included music at one of the local residences, dogs barking, and a honking horn in the distance.

NR-3 - This reading was also obtained in the sphere-of-influence area, along the Cajalco Expressway, approximately 318 feet west of Robinson Street. Modular homes are located along the expressway. Additionally, a tract of single-family residential units is located approximately 600 feet to the north. These homes are protected by a wooden fence. The meter was placed at a distance of 50 feet north of the centerline of travel of the westbound lane. The reading started at 11:45 AM. Cajalco Expressway traffic included 116 autos, five medium trucks, and six heavy trucks traveling eastbound. One of these heavy trucks sounded its horn as it passed producing the noted Lmax. Westbound traffic included 115 autos, seven medium trucks, and nine heavy trucks. Aircraft overflights were noted as part of the background noise.

NR-4 - This reading was obtained along the south side of Ramona Expressway approximately 315 feet west of Rider Street. The expressway was in the process of being widened and the meter was placed over the newly graded pad, 50 feet from the centerline of the near, eastbound lane. The area immediately south of the reading location was also under construction and residential building pads were evident. The reading started at 1:24 PM. Traffic on Ramona Expressway included 99 autos, eight medium trucks, and eight heavy trucks traveling eastbound. Westbound traffic included 91 autos, five medium trucks, and nine heavy trucks. Noise was detected from a piece of heavy equipment operating at a distance of about 500 feet to the southeast.

NR-5 - This reading was obtained in the field along the north side of Rider Street, approximately 725 feet west of Evans Road. The field is designated in the proposed Land Use Plan as "Residential 7" (4-7 du/acre). The meter was placed 50 feet north of the centerline of the westbound lane. The reading started at 2:08 PM. Traffic on Rider Street included 66 autos, two medium trucks, and one heavy truck traveling eastbound. Westbound traffic included 54 autos, one medium truck, and one heavy truck. Active construction being performed in the field approximately 800 to 1,000 feet to the south was the dominant noise source.

NR-6 - This reading was obtained in the field located along the east side of Perris Boulevard, south of Placentia Avenue. The field, as well as the field to the north of Placentia Avenue, is designated in the proposed Land Use Plan as "Residential 22" (14-22 du/acre), while the vacant land to the north of Placentia is designated as "Residential 7" (4-7 du/acre). Single-family homes were located immediately to the south of the monitored location. The meter was placed across from the "Power Plus" facility approximately 520 feet south of Placentia and 50 feet east of the centerline of Perris Avenue's near, northbound lane. The reading started at 2:58 PM. Traffic on Perris Avenue included 169 autos, six medium trucks, and three heavy trucks traveling northbound. Southbound traffic included 186 autos, eight medium trucks, and two heavy trucks.

NR-7 - This reading was obtained in the field along the south side of Orange Avenue, approximately 430 feet east of Evans Road. This area is designated in the proposed Land Use Plan as "Residential 4" (2-4 du/acre). The reading was obtained in the vacant field 50 feet south of the centerline of the near, eastbound lane. Homes with stables were located across Orange Avenue to the north. The reading started at 3:35 PM. Eastbound traffic on Orange Avenue included 36 autos while westbound traffic consisted of 60 autos. No trucks were noted during the measurement. A dog was

barking at approximately 250 feet and aircraft overflights were also noted.

NR-8 -This reading was obtained in the vacant lot along the east side of Redlands Avenue, approximately 195 feet north of Citrus Avenue, within an area of single family homes. New residential units were under construction, also along Redlands Avenue, just south of Citrus Avenue. The meter was placed at a distance of 50 feet east of the centerline for Redlands Avenue's eastern-most northbound lane. The reading started at 4:45 PM. Northbound and southbound traffic on Redlands Avenue included 29 and 31 autos, respectively. Traffic along Citrus, including two passing sirens, also added to the overall noise level. A barking dog, estimated at a distance of about 50 feet was also noted.

Tuesday, December 9, 2003
On Tuesday, December 9, 2003 the meter was field calibrated at 9:12 AM. The calibration was rechecked at 5:08 PM and no meter drift was noted. Nine readings were obtained throughout the day, as described below.

NR-9 - This reading was obtained in the field along the north side of San Jacinto Avenue approximately 82 feet east of F Street, in an area designated on the proposed Land Use Plan as "Residential 14" (7-14 du/acre). Residential units and the "Perris Full Gospel Church" are located across San Jacinto. The meter was placed at a distance of 50 feet north of the centerline of the westbound lane. The reading started at 9:17 AM. Eastbound traffic on San Jacinto Avenue included 12 autos. Westbound traffic included 23 autos and two medium trucks. Background noise included traffic on the I-215 Freeway to the east, operations at the aggregate plant located along Perris Boulevard to the south, operations at the Moore Fencing Company located to the south along F Street, a dog barking at a distance of about 200 feet, aircraft overflights, and birdcalls.

NR-10 - This reading was obtained in the open field beyond the southern terminus of A Street, south of Watson Road. The area is designated in the proposed Land Use Plan as "Residential 7" (4-7 du/acre) and active construction of residential development was observed to the southeast. The reading started at 10:10 AM. Ambient noise sources included vehicles traveling along the I-215 Freeway, noise from the Techalloy Company, at about 500 feet, and aircraft overflights, including a direct over flight for skydiving. No vehicles were observed on A Street during the measurement.

NR-11 - This reading was obtained in the field along the south side of Ethanac Road approximately 385 feet east of Byers Street. The meter was placed at a distance of 50 feet south of the centerline of travel for Ethanac Road's eastbound lane. The field across Ethanac Road to the north is used for the Perris Valley Airport. Single-family residential units and horse stables were located to the south and west of the monitored location. The reading started at 10:55 AM. Eastbound traffic included 33 autos, one medium truck, and three heavy trucks. Westbound traffic included 25 autos, four medium trucks, and two heavy trucks. While vehicles traveling along Ethanac proved to be the most dominant source of noise, aircraft also added to the overall noise level. The reading was obtained directly in the flight path for both departing and approaching aircraft. One of the "parachute planes" was observed to take-off directly over the location producing an instantaneous noise level of 77.4 dBA. This same plane landed, again passing over the meter, producing an instantaneous reading of 75.9 dBA. Additionally, two ultra light planes were observed to proceed in an

east/west direction, just inside of the airport fence line. These aircraft produced instantaneous noise levels of 63.3 and 66.7 dBA.

NR-12 - This reading was obtained in the same location as NR-11 and was intended to capture the noise produced by a departing parachute aircraft. The 47-second reading began as the plane was observed to lift off the runway and ended after the plane had passed over and the meter had again settled to the ambient level. Three autos were observed to pass along Ethanac Road during the measurement.

NR-13 - This reading was obtained in the parking area of the Perris Valley Airport to document the noise produced by the Perris Airport Skydiving Simulator. The meter was located 250 feet to the east of the simulator which was active at the time of the reading. The reading started at 12:28 PM and ran for 15 minutes. Some minor noise was attributed to vehicles using the parking area and equipment use at the Spalding facility located to the south, but these added only minimally to that produced by the simulator.

NR-14 - This reading was obtained in the field along the north side of San Jacinto Avenue approximately 40 feet west of Evans Road (unpaved). The currently agricultural area is designated in the proposed Land Use Plan as "Residential 14 (7-14 du/acre). The meter was placed at a distance of 50 feet north of the centerline of the San Jacinto westbound lane. The reading started at 2:00 PM. Eastbound traffic included 28 autos and one medium truck. Westbound traffic included 18 autos and one medium truck. Background noise included traffic on the I-215 Freeway to the west and jet aircraft operating from March Air Force Base to the northwest.

NR-15 - This reading was obtained in the agricultural field along the southwest side of Case Road, approximately 1,235 feet south of Murrieta Road. The meter was placed at a distance of 60 feet southwest of the centerline for Case Road's southbound lane. (The standard 50-foot distance was increased to 60 feet due to the presence of a drainage ravine that parallels the road.) The reading started at 2:47 PM. Northwest-bound traffic on Case included 43 autos, three medium trucks, and three heavy trucks, one of which was a piece of heavy equipment. Southeast-bound traffic included 32 autos and two medium trucks. Aircraft operations, both jet and light plane, were also noted during the measurement.

NR-16 - This reading was also obtained in the sphere-of-influence area along Ellis Avenue. The meter was placed approximately 398 west of Neitzeal Road across from the single-family residence located at 23440 Ellis Avenue. The meter was placed at a distance of 50 feet south of the centerline of travel of the near, eastbound lane.. The reading started at 3:48 PM. Ellis Avenue traffic included 28 autos traveling eastbound and 42 autos and one medium truck proceeding westbound. Ambient noise was elevated by the operation of off-road motorcycles to the north across Ellis Avenue, background traffic noise produced along Highway 74, and light plane overflights.

NR-17 - This reading was obtained in sphere-of-influence area in the field along the south side of San Jacinto Avenue approximately 40 feet east of Raymond Road. The area is designated in the proposed Land Use Plan as "Residential 7" (4-7 du/acre). The meter was placed at a distance of 50 feet south of the centerline of travel of the near, eastbound lane. Modular homes were located to the north and west. Single-family residential units were also located to the east across Diana Street. The

reading started at 4:48 PM. Eastbound traffic included 70 autos and two medium trucks. Westbound traffic included 54 autos and one medium truck. Background noise included hammering at the residential unit located across San Jacinto Avenue and aircraft overflights.

Wednesday, December 10, 2003
On Wednesday, December 10, 2003 the meter was field calibrated at 9:55 AM. The calibration was rechecked at 2:55 PM and no meter drift was noted. Four readings were obtained over the day.

NR-18 - This reading was obtained in the field along the north side of 7th Street, approximately 527 feet west of Redlands Avenue. This placed the meter across from the post office parking lot. The area is designated in the proposed Land Use Plan as "Residential 14" (7-14 du/acre). Existing single-family units are located to the west along G Street. The meter was placed at a distance of 50 feet north of the centerline of the westbound lane. The reading began at 10:00 AM. Eastbound traffic included 14 autos and one medium truck while westbound traffic included 10 autos. Background noise included construction equipment used in road repair along G Street, approximately 800 feet to the west.

NR-19 - This reading was obtained in the field across from the airport along Goetz Road, approximately 267 feet south of Mapes Road. The meter was placed 50 feet west of the centerline of travel of the southbound lane. The reading began at 10:56 AM. Traffic on Goetz Road included 33 autos and two heavy trucks traveling northbound. Southbound traffic included 20 autos and four heavy trucks. Local aircraft also added to the noise.

NR-20 - This reading was obtained in the sphere-of-influence area in front of the residential unit located at 21231 Old Elsinore Road. The residence is located approximately 1,575 feet south of Orange Avenue. The meter was placed at a distance of 50 feet west of the centerline of the southbound travel lane. The reading began at 1:28 PM. Northbound traffic included 16 autos, three medium trucks, and two heavy trucks. Southbound traffic included 42 autos, one medium truck, and one heavy truck. Other sources of noise included aircraft overflights and music at the residence across Old Elsinore Road.

NR-21 - This reading was obtained in the field along the east side of Patterson Road approximately 192 feet north of Placentia Street. The meter was placed across from the residential unit located at 20441 Patterson Road. In this location, Patterson Road is unpaved. While the monitored location is planned for light industrial uses, the west side of Patterson Road includes single-family residential units. The meter was placed at a distance of approximately 56 east of the centerline of Patterson Road. The reading started at 2:35 PM. Southbound traffic on Patterson included one auto. The primary sources of noise included jet aircraft operations out of March Air Reserve Base. Three Boeing 707 jets were noted during the reading, two of which circled almost directly overhead. Traffic on the I-215 Freeway was also audible in the background.

Overall Findings

These measurements together with the traffic count data in the Circulation Element were use with Caltrans Sound32 version of the Highway Noise Model (FHWA-RD-77-108). The model uses traffic volume, vehicle mix, vehicle speed, and roadway geometry to compute Leq noise levels. The traffic mix was based on the three-day field measurements described previously, in Section 2.2.1.

A total of 1,804 vehicles were counted during the noise measurements. Of these, 1,676 (92.90 percent) were autos, 70 (3.88 percent) were medium trucks, and 58 (3.22 percent) were heavy trucks (including heavy equipment). Noise measurement locations NR-3, -4, -6, -11, and -19 were obtained along designated truck routes. These readings included 889 autos (91.55 percent), 39 medium trucks (4.02 percent), and 43 heavy trucks (4.43 percent). The remaining measurements, obtained along auto routes, included 789 autos (95.64 percent), 26 medium trucks (3.15 percent), and 10 heavy trucks (1.21 percent).

The ratio of autos, medium trucks, and heavy trucks is also dependant on the time of day. Because the noise readings are 15 minutes in duration, they represent a "snapshot" in time and the ratio observed during the 9:00 AM hour may be considerably different than would be observed along the same road during the noon hour. To best characterize the actual ratio of vehicles, a "time-weighting factor" is therefore applied to the obtained field counts.

The EMFAC2002 Air Quality Emissions Model distributed by the California Air Resources Board breaks down the average daily traffic volume by county, mileage, and vehicle type into the 24-hourly increments for each county of the state. The model also shows the hourly-mileage traveled by each of the 39 various vehicle classes.

Using the EMFAC2002 model, the ratio of vehicles observed in the field study was "normalized" to determine the overall daily ratio. For example, a year 2003 model run for Riverside County shows a daily ratio of 92.58 percent autos (vehicles under 8,500 pounds gross vehicle weight), 4.36 percent medium trucks (between 8,500 and 33,000 pounds GVW), and 3.06 percent heavy trucks (over 33,000 GVW). On the other hand, if one considers only the 9:00 o'clock hour, the model predicts a ratio of 87.12 percent autos, 8.21 percent medium truck, and 4.66 percent heavy trucks. As such, using the EMFAC2002 data, one can compare the 9:00 o'clock ratio to the daily ratio and determine a factor with which to scale the field readings accordingly.

This operation was performed for the various field readings to account for those hours in which the readings were actually obtained and revised, normalized ratios for both auto and truck routes were determined. For auto routes, this ratio was determined to include 95.22 percent autos, 3.24 percent medium trucks, and 1.54 percent heavy trucks. When normalized to the daily average, the observed truck routes included 90.94 percent autos, 4.06 percent medium trucks, and 5.00 percent heavy trucks. Where state highways and freeways are modeled, the published Caltrans traffic mix, as included in the document 2001 Annual Average Daily Truck Traffic on the California State Highway System (Caltrans, December 2002), was used.

To determine the CNEL noise level produced by this traffic, the percentage contribution from each hour of traffic was determined from EMFAC2002 computer. Traffic between the hours of 7:00 PM and 10:00 PM was assigned a 5-dBA penalty whereas the traffic predicted between 10:00 PM and 7:00 AM was assigned a 10-dBA penalty. The resultant noise associated with each hour was then logarithmically summed and averaged so that an attenuation factor could be ascertained and applied to the entire volume of traffic as if it were to occur in a 1-hour period.

Under these premises, this CNEL value is 10.1 dB less than the model results that are predicted if the entirety of the traffic were modeled to occur in a 1-hour period. As such, the CNEL can be represented by modeling the average daily traffic as if it were to occur in a 1-hour period and subtracting 10.1 dBA from this value.

The Sound32 Noise Model considers four parameters in its calculations. These include the speed of the vehicles, the ratio of the vehicles (i.e., autos, medium trucks, and heavy trucks), the roadway logistics (i.e., distance that traffic is observed as it approaches/leaves, curvature of the road, etc.), and the volume of vehicles. A reasonable worst-case assumes a straight road and countless iterations of the model have shown that after about 750 feet, more distant vehicles do not add measurably to the modeled noise levels. As such, a distance of 1,500 feet (i.e., 750 foot approach and 750 foot departure) was used in the modeling effort. Traffic was assumed to operate symmetrically about the centerline of the road (i.e., 50 percent on either side).

A value of 10,000 vehicles was modeled at a distance of 50 feet from the centerline of the roadway for each noted vehicle ratio and speed observed throughout the project area. Actual projected roadway noise levels are then calculated in a spreadsheet and referenced to the 10,000 vehicle "standard" at a distance of 50 feet. For example, if a truck route is projected to carry 20,000 vehicles per day, the spreadsheet compares this volume with that for a truck route that included the 10,000 vehicle standard and raises the CNEL by 3 dBA accordingly using the formula:

- Resultant Noise = 10 log(Projected Volume/10,000)

Separate spreadsheets then calculate the distances to the 70, 65, and 60 dBA CNEL contours for both "hard site" and "soft site" modeling as predicted by the formulas:

- Resultant Noise = 10 log(New Distance /50 feet) for "hard site" modeling and,
- Resultant Noise = 15 log(New Distance /50 feet) for "soft site" modeling

Appendix B: Perris Speedway Noise Measurement Detail

Measurements near the Perris Speedway

Ambient noise measurements were taken at 13 locations around the Perris Speedway to determine actual existing noise levels from various sources, at various times of the day, and to use this data to calibrate mathematical modeling of traffic and other noise sources. The characteristics of the noise environment at each location at the time of the noise measurements are described in this section.

Noise monitoring was performed using a Quest Technologies Model 2900 Type 2 Integrating/logging Sound Level Meter. The unit meets the American National Standards Institute (ANSI) Standard S1.4-1983 for Type 2, International Electrotechnical Commission (IEC) Standard 651 - 1979 for Type 2, and IEC Standard 651 - 1979 for Type 2 sound level meters. The unit was field calibrated prior to the first reading of each day using a Quest Technologies QC-10 calibrator. The calibration was then rechecked after the last obtained reading of the day. In all cases, no meter "drift" was noted. The accuracy of the equipment is maintained through a program established through the manufacturer and is traceable to the National Bureau of Standards. The calibration meets the requirements of ANSI Standard S1.4-1984 and IEC Standard 942: 1988 for Class 1 equipment.

Noise Measurements near Speedway

PS-1 - As noted, this reading was obtained along Lake Perris Driver in front of the entrance. The 1-minute reading was obtained from 5:52 PM. Vehicles were either practicing or qualifying during the measurement. The reading included racing noise, but also included passing vehicles on Lake Perris Drive behind the meter.

PS-2 - The 44-second measurement was obtained at 5:59 PM. Vehicles were either practicing or qualifying during the measurement and no vehicles passed during the reading.

PS-3 - This 37-second measurement began at 6:05 PM. Again, cars were practicing or qualifying during the measurement and no vehicles passed during the reading.

PS-4 - This 1-minute reading was obtained at 7:15 PM. Vehicles were racing at this time and no vehicles passed on Lake Perris Drive.

PS-5 - This 48-second reading was started at 7:22 PM. Vehicles were racing at this time and no road traffic was noted.

PS-6 - This 1-minute reading was started at 7:28 PM. Vehicles were racing at this time and no road traffic was noted.

PS-7 - This 1-minute reading was started at 7:32 PM. Vehicles were racing at this time and no road traffic was noted.

PS-8 - This 1-minute reading began at 7:36 PM. Vehicles were racing at this time and no road traffic was noted.

Noise Measurements near May Ranch

PS- 9 - The remaining five readings were obtained in the residential area to the south of the Ramona Expressway, in May Ranch. The meter was placed over the sidewalk between the residential units located at 1074 and 1086 Milestone Avenue approximately 1,900 feet to the south of the stadium's southernmost point. This reading

started at 7:50 PM and ran for 1 minute. Even though the reading was obtained on the sidewalk in front of the homes and was partially shielded by the dwelling structures, noise from the raceway was very noticeable.

PS-10 - This 1-minute reading began at 7:55 PM and included approximately 50 seconds of racing. In addition to the Perris Auto Speedway, noise from racing at the Starwest Motocross Park was also audible as well as the public address system(s).

PS-11 - This 1-minute reading started at 8:00 PM. Again, both the Perris Auto Speedway and Starwest Motocross Park were audible.

PS-12 - This 1-minute reading started at 8:03 PM. Racing at the Perris Auto Speedway was most notable.

PS-13 - This 1-minute reading started at 8:10 PM. The reading included noise from the motocross park and that from the public address system. No racing at the Speedway occurred during the measurement.

Overall Findings

Noise measurements conducted at the Perris Auto Speedway show short-term, Leq noise levels of noise levels of approximately 83 dBA at the western property line. Levels of over 73 dBA Leq were measured in the nearest parts of the May Ranch residential community to the south. The City Municipal Code addresses noise impacts in terms of the CNEL and does not set short-term noise limitations. Still, it is possible to calculate a CNEL value for these racing events. Computations were performed, assuming that racing occurs between 6:30 PM and 10:00 PM and that 21 races, each averaging 5 minutes occur. As a reasonable worst-case estimate, the 83 dBA value as measured at a distance of 575 feet was incorporated into the analysis. Based on this measured value, the CNEL at 575 feet from the stadium structure is calculated at 76 dBA. The 60 and 65 dBA CNEL contours would fall at distances of 3,628 and 2,040 feet, respectively. Speedway originated noise at the nearest residential units located along Milestone Avenue at a distance of approximately 1,900 feet is calculated at 65.6 dBA CNEL. This level exceeds the City's 60 dBA CNEL standard for sensitive land uses.

Appendix C: Technical Noise Area Definitions

Rail Noise

Noise from BNSF freight train operations was modeled using the "Wyle" method as presented in *The Noise Guidebook* distributed by the Department of Housing and Urban Development (HUD). Speed is assumed at 10 mph and the rails are bolted. Modeling predicts that the 60 and 65 dBA Ldn noise contours fall at distances of approximately 294 and 136 feet from the centerline of the tracks, respectively. These distances are extended to approximately 1,363 and 632 feet, respectively, at crossings where a warning horn is sounded. (Note that railroad noise is based on the Ldn rather than CNEL descriptor. Since the modeled noise levels are very similar, the Ldn results are considered equivalent to CNEL, for the purpose of this report). Any sensitive land uses located within these distances may already be subject to railroad noise in excess of 60 dBA CNEL. However, in actuality, these distances (especially near a grade crossing) could be considerably shorter as the intervening topography and structures could serve as noise berms and walls. The actual distance to the 60 dBA CNEL can only be determined on a case-by-case basis.

The tourist train blows its whistle at grade crossings including an area that includes residential development. (The trolleys sound a bell.) Most of the tourist rail traffic involves the trolley cars, but one-third of these operations are assumed to be associated with the trains. Speed is assumed at 10 mph and the rails are bolted. Using the Wyle method, noise from these operations is estimated at 60 dBA CNEL as measured at a distance of 159 feet from the tracks. The 65 dBA CNEL is calculated at a distance of 74 feet from the tracks. The grade crossing, that requires sounding of the whistle, extends the 60 and 65 dBA contours to an estimated 737 and 342 feet, respectively. Any residential receptors or sensitive land uses located within these distances could be subject to existing noise levels in excess of 60 dBA CNEL.

Construction Noise

As new development and redevelopment occurs over time, each individual project will generate noise during their construction phases. Noise levels will vary with the type of equipment and size of the active construction zone. Assuming that construction was to occur for 8 hours a day, the CNEL is calculated at 84 dBA at 50 feet (83 dBA CNEL for residential construction). The 65-dBA CNEL contour would fall at a distance of about 446 feet (397 feet for residential construction). The City recognizes that construction noise is difficult to control and has established allowable hours for this intrusion. Section 18-63 of the Municipal Code, "Enumeration of Prohibited Noises" provides an exemption for noise from construction and repair work as long as these activities are limited to between the hours of 7:00 AM and 6:00 PM on weekdays. Because construction activities are typically limited to weekdays, during daylight hours, this noise impact is considered a nuisance or annoying, rather than a significant impact. Continued compliance with these restrictions will reduce construction noise impacts to a level considered less than significant.

Appendix D: Existing Traffic Generated Noise (Hard Site Parameters)

This spreadsheet uses the projections generated by Caltrans Sound 32 noise model and calculates the CNEL @ 50 feet as well as the distances to the 70, 65, and 60 dBA CNEL using the "Hard Site" conditions. This sheet represents existing setting.

Auto Routes (Type 1)	CNEL from Sound32 (dBA for 10,000 ADT @ 50 Feet)	Truck Routes (Type 2)	CNEL from Sound32 (dBA for 10,000 ADT @ 50 Feet)	SR-74 (Type 3)	CNEL from Sound32 (dBA for 10,000 ADT @ 50 Feet)	I-215, N/O D Street (Type 4)	CNEL from Sound32 (dBA for 10,000 ADT @ 50 Feet)
CNEL @ 25 mph	64.3	CNEL @ 25 mph	67.5	CNEL @ 25 mph	67.2	CNEL @ 65 mph	74.3
CNEL @ 30 mph	65.7	CNEL @ 30 mph	68.6	CNEL @ 35 mph	68.7	I-215, D Street-SR74 (Type 5)	
CNEL @ 35 mph	66.5	CNEL @ 35 mph	68.7	CNEL @ 45 mph	70.7	CNEL @ 65 mph	74.4
CNEL @ 40 mph	67.8	CNEL @ 40 mph	69.7	CNEL @ 55 mph	72.4	I-215, SR74-SR74 (Type 6)	
CNEL @ 45 mph	68.9	CNEL @ 45 mph	70.6			CNEL @ 65 mph	74.1
CNEL @ 50 mph	70.0	CNEL @ 50 mph	71.4			I-215, S/O SR74 (Type 7)	
CNEL @ 55 mph	71.0	CNEL @ 55 mph	72.2			CNEL @ 65 mph	73.4

Route Types	% Autos	% Medium Trucks	% Heavy Trucks	Source
Type 1	95.22	3.24	1.54	Field Obs/Cal
Type 2	90.94	4.06	5.00	Field Obs/Cal
Type 3	88.00	8.16	3.84	Caltrans Counts
Type 4	88.00	4.56	7.44	Caltrans Counts
Type 5	86.80	6.15	7.05	Caltrans Counts
Type 6	88.20	6.04	5.76	Caltrans Counts
Type 7	93.02	3.16	3.82	Caltrans Counts

Appendix D: Existing Traffic Generated Noise (Hard Site Parameters)								
Street Name	Segment	Route Type	Speed (mph)	Existing ADT Volumes	Existing CNEL (dBA @ 50 Feet)	Distance to 70 CNEL	Distance to 65 CNEL	Distance to 60 CNEL
11th Street	A Street - B Street	1	30	4,631	62.4	9	27	86
11th Street	D Street - Perris Boulevard	1	30	6,041	63.5	11	35	112
2nd Street	B Street - C Street	1	25	1,800	56.9	2	8	24
2nd Street	D Street - Perris Boulevard	1	25	900	53.8	1	4	12
5th Street	B Street - C Street	1	25	1,100	54.7	1	5	15
5th Street	D Street - Perris Boulevard	1	25	2,200	57.7	3	9	30
6th Street	B Street - C Street	1	25	800	53.3	1	3	11
6th Street	D Street - Perris Boulevard	1	25	600	52.1	1	3	8
A Street	5th Street - 6th Street	1	25	5,625	61.8	8	24	76
A Street	South of Nuevo Road	1	40	5,348	65.1	16	51	161
C Street	2nd Street - San Jacinto Road	1	25	5,000	61.3	7	21	67
C Street	3rd Street - 2nd Street	1	25	8,700	63.7	12	37	117
C Street	5th Street - 4th Street	1	25	100	44.3	0	0	1
Cajalco Expressway	Harville Avenue - I-215	2	50	14,500	73.0	100	316	1,001
Case Road	G Street - Ellis Avenue	1	45	1,975	61.9	8	24	77
Case Road	West of I-215	1	55	2,958	65.7	19	59	186
D Street	11th Street - 6th Street	1	35	5,400	63.8	12	38	121
D Street	2nd Street - San Jacinto Road	1	35	12,500	67.5	28	88	279
D Street	3rd Street - 2nd Street	1	35	2,800	61.0	6	20	63
D Street	5th Street - 4th Street	1	35	7,389	65.2	17	52	165
D Street	5th Street - 6th Street	1	35	7,389	65.2	17	52	165
D Street	San Jacinto Road - I-215	1	35	14,710	68.2	33	104	329
Ethanac Road	Goetz Road - Murrieta Road	2	45	2,200	64.0	13	40	126
Ethanac Road	I-215 - SR-74	2	45	4,400	67.0	25	80	253
Ethanac Road	Murrieta Road - I-215	2	45	4,133	66.8	24	75	237
Goetz Road	Kaplan Creek Drive - Ethanac Road	2	55	1,900	65.0	16	50	158
Goetz Road	North of Fieldstone Drive	2	55	2,127	65.5	18	56	176
Goetz Road	Roundtree Court - Kaplan Creek Drive	2	45	3,001	65.4	17	54	172

Appendix D: Existing Traffic Generated Noise (Hard Site Parameters)								
Street Name	Segment	Route Type	Speed (mph)	Existing ADT Volumes	Existing CNEL (dBA @ 50 Feet)	Distance to 70 CNEL	Distance to 65 CNEL	Distance to 60 CNEL
I-215	Case Road - Redlands Avenue	6	65	63,000	82.1	810	2,560	8,097
I-215	Ethanac Road - Case Road	7	65	51,000	80.5	558	1,764	5,579
I-215	North of Oleander Avenue	5	65	84,000	83.6	1,157	3,658	11,568
I-215	Nuevo Road - Placentia Avenue	5	65	70,000	82.9	964	3,048	9,640
I-215	Perris Boulevard - Nuevo Road	5	65	67,000	82.7	923	2,918	9,227
I-215	Ramona Expressway - Oleander Avenue	5	65	81,000	83.5	1,115	3,527	11,155
I-215	Redlands Avenue - Perris Boulevard	5	65	57,000	82.0	785	2,482	7,850
Indian Avenue	Dawes Street - Ramona Expressway	1	45	1,800	61.5	7	22	70
Lasselle Street	At City Boundary, North of Murrietta Road	1	35	8,393	65.7	19	59	187
May Ranch Parkway	Morgan Street - Ryder Street	1	35	1,500	58.3	3	11	34
Murrieta Road	Ethanac Road - Case Road	1	45	1,300	60.0	5	16	50
Murrieta Road	McCall Boulevard - Ethanac Road	1	45	3,600	64.5	14	44	140
Navajo Road	Sioux Drive - 4th Street	1	35	9,811	66.4	22	69	219
Navajo Road	Sioux Drive - Indian Circle	1	35	9,811	66.4	22	69	219
Nuevo Road	I-215 - Perris Boulevard	1	40	23,486	71.5	71	224	708
Nuevo Road	Wilson Avenue - Murrietta Road	1	40	6,950	66.2	21	66	209
Orange Avenue	Firebrand Avenue - Wilson Avenue	1	40	6,584	66.0	20	63	198
Orange Avenue	Frontage Road - Indian Avenue	1	35	3,956	62.5	9	28	88
Orange Avenue	Perris Boulevard - Wilson Avenue	1	40	6,584	66.0	20	63	198
Perris Boulevard	2nd Street - 4th Street	2	35	12,544	69.7	46	147	465
Perris Boulevard	4th Street - 5th Street	2	30	7,229	67.2	26	83	262
Perris Boulevard	6th Street - 11th Street	2	30	6,707	66.9	24	77	243
Perris Boulevard	Citrus Avenue - Nuevo Road	2	50	22,754	75.0	157	497	1,570
Perris Boulevard	Dawes Street - Morgan Street	2	45	16,765	72.8	96	304	962
Perris Boulevard	E Jarvis Street - W Metz Road	2	35	18,581	71.4	69	218	689
Perris Boulevard	Morgan Street - Dawes Street	2	45	16,765	72.8	96	304	962
Perris Boulevard	North of Nance Street	2	55	17,464	74.6	145	458	1,449
Perris Boulevard	Placentia Avenue - Walnut Street	2	45	17,974	73.1	103	326	1,032

Appendix D: Existing Traffic Generated Noise (Hard Site Parameters)								
Street Name	Segment	Route Type	Speed (mph)	Existing ADT Volumes	Existing CNEL (dBA @ 50 Feet)	Distance to 70 CNEL	Distance to 65 CNEL	Distance to 60 CNEL
Placentia Avenue	East of Perris Boulevard	1	40	2,700	62.1	8	26	81
Placentia Avenue	Indian Avenue - Perris Boulevard	1	40	1,076	58.1	3	10	32
Ramona Expressway	Bradley Road - Ryder Street	2	55	10,500	72.4	87	276	871
Ramona Expressway	Evans Road - Bradley Road	2	55	11,700	72.9	97	307	971
Ramona Expressway	I-215 - Nevada Avenue	2	50	29,400	76.1	203	642	2,029
Ramona Expressway	Indian Avenue - Perris Boulevard	2	55	19,600	75.1	163	514	1,626
Ramona Expressway	Nevada Avenue - Webster Avenue	2	55	24,000	76.0	199	630	1,992
Ramona Expressway	Perris Boulevard - Redlands Avenue	2	55	23,577	75.9	196	619	1,956
Ramona Expressway	Redlands Avenue - Evans Road	2	55	13,500	73.5	112	354	1,120
Ramona Expressway	Webster Avenue - Indian Avenue	2	55	19,000	75.0	158	499	1,577
Redlands Avenue	San Jacinto Road - I-215	1	45	13,418	70.2	52	165	521
Rider Street	Bradley Road - Ramona Expressway	1	40	1,700	60.1	5	16	51
Rider Street	Indian Avenue - Perris Boulevard	1	40	2,100	61.0	6	20	63
Rider Street	Wilson Avenue - May Ranch Parkway	1	40	3,700	63.5	11	35	111
San Jacinto Road	Wilson Avenue - Murrieta Road	1	45	3,750	64.6	15	46	146
SR-74	B Street - C Street	3	35	24,300	72.6	90	285	901
SR-74	C Street - D Street	3	35	23,600	72.4	87	277	875
SR-74	D Street - Perris Boulevard	3	25	19,100	70.0	50	158	501
SR-74	East of I-215	3	35	22,756	72.3	84	267	843
SR-74	Indian Circle - Navajo Road	3	55	17,200	74.8	149	473	1,495
SR-74	Wilkerson Avenue - Redlands Avenue	3	35	19,800	71.7	73	232	734
Webster Avenue	Ramona Expressway - Oleander Avenue	1	35	14,400	68.1	32	102	322

Appendix E: Existing Traffic Generated Noise (Soft Site Parameters)

This spreadsheet uses the projections generated by the Caltrans Sound32 noise model and calculates the CNEL @ 50 feet as well as the distances to the 70, 65, and 60 dBA CNEL using "Soft Site" conditions. This sheet represents the Existing Setting.

Auto Routes (Type 1)	CNEL from Sound32 (dBA for 10,000 ADT @ 50 Feet)	Truck Routes (Type 2)	CNEL from Sound32 (dBA for 10,000 ADT @ 50 Feet)	SR-74 (Type 3)	CNEL from Sound32 (dBA for 10,000 ADT @ 50 Feet)	I-215, N/O D Street (Type 4)	CNEL from Sound32 (dBA for 10,000 ADT @ 50 Feet)	
CNEL @ 25 mph	63.3	CNEL @ 25 mph	66.5	CNEL @ 25 mph	66.2	CNEL @ 65 mph	73.3	
CNEL @ 30 mph	64.7	CNEL @ 30 mph	67.5	CNEL @ 35 mph	67.7	I-215, D Street-SR74 (Type 5)		
CNEL @ 35 mph	65.5	CNEL @ 35 mph	67.6	CNEL @ 45 mph	69.6	CNEL @ 65 mph	73.3	
CNEL @ 40 mph	66.7	CNEL @ 40 mph	68.6	CNEL @ 55 mph	71.3	I-215, SR74-SR74 (Type 6)		
CNEL @ 45 mph	67.9	CNEL @ 45 mph	69.5			CNEL @ 65 mph	73.1	
CNEL @ 50 mph	69.0	CNEL @ 50 mph	70.4			I-215, S/O SR74 (Type 7)		
CNEL @ 55 mph	69.9	CNEL @ 55 mph	71.2			CNEL @ 65 mph	72.3	

Route Types	% Autos	% Medium Trucks	% Heavy Trucks	Source
Type 1	95.22	3.24	1.54	Field Obs/Cal
Type 2	90.94	4.06	5.00	Field Obs/Cal
Type 3	88.00	8.16	3.84	Caltrans Counts
Type 4	88.00	4.56	7.44	Caltrans Counts
Type 5	86.80	6.15	7.05	Caltrans Counts
Type 6	88.20	6.04	5.76	Caltrans Counts
Type 7	93.02	3.16	3.82	Caltrans Counts

Appendix E: Existing Traffic Generated Noise (Soft Site Parameters)								
Street Name	Segment	Route Type	Speed (mph)	Existing ADT Volumes	Existing CNEL (dBA @ 50 Feet)	Distance to 70 CNEL	Distance to 65 CNEL	Distance to 60 CNEL
11th Street	A Street - B Street	1	30	4,631	61.4	13	29	62
11th Street	D Street - Perris Boulevard	1	30	6,041	62.5	16	34	74
2nd Street	B Street - C Street	1	25	1,800	55.9	6	12	26
2nd Street	D Street - Perris Boulevard	1	25	900	52.8	4	8	17
5th Street	B Street - C Street	1	25	1,100	53.7	4	9	19
5th Street	D Street - Perris Boulevard	1	25	2,200	56.7	7	14	30
6th Street	B Street - C Street	1	25	800	52.3	3	7	15
6th Street	D Street - Perris Boulevard	1	25	600	51.1	3	6	13
A Street	5th Street - 6th Street	1	25	5,625	60.8	12	26	57
A Street	South of Nuevo Road	1	40	5,348	64.0	20	43	92
C Street	2nd Street - San Jacinto Road	1	25	5,000	60.3	11	24	52
C Street	3rd Street - 2nd Street	1	25	8,700	62.7	16	35	76
C Street	5th Street - 4th Street	1	25	100	43.3	1	2	4
Cajalco Expressway	Harville Avenue - I-215	2	50	14,500	72.0	68	147	316
Case Road	G Street - Ellis Avenue	1	45	1,975	60.9	12	26	57
Case Road	West of I-215	1	55	2,958	64.6	22	47	101
D Street	11th Street - 6th Street	1	35	5,400	62.8	17	36	77
D Street	2nd Street - San Jacinto Road	1	35	12,500	66.5	29	63	135
D Street	3rd Street - 2nd Street	1	35	2,800	60.0	11	23	50
D Street	5th Street - 4th Street	1	35	7,389	64.2	20	44	95
D Street	5th Street - 6th Street	1	35	7,389	64.2	20	44	95
D Street	San Jacinto Road - I-215	1	35	14,710	67.2	32	70	150
Ethanac Road	Goetz Road - Murrieta Road	2	45	2,200	62.9	17	36	78
Ethanac Road	I-215 - SR-74	2	45	4,400	65.9	27	58	124
Ethanac Road	Murrieta Road - I-215	2	45	4,133	65.7	26	55	119
Goetz Road	Kaplan Creek Drive - Ethanac Road	2	55	1,900	64.0	20	43	92
Goetz Road	North of Fieldstone Drive	2	55	2,127	64.5	21	46	99
Goetz Road	Roundtree Court - Kaplan Creek Drive	2	45	3,001	64.3	21	45	96

Appendix E: Existing Traffic Generated Noise (Soft Site Parameters)								
Street Name	Segment	Route Type	Speed (mph)	Existing ADT Volumes	Existing CNEL (dBA @ 50 Feet)	Distance to 70 CNEL	Distance to 65 CNEL	Distance to 60 CNEL
I-215	Case Road - Redlands Avenue	6	65	63,000	81.1	274	591	1,274
I-215	Ethanac Road - Case Road	7	65	51,000	79.4	211	454	979
I-215	North of Oleander Avenue	5	65	84,000	82.5	343	739	1,592
I-215	Nuevo Road - Placentia Avenue	5	65	70,000	81.8	304	654	1,409
I-215	Perris Boulevard - Nuevo Road	5	65	67,000	81.6	295	635	1,369
I-215	Ramona Expressway - Oleander Avenue	5	65	81,000	82.4	335	721	1,553
I-215	Redlands Avenue - Perris Boulevard	5	65	57,000	80.9	265	570	1,229
Indian Avenue	Dawes Street - Ramona Expressway	1	45	1,800	60.5	12	25	54
Lasselle Street	At City Boundary, North of Murrietta Road	1	35	8,393	64.7	22	48	103
May Ranch Parkway	Morgan Street - Ryder Street	1	35	1,500	57.3	7	15	33
Murrieta Road	Ethanac Road - Case Road	1	45	1,300	59.0	9	20	43
Murrieta Road	McCall Boulevard - Ethanac Road	1	45	3,600	63.5	18	39	85
Navajo Road	Sioux Drive - 4th Street	1	35	9,811	65.4	25	53	115
Navajo Road	Sioux Drive - Indian Circle	1	35	9,811	65.4	25	53	115
Nuevo Road	I-215 - Perris Boulevard	1	40	23,486	70.4	53	115	247
Nuevo Road	Wilson Avenue - Murrietta Road	1	40	6,950	65.1	24	51	110
Orange Avenue	Firebrand Avenue - Wilson Avenue	1	40	6,584	64.9	23	49	106
Orange Avenue	Frontage Road - Indian Avenue	1	35	3,956	61.5	14	29	63
Orange Avenue	Perris Boulevard - Wilson Avenue	1	40	6,584	64.9	23	49	106
Perris Boulevard	2nd Street - 4th Street	2	35	12,544	68.6	40	87	187
Perris Boulevard	4th Street - 5th Street	2	30	7,229	66.1	27	59	127
Perris Boulevard	6th Street - 11th Street	2	30	6,707	65.8	26	56	121
Perris Boulevard	Citrus Avenue - Nuevo Road	2	50	22,754	74.0	92	198	427
Perris Boulevard	Dawes Street - Morgan Street	2	45	16,765	71.7	65	141	303
Perris Boulevard	E Jarvis Street - W Metz Road	2	35	18,581	70.3	52	113	243
Perris Boulevard	Morgan Street - Dawes Street	2	45	16,765	71.7	65	141	303
Perris Boulevard	North of Nance Street	2	55	17,464	73.6	87	188	405
Perris Boulevard	Placentia Avenue - Walnut Street	2	45	17,974	72.0	68	147	318
Placentia Avenue	East of Perris Boulevard	1	40	2,700	61.0	13	27	58

Appendix E: Existing Traffic Generated Noise (Soft Site Parameters)								
Street Name	Segment	Route Type	Speed (mph)	Existing ADT Volumes	Existing CNEL (dBA @ 50 Feet)	Distance to 70 CNEL	Distance to 65 CNEL	Distance to 60 CNEL
Placentia Avenue	Indian Avenue - Perris Boulevard	1	40	1,076	57.0	7	15	32
Ramona Expressway	Bradley Road - Ryder Street	2	55	10,500	71.4	62	134	288
Ramona Expressway	Evans Road - Bradley Road	2	55	11,700	71.9	67	144	310
Ramona Expressway	I-215 - Nevada Avenue	2	50	29,400	75.1	109	235	506
Ramona Expressway	Indian Avenue - Perris Boulevard	2	55	19,600	74.1	94	203	437
Ramona Expressway	Nevada Avenue - Webster Avenue	2	55	24,000	75.0	108	232	500
Ramona Expressway	Perris Boulevard - Redlands Avenue	2	55	23,577	74.9	106	229	494
Ramona Expressway	Redlands Avenue - Evans Road	2	55	13,500	72.5	73	158	341
Ramona Expressway	Webster Avenue - Indian Avenue	2	55	19,000	74.0	92	199	428
Redlands Avenue	San Jacinto Road - I-215	1	45	13,418	69.2	44	95	205
Rider Street	Bradley Road - Ramona Expressway	1	40	1,700	59.0	9	20	43
Rider Street	Indian Avenue - Perris Boulevard	1	40	2,100	59.9	11	23	49
Rider Street	Wilson Avenue - May Ranch Parkway	1	40	3,700	62.4	16	33	72
San Jacinto Road	Wilson Avenue - Murrieta Road	1	45	3,750	63.6	19	41	87
SR-74	B Street - C Street	3	35	24,300	71.6	63	137	295
SR-74	C Street - D Street	3	35	23,600	71.4	62	134	289
SR-74	D Street - Perris Boulevard	3	25	19,100	69.0	43	93	199
SR-74	East of I-215	3	35	22,756	71.3	61	131	282
SR-74	Indian Circle - Navajo Road	3	55	17,200	73.7	88	189	407
SR-74	Wilkerson Avenue - Redlands Avenue	3	35	19,800	70.7	55	119	257
Webster Avenue	Ramona Expressway - Oleander Avenue	1	35	14,400	67.1	32	69	148

Appendix F: Future Traffic Generated Noise (Hard Site Parameters)

This spreadsheet uses the projections generated by the Caltrans Sound32 noise model and calculates the CNEL @ 50 feet as well as the distances to the 70, 65, and 60 dBA CNEL using "Hard Site" conditions. This sheet represents the Future Conditions.

Auto Routes (Type 1)	CNEL from Sound32 (dBA for 10,000 ADT @ 50 Feet)	Truck Routes (Type 2)	CNEL from Sound32 (dBA for 10,000 ADT @ 50 Feet)	SR-74 (Type 3)	CNEL from Sound32 (dBA for 10,000 ADT @ 50 Feet)	I-215, N/O D Street (Type 4)	CNEL from Sound32 (dBA for 10,000 ADT @ 50 Feet)	
CNEL @ 25 mph	64.3	CNEL @ 25 mph	67.5	CNEL @ 25 mph	67.2	CNEL @ 65 mph	74.3	
CNEL @ 30 mph	65.7	CNEL @ 30 mph	68.6	CNEL @ 35 mph	68.7	I-215, D Street-SR74 (Type 5)		
CNEL @ 35 mph	66.5	CNEL @ 35 mph	68.7	CNEL @ 45 mph	70.7	CNEL @ 65 mph	74.4	
CNEL @ 40 mph	67.8	CNEL @ 40 mph	69.7	CNEL @ 55 mph	72.4	I-215, SR74-SR74 (Type 6)		
CNEL @ 45 mph	68.9	CNEL @ 45 mph	70.6			CNEL @ 65 mph	74.1	
CNEL @ 50 mph	70.0	CNEL @ 50 mph	71.4			I-215, S/O SR74 (Type 7)		
CNEL @ 55 mph	71.0	CNEL @ 55 mph	72.2			CNEL @ 65 mph	73.4	

Route Types	% Autos	% Medium Trucks	% Heavy Trucks	Source
Type 1	95.22	3.24	1.54	Field Obs/Cal
Type 2	90.94	4.06	5.00	Field Obs/Cal
Type 3	88.00	8.16	3.84	Caltrans Counts
Type 4	88.00	4.56	7.44	Caltrans Counts
Type 5	86.80	6.15	7.05	Caltrans Counts
Type 6	88.20	6.04	5.76	Caltrans Counts
Type 7	93.02	3.16	3.82	Caltrans Counts

Appendix F: Future Traffic Generated Noise (Hard Site Parameters)								
Street Name	Segment	Route Type	Speed (mph)	Future ADT Volumes	Future CNEL (dBA @ 50 Feet)	Distance to 70 CNEL	Distance to 65 CNEL	Distance to 60 CNEL
7th Street	Redlands - SR 74	1	35	4,600	63.1	10	32	103
11th Street	West of "A"	1	30	3,200	60.8	6	19	59
11th Street	A Street - D Street	1	30	3,100	60.6	6	18	58
11th Street	D Street - G Street	1	30	9,600	65.5	18	56	178
A Street	North of San Jacinto	1	40	7,500	66.6	23	71	226
A Street	San Jacinto - 4th (SR 74)	1	40	13,300	69.0	40	127	401
A Street	4th Street - 11th Street	1	25	7,900	63.3	11	34	106
A Street	11th Street - Ellis Avenue	1	25	7,900	63.3	11	34	106
A Street	Ellis Avenue - Mountain	1	35	10,000	66.5	22	71	223
A Street	Mountain - Mapes	1	35	10,000	66.5	22	71	223
A Street	Mapes - Watson	1	40	8,500	67.1	26	81	256
Bradley	Ramona Expressway - Rider Street	1	35	1,700	58.8	4	12	38
Cajalco Expressway	West of Haines	2	45	22,700	74.2	130	412	1,303
Cajalco Expressway	Haines - Old Elsinore	2	45	21,800	74.0	125	396	1,251
Cajalco Expressway	Old Elsinore - Day	2	45	24,900	74.6	143	452	1,429
Cajalco Expressway	Day - Seaton	2	50	24,000	75.2	166	524	1,656
Cajalco Expressway	Seaton - Harvill	2	50	25,400	75.4	175	554	1,753
Cajalco Expressway	Harvill Avenue - I-215	2	50	32,400	76.5	224	707	2,236
Case Road	Perris - Goetz	2	50	10,300	71.5	71	225	711
Case Road	Goetz - Ellis	2	45	10,500	70.8	60	191	603
Case Road	Ellis - Murietta	2	55	17,700	74.7	147	464	1,469
Case Road	Murietta - I-215	2	55	8,900	71.7	74	234	739
Citrus	Perris - Redlands	1	30	600	53.5	1	4	11
Citrus	Redlands - Wilson	1	35	5,800	64.1	13	41	130
Citrus	Wilson - Murrieta	1	35	1,900	59.3	4	13	42
Citrus	West of Evans	1	35	800	55.5	2	6	18
D Street	I-215 - 4th Street	1	35	23,400	70.2	52	165	523
D Street	4th Street - 11th	1	35	8,900	66.0	20	63	199

Appendix F: Future Traffic Generated Noise (Hard Site Parameters)								
Street Name	Segment	Route Type	Speed (mph)	Future ADT Volumes	Future CNEL (dBA @ 50 Feet)	Distance to 70 CNEL	Distance to 65 CNEL	Distance to 60 CNEL
Dunlap	Orange - Citrus	1	40	15,500	69.7	47	148	467
Dunlap	Citrus - Nuevo	1	40	9,200	67.4	28	88	277
Dunlap	Nuevo - San Jacinto Road	1	40	12,200	68.7	37	116	368
Dunlap	San Jacinto - Ellis	1	40	-	-	-	-	-
East Frontage Rd	Rider - Placentia	1	45	3,700	64.6	14	45	144
East Frontage Rd	Placentia - Orange	1	45	2,200	62.3	9	27	85
East Frontage Rd	Orange - Indian	1	45	2,200	62.3	9	27	85
East Frontage Rd	Indian - Nuevo Rd.	1	45	2,100	62.1	8	26	82
Ellis Avenue	West of SR 74	1	45	12,800	70.0	50	157	497
Ellis Avenue	SR 74 - A Street	2	40	14,900	71.4	70	220	695
Ellis Avenue	A Street - Goetz Road	2	40	17,400	72.1	81	257	812
Ellis Avenue	Goetz Road - Case Road	2	40	17,800	72.2	83	263	831
Ellis Avenue	Case Road - Redlands	2	40	19,400	72.6	91	286	905
Ellis Avenue	Redlands - Murietta	2	40	11,200	70.2	52	165	523
Ellis Avenue	Murietta - Evans	2	40	11,700	70.4	55	173	546
Ethanac Road	West of Sophie	2	45	11,100	71.1	64	202	637
Ethanac Road	Sophie - River Rd.	2	45	11,100	71.1	64	202	637
Ethanac Road	River Rd. - Goetz Road	2	45	14,100	72.1	81	256	809
Ethanac Road	Goetz Road - Murrieta Road	2	45	17,600	73.1	101	320	1,010
Ethanac Road	Murrieta Road - Green Valley Pkwy	2	45	16,100	72.7	92	292	924
Ethanac Road	Green Valley Pkwy - I-215	2	45	17,600	73.1	101	320	1,010
Ethanac Road	I-215 - SR-74	2	45	18,700	73.3	107	339	1,074
Ethanac Road	East of SR 74	2	45	24,100	74.4	138	438	1,384
Evans Road	Oleander - Ramona Parkway	2	45	20,400	73.7	117	370	1,171
Evans Road	Ramona Parkway - Morgan	2	45	22,500	74.1	129	408	1,292
Evans Road	Morgan - Rider	2	45	14,800	72.3	85	269	850
Evans Road	Rider Street - Placentia	2	45	13,500	71.9	78	245	775
Evans Road	Placentia - Orange	2	45	12,800	71.7	73	232	735
Evans Road	Orange - Citrus	2	45	12,400	71.5	71	225	712

Appendix F: Future Traffic Generated Noise (Hard Site Parameters)								
Street Name	Segment	Route Type	Speed (mph)	Future ADT Volumes	Future CNEL (dBA @ 50 Feet)	Distance to 70 CNEL	Distance to 65 CNEL	Distance to 60 CNEL
Evans Road	Citrus - Nuevo	2	45	12,100	71.4	69	220	695
Evans Road	Nuevo Road - Murietta	2	45	10,800	70.9	62	196	620
Evans Road	Murietta - San Jacinto	2	45	9,500	70.4	55	172	545
Evans Road	San Jacinto Road - I-215	2	45	14,500	72.2	83	263	832
Evans Road	I-215 - Ellis Avenue	2	45	12,600	71.6	72	229	723
Fieldstone	Goetz - Green River Parkway	1	45	700	57.4	3	9	27
"G" Street	San Jacinto - 4th (SR 74)	1	25	23,100	67.9	31	98	311
"G" Street	4th - Case	1	25	14,900	66.0	20	63	201
Goetz Road	Case - Ellis	2	50	9,000	70.9	62	196	621
Goetz Road	Ellis - Mountain	2	50	7,500	70.2	52	164	518
Goetz Road	Mountain - Mapes	2	50	12,900	72.5	89	282	890
Goetz Road	Mapes - Fieldstone Dr.	2	50	13,300	72.6	92	290	918
Goetz Road	Fieldstone Dr. - Ethanac	2	55	12,500	73.2	104	328	1,037
Goetz Road	Ethanac - Valley Road	2	45	12,900	71.7	74	234	741
Goetz Road	South of Valley Road	2	45	2,500	64.6	14	45	144
Green River Parkway	Murietta - Ethanac	1	30	100	45.7	0	1	2
Green River Parkway	Murietta - Fieldstone	1	30	100	45.7	0	1	2
Green River Parkway	Fieldstone Dr. - Murietta	1	30	200	48.7	0	1	4
Harvill	Oleander - Markham	1	50	11,100	70.5	56	176	555
Harvill	Markham - Ramona Expressway	1	50	11,300	70.5	57	179	565
Harvill	Ramona Expressway - Placentia	2	50	5,200	68.6	36	113	359
I-215	North of Oleander	5	65	180,200	87.0	2,482	7,847	24,816
I-215	Oleander - Ramona Expressway	5	65	176,500	86.9	2,431	7,686	24,306
I-215	Ramona Expressway - Placentia	5	65	160,500	86.5	2,210	6,989	22,103
I-215	Placentia Avenue - Nuevo	5	65	160,500	86.5	2,210	6,989	22,103
I-215	Nuevo Road - SR 74 (4th St.)	5	65	159,500	86.4	2,196	6,946	21,965
I-215	SR 74 - Evans	6	65	137,000	85.5	1,761	5,568	17,607
I-215	Evans - Case	6	65	138,500	85.5	1,780	5,629	17,800
I-215	Case - Ethanac	7	65	124,900	84.4	1,366	4,320	13,663

Appendix F: Future Traffic Generated Noise (Hard Site Parameters)								
Street Name	Segment	Route Type	Speed (mph)	Future ADT Volumes	Future CNEL (dBA @ 50 Feet)	Distance to 70 CNEL	Distance to 65 CNEL	Distance to 60 CNEL
I-215	South of Ethanac	7	65	124,500	84.4	1,362	4,307	13,619
Indian Avenue	North of Oleander Avenue	2	50	4,100	67.5	28	89	283
Indian Avenue	Oleander - Markham	2	45	4,300	66.9	25	78	247
Indian Avenue	Markham - Ramona	2	45	3,000	65.4	17	54	172
Indian Avenue	Ramona Expressway - Rider Street	2	45	1,900	63.4	11	34	109
Indian Avenue	Rider - Placentia	2	35	5,400	66.0	20	63	200
Indian Avenue	Placentia - Orange	2	35	5,500	66.1	20	64	204
Indian Avenue	Orange - E. Frontage Rd.	2	35	6,300	66.7	23	74	234
Jarvis	Perris - Redlands	1	35	5,000	63.5	11	35	112
Mapes	Goetz - "A"	1	35	6,100	64.4	14	43	136
Mapes	"A" - McPherson	1	35	1,300	57.6	3	9	29
Mapes	McPherson - Sophie	1	35	1,300	57.6	3	9	29
Mapes	Sophie - Mountain	1	35	1,300	57.6	3	9	29
Mapes	Mountain - Marie	1	35	4,300	62.8	10	30	96
Markham	West of Harvill	1	45	13,700	70.3	53	168	532
Markham	I-215 - Harvill	1	35	100	46.5	0	1	2
Markham	Wade - Patterson	1	35	100	46.5	0	1	2
Markham	Patterson - Webster	1	35	2,100	59.7	5	15	47
Markham	Webster - Indian	1	35	2,900	61.1	6	20	65
Markham	Indian - Perris	1	35	2,900	61.1	6	20	65
Markham	Perris - Redlands	1	35	1,400	58.0	3	10	31
May Ranch Parkway	Evans - Rider Street	1	35	22,500	70.0	50	159	503
McPherson	North of Mountain	1	30	1,700	58.0	3	10	32
McPherson	Mapes - Watson	1	30	-	-	-	-	-
McPherson	Watson - Ethanac	1	30	-	-	-	-	-
Morgan	Nevada - Webster	1	40	2,300	61.4	7	22	69
Morgan	Webster - Indian	2	40	2,100	62.9	10	31	98
Morgan	Indian - Perris	2	40	4,600	66.3	21	68	215
Morgan	Perris - Redlands	1	40	6,700	66.1	20	64	202

Appendix F: Future Traffic Generated Noise (Hard Site Parameters)								
Street Name	Segment	Route Type	Speed (mph)	Future ADT Volumes	Future CNEL (dBA @ 50 Feet)	Distance to 70 CNEL	Distance to 65 CNEL	Distance to 60 CNEL
Morgan	East of Evans - Evans	1	40	800	56.8	2	8	24
Mountain	West of SR 74	1	35	5,900	64.2	13	42	132
Mountain	SR 74 - Sophie	1	40	4,800	64.6	14	46	145
Mountain	Sophie - McPherson	1	40	4,400	64.2	13	42	133
Mountain	McPherson - "A" Street	1	25	2,800	58.8	4	12	38
Murrieta Road	Placentia - Orange	1	35	4,600	63.1	10	32	103
Murrieta Road	Nuevo Road - Evans	1	25	7,200	62.9	10	31	97
Murrieta Road	Case Road - Green Valley Pkwy	1	45	9,300	68.6	36	114	361
Murrieta Road	Green Valley Pkwy -Green Valley Pkwy So.	1	45	9,700	68.8	38	119	376
Murrieta Road	Green Valley Pkwy So. - Ethanac	1	45	8,900	68.4	35	109	345
Murrieta Road	Ethanac - McCall	1	50	3,400	65.3	17	54	170
Navajo Road	NW of 4th	1	35	7,600	65.3	17	54	170
Nevada Frontage Rd	Markham - Ramona Pkwy	1	45	2,600	63.0	10	32	101
Nevada Frontage Rd	Ramona Pkwy - Morgan	1	45	4,500	65.4	17	55	175
Nevada Frontage Rd	Morgan - Rider	1	45	4,200	65.1	16	52	163
Nuevo Road	Webster - I-215	2	50	4,300	67.7	30	94	297
Nuevo Road	I-215 to East Frontage Road	2	40	17,900	72.2	84	264	835
Nuevo Road	East Frontage Road - Perris Boulevard	2	40	18,200	72.3	85	269	849
Nuevo Road	Perris Boulevard - Redlands Avenue	1	40	17,700	70.3	53	169	533
Nuevo Road	Redlands Avenue - Wilson	1	40	18,000	70.4	54	171	542
Nuevo Road	Wilson Avenue - Murrietta Road	1	40	15,400	69.7	46	147	464
Nuevo Road	Murrietta Road - Evans	1	55	20,500	74.1	129	408	1,290
Nuevo Road	Evans - Dunlap	1	55	17,500	73.4	110	348	1,102
Nuevo Road	East of Dunlap	1	55	17,500	73.4	110	348	1,102
Old Elsinore Road	Oleander - Ramona	1	45	8,300	68.1	32	102	322
Old Elsinore Road	Ramona - Rider	1	45	13,800	70.3	54	169	536
Old Elsinore Road	Rider - Mack	1	45	11,500	69.5	45	141	446
Old Elsinore Road	Mack - Nuevo	1	50	12,600	71.0	63	199	630
Old Elsinore Road	Nuevo - San Jacinto	1	50	11,100	70.5	56	176	555

Appendix F: Future Traffic Generated Noise (Hard Site Parameters)								
Street Name	Segment	Route Type	Speed (mph)	Future ADT Volumes	Future CNEL (dBA @ 50 Feet)	Distance to 70 CNEL	Distance to 65 CNEL	Distance to 60 CNEL
Oleander Avenue	West of Harvill	1	45	16,200	71.0	63	199	629
Oleander Avenue	Harvill - I-215	1	45	25,300	72.9	98	311	982
Oleander Avenue	I-215 - Patterson	2	45	16,200	72.7	93	294	930
Oleander Avenue	Patterson - Heacock	2	45	13,400	71.9	77	243	769
Oleander Avenue	Heacock - Indian	2	45	7,600	69.4	44	138	436
Oleander Avenue	Indian Avenue - Perris Boulevard	2	45	7,300	69.2	42	133	419
Oleander Avenue	Perris Boulevard - Laselle	1	45	5,500	66.3	21	68	213
Orange Avenue	West of I-215	1	35	3,500	61.9	8	25	78
Orange Avenue	E. Frontage Rd. - Indian Avenue	1	35	1,400	58.0	3	10	31
Orange Avenue	Indian Road - Perris	1	35	4,600	63.1	10	32	103
Orange Avenue	Perris Boulevard - Redlands	1	40	6,700	66.1	20	64	202
Orange Avenue	Redlands - Wilson	1	40	9,100	67.4	27	87	274
Orange Avenue	Wilson - Evans	1	40	9,300	67.5	28	89	280
Orange Avenue	Evans - Dunlap	1	40	4,900	64.7	15	47	148
Patterson	Oleander - Markham	1	30	8,900	65.2	17	52	165
Perris Boulevard	North of Oleander	2	50	34,600	76.8	239	755	2,388
Perris Boulevard	Oleander - Markham	2	55	27,000	76.5	224	708	2,240
Perris Boulevard	Markham - Ramona	2	55	26,000	76.3	216	682	2,157
Perris Boulevard	Ramona Expressway - Morgan	2	45	24,900	74.6	143	452	1,429
Perris Boulevard	Morgan - Rider	2	45	25,600	74.7	147	465	1,470
Perris Boulevard	Rider Street - Placentia Avenue	2	45	25,500	74.7	146	463	1,464
Perris Boulevard	Placentia Avenue - Orange	2	45	24,600	74.5	141	447	1,412
Perris Boulevard	Orange - Citrus	2	50	17,200	73.8	119	375	1,187
Perris Boulevard	Citrus - Nuevo	2	50	17,600	73.9	121	384	1,215
Perris Boulevard	Nuevo - E. Jarvis Avenue	2	35	25,700	72.8	95	301	953
Perris Boulevard	E. Jarvis - San Jacinto	2	35	27,900	73.2	103	327	1,034
Perris Boulevard	San Jacinto - 4th	2	35	24,000	72.5	89	281	890
Perris Boulevard	4th Street - 11th	2	30	7,000	67.1	25	80	254
Perris Boulevard	11th - Ellis	1	30	7,000	64.2	13	41	130

Appendix F: Future Traffic Generated Noise (Hard Site Parameters)								
Street Name	Segment	Route Type	Speed (mph)	Future ADT Volumes	Future CNEL (dBA @ 50 Feet)	Distance to 70 CNEL	Distance to 65 CNEL	Distance to 60 CNEL
Placentia Avenue	West of Harvill	1	45	14,200	70.4	55	174	551
Placentia Avenue	Harvill - I-215	2	45	14,600	72.2	84	265	838
Placentia Avenue	I-215 - East Frontage Rd.	2	45	-	-	-	-	-
Placentia Avenue	East Frontage Rd. - Indian Avenue	2	40	30,200	74.5	141	446	1,409
Placentia Avenue	Indian Avenue - Perris Boulevard	2	40	29,600	74.4	138	437	1,381
Placentia Avenue	Perris Boulevard - Redlands Avenue	1	40	6,100	65.7	18	58	184
Placentia Avenue	Redlands Avenue - Wilson	1	40	6,100	65.7	18	58	184
Placentia Avenue	Wilson - Murietta	1	45	6,300	66.9	24	77	245
Placentia Avenue	Murietta - Evans	1	45	5,600	66.4	22	69	217
Phillips Street	Mountain - Mapes	1	35	-	-	-	-	-
Phillips Street	Mapes - Ethanac	1	35	-	-	-	-	-
Ramona Expressway	I-215 - Nevada Avenue	2	50	55,800	78.9	385	1,218	3,851
Ramona Expressway	Nevada Avenue - Webster Avenue	2	55	43,900	78.6	364	1,152	3,643
Ramona Expressway	Webster Avenue - Indian Avenue	2	55	41,400	78.4	344	1,086	3,435
Ramona Expressway	Indian Avenue - Perris Boulevard	2	55	37,800	78.0	314	992	3,137
Ramona Expressway	Perris Boulevard - Redlands Avenue	2	55	41,600	78.4	345	1,092	3,452
Ramona Expressway	Redlands Avenue - Evans Road	2	55	45,700	78.8	379	1,199	3,792
Ramona Expressway	Evans Road - Bradley Road	2	55	39,500	78.2	328	1,036	3,278
Ramona Expressway	Bradley Road - Rider Street	2	55	39,300	78.1	326	1,031	3,261
Ramona Expressway	East of Rider Street	2	55	38,700	78.1	321	1,016	3,211
Redlands Avenue	Oleander - Markham	1	45	-	-	-	-	-
Redlands Avenue	Markham - Ramona	1	45	13,600	70.2	53	167	528
Redlands Avenue	Ramona - Morgan	1	45	14,700	70.6	57	180	571
Redlands Avenue	Morgan - Rider	1	45	16,500	71.1	64	203	640
Redlands Avenue	Rider Street - Placentia Avenue	1	45	21,400	72.2	83	263	831
Redlands Avenue	Placentia Avenue - Orange	1	35	21,200	69.8	47	150	473
Redlands Avenue	Orange - Citrus	1	45	15,700	70.9	61	193	609
Redlands Avenue	Citrus - Nuevo	1	25	18,400	66.9	25	78	248
Redlands Avenue	Nuevo - E. Jarvis Avenue	1	45	24,700	72.8	96	303	959

Appendix F: Future Traffic Generated Noise (Hard Site Parameters)								
Street Name	Segment	Route Type	Speed (mph)	Future ADT Volumes	Future CNEL (dBA @ 50 Feet)	Distance to 70 CNEL	Distance to 65 CNEL	Distance to 60 CNEL
Redlands Avenue	E. Jarvis - San Jacinto	1	45	24,400	72.8	95	299	947
Redlands Avenue	San Jacinto Road - I-215	1	45	24,700	72.8	96	303	959
Redlands Avenue	I-215 - 4th (SR 74)	1	35	26,400	70.7	59	186	590
Redlands Avenue	4th - Ellis	1	30	18,600	68.4	35	109	346
Rider Street	West of Alexander	1	35	4,300	62.8	10	30	96
Rider Street	Alexander - Old Elsinore	1	35	8,300	65.7	19	59	185
Rider Street	Old Elsinore - Marie	1	40	4,600	64.4	14	44	139
Rider Street	Marie - Harvill	1	40	11,600	68.4	35	111	349
Rider Street	Nevada - Webster	1	40	3,900	63.7	12	37	117
Rider Street	Webster - Indian	2	40	3,600	65.3	17	53	168
Rider Street	Indian Avenue - Perris Boulevard	2	40	4,600	66.3	21	68	215
Rider Street	Perris - Wilson	1	40	4,000	63.8	12	38	121
Rider Street	Wilson - Redlands	1	40	3,700	63.5	11	35	111
Rider Street	Redlands - Evans	1	40	10,700	68.1	32	102	322
Rider Street	Evans - May Ranch Pkwy	1	40	4,900	64.7	15	47	148
Rider Street	May Ranch Pkwy - Bradley	1	40	6,100	65.7	18	58	184
Rider Street	Bradley - Ramona	1	40	4,700	64.5	14	45	142
River Rd.	Watson - Ethanac	1	30	6,700	64.0	12	39	124
San Jacinto Road	East of "A" Street	1	35	6,000	64.3	13	42	134
San Jacinto Road	"A" - "D"	1	35	6,400	64.6	14	45	143
San Jacinto Road	"D" - Perris	1	35	6,800	64.8	15	48	152
San Jacinto Road	Perris - "G"	1	35	15,500	68.4	35	109	346
San Jacinto Road	"G" - Redlands	1	35	10,500	66.7	23	74	235
San Jacinto Road	Redlands - Wilson	1	45	3,300	64.1	13	41	128
San Jacinto Road	Wilson - Evans	1	45	6,300	66.9	24	77	245
San Jacinto Road	Evans - Dunlap	1	45	5,000	65.9	19	61	194
Sophie	Mountain - Mapes	1	35	9,000	66.0	20	64	201
SR-74	South of Mountain	3	55	32,600	77.5	283	896	2,833
SR-74	Marie - Mountain	3	55	29,600	77.1	257	813	2,572

Appendix F: Future Traffic Generated Noise (Hard Site Parameters)								
Street Name	Segment	Route Type	Speed (mph)	Future ADT Volumes	Future CNEL (dBA @ 50 Feet)	Distance to 70 CNEL	Distance to 65 CNEL	Distance to 60 CNEL
SR-74	Mountain - Ellis	3	55	33,400	77.6	290	918	2,902
SR-74	Ellis - Navajo	3	55	29,000	77.0	252	797	2,520
SR-74	Navajo - "A"	3	55	34,300	77.8	298	942	2,980
SR-74	A Street - D Street	3	35	34,500	74.1	128	404	1,279
SR-74	D Street - Perris Boulevard	3	25	22,100	70.6	58	183	580
SR-74	Perris Boulevard - "G"	3	35	14,400	70.3	53	169	534
SR-74	"G" - Redlands	3	35	14,600	70.3	54	171	541
SR-74	East of Redlands	3	35	7,500	67.5	28	88	278
Valley Road	South of Goetz	1	45	12,300	69.8	48	151	477
Wade	Oleander - Markham	1	30	3,300	60.9	6	19	61
Watson	"A" Street - River Road	1	30	5,400	63.0	10	32	100
Watson	River Road - McPherson	1	30	6,800	64.0	13	40	126
Webster Avenue	Oleander - Markham	2	35	5,200	65.9	19	61	193
Webster Avenue	Markham - Ramona	2	35	2,000	61.7	7	23	74
Webster Avenue	Ramona Expressway - Morgan	2	35	2,000	61.7	7	23	74
Webster Avenue	Morgan - Rider	2	35	1200	59.5	4	14	44
Wilson	Rider - Placentia	1	35	5,400	63.8	12	38	121
Wilson	Placentia - Orange	1	35	4,300	62.8	10	30	96
Wilson	Orange - Citrus	1	25	200	47.3	0	1	3
Wilson	Citrus - Nuevo	1	25	400	50.3	1	2	5
Wilson	Nuevo - San Jacinto Road	1	25	500	51.3	1	2	7

Appendix G: Future Traffic Generated Noise (Soft Site Parameters)

This spreadsheet uses the projections generated by the Caltrans Sound32 noise model and calculates the CNEL @ 50 feet as well as the distances to the 70, 65, and 60 dBA CNEL using "Soft Site" conditions. This sheet represents the Future Conditions.

Auto Routes (Type 1)	CNEL from Sound32 (dBA for 10,000 ADT @ 50 Feet)	Truck Routes (Type 2)	CNEL from Sound32 (dBA for 10,000 ADT @ 50 Feet)	SR-74 (Type 3)	CNEL from Sound32 (dBA for 10,000 ADT @ 50 Feet)	I-215, N/O D Street (Type 4)	CNEL from Sound32 (dBA for 10,000 ADT @ 50 Feet)	
CNEL @ 25 mph	63.3	CNEL @ 25 mph	66.5	CNEL @ 25 mph	66.2	CNEL @ 65 mph	73.3	
CNEL @ 30 mph	64.7	CNEL @ 30 mph	67.5	CNEL @ 35 mph	67.7	I-215, D Street-SR74 (Type 5)		
CNEL @ 35 mph	65.5	CNEL @ 35 mph	67.6	CNEL @ 45 mph	69.6	CNEL @ 65 mph	73.3	
CNEL @ 40 mph	66.7	CNEL @ 40 mph	68.6	CNEL @ 55 mph	71.3	I-215, SR74-SR74 (Type 6)		
CNEL @ 45 mph	67.9	CNEL @ 45 mph	69.5			CNEL @ 65 mph	73.1	
CNEL @ 50 mph	69.0	CNEL @ 50 mph	70.4			I-215, S/O SR74 (Type 7)		
CNEL @ 55 mph	69.9	CNEL @ 55 mph	71.2			CNEL @ 65 mph	72.3	

Route Types	% Autos	% Medium Trucks	% Heavy Trucks	Source
Type 1	95.22	3.24	1.54	Field Obs/Cal
Type 2	90.94	4.06	5.00	Field Obs/Cal
Type 3	88.00	8.16	3.84	Caltrans Counts
Type 4	88.00	4.56	7.44	Caltrans Counts
Type 5	86.80	6.15	7.05	Caltrans Counts
Type 6	88.20	6.04	5.76	Caltrans Counts
Type 7	93.02	3.16	3.82	Caltrans Counts

Appendix G: Future Traffic Generated Noise (Soft Site Parameters)								
Street Name	Segment	Route Type	Speed (mph)	Future ADT Volumes	Future CNEL (dBA @ 50 Feet)	Distance to 70 CNEL	Distance to 65 CNEL	Distance to 60 CNEL
7th Street	Redlands - SR 74	1	35	4,600	62.1	15	32	69
11th Street	West of "A"	1	30	3,200	59.8	10	22	48
11th Street	A Street - D Street	1	30	3,100	59.6	10	22	47
11th Street	D Street - G Street	1	30	9,600	64.5	22	46	100
A Street	North of San Jacinto	1	40	7,500	65.5	25	54	115
A Street	San Jacinto - 4th (SR 74)	1	40	13,300	67.9	36	79	169
A Street	4th Street - 11th Street	1	25	7,900	62.3	15	33	71
A Street	11th Street - Ellis Avenue	1	25	7,900	62.3	15	33	71
A Street	Ellis Avenue - Mountain	1	35	10,000	65.5	25	54	116
A Street	Mountain - Mapes	1	35	10,000	65.5	25	54	116
A Street	Mapes - Watson	1	40	8,500	66.0	27	58	125
Bradley	Ramona Expressway - Rider Street	1	35	1,700	57.8	8	17	36
Cajalco Expressway	West of Haines	2	45	22,700	73.1	80	172	371
Cajalco Expressway	Haines - Old Elsinore	2	45	21,800	72.9	78	168	361
Cajalco Expressway	Old Elsinore - Day	2	45	24,900	73.5	85	183	395
Cajalco Expressway	Day - Seaton	2	50	24,000	74.2	95	205	442
Cajalco Expressway	Seaton - Harvill	2	50	25,400	74.4	99	213	459
Cajalco Expressway	Harvill Avenue - I-215	2	50	32,400	75.5	116	251	540
Case Road	Perris - Goetz	2	50	10,300	70.5	54	117	252
Case Road	Goetz - Ellis	2	45	10,500	69.7	48	103	222
Case Road	Ellis - Murietta	2	55	17,700	73.7	88	190	408
Case Road	Murietta - I-215	2	55	8,900	70.7	56	120	258
Citrus	Perris - Redlands	1	30	600	52.5	3	7	16
Citrus	Redlands - Wilson	1	35	5,800	63.1	17	38	81
Citrus	Wilson - Murrieta	1	35	1,900	58.3	8	18	38
Citrus	West of Evans	1	35	800	54.5	5	10	22
D Street	I-215 - 4th Street	1	35	23,400	69.2	44	95	205
D Street	4th Street - 11th	1	35	8,900	65.0	23	50	108

Appendix G: Future Traffic Generated Noise (Soft Site Parameters)								
Street Name	Segment	Route Type	Speed (mph)	Future ADT Volumes	Future CNEL (dBA @ 50 Feet)	Distance to 70 CNEL	Distance to 65 CNEL	Distance to 60 CNEL
Dunlap	Orange - Citrus	1	40	15,500	68.6	40	87	187
Dunlap	Citrus - Nuevo	1	40	9,200	66.3	28	61	132
Dunlap	Nuevo - San Jacinto Road	1	40	12,200	67.6	34	74	160
Dunlap	San Jacinto - Ellis	1	40	-	-	-	-	-
East Frontage Rd	Rider - Placentia	1	45	3,700	63.6	19	40	87
East Frontage Rd	Placentia - Orange	1	45	2,200	61.3	13	28	61
East Frontage Rd	Orange - Indian	1	45	2,200	61.3	13	28	61
East Frontage Rd	Indian - Nuevo Rd.	1	45	2,100	61.1	13	28	59
Ellis Avenue	West of SR 74	1	45	12,800	69.0	43	92	198
Ellis Avenue	SR 74 - A Street	2	40	14,900	70.3	53	113	244
Ellis Avenue	A Street - Goetz Road	2	40	17,400	71.0	58	126	271
Ellis Avenue	Goetz Road - Case Road	2	40	17,800	71.1	59	128	275
Ellis Avenue	Case Road - Redlands	2	40	19,400	71.5	63	135	291
Ellis Avenue	Redlands - Murietta	2	40	11,200	69.1	43	94	202
Ellis Avenue	Murietta - Evans	2	40	11,700	69.3	45	96	208
Ethanac Road	West of Sophie	2	45	11,100	70.0	50	107	230
Ethanac Road	Sophie - River Rd.	2	45	11,100	70.0	50	107	230
Ethanac Road	River Rd. - Goetz Road	2	45	14,100	71.0	58	125	270
Ethanac Road	Goetz Road - Murrieta Road	2	45	17,600	72.0	68	145	313
Ethanac Road	Murrieta Road - Green Valley Pkwy	2	45	16,100	71.6	64	137	295
Ethanac Road	Green Valley Pkwy - I-215	2	45	17,600	72.0	68	145	313
Ethanac Road	I-215 - SR-74	2	45	18,700	72.2	70	151	326
Ethanac Road	East of SR 74	2	45	24,100	73.3	83	179	386
Evans Road	Oleander - Ramona Parkway	2	45	20,400	72.6	74	160	346
Evans Road	Ramona Parkway - Morgan	2	45	22,500	73.0	80	171	369
Evans Road	Morgan - Rider	2	45	14,800	71.2	60	130	279
Evans Road	Rider Street - Placentia	2	45	13,500	70.8	57	122	263
Evans Road	Placentia - Orange	2	45	12,800	70.6	55	118	253
Evans Road	Orange - Citrus	2	45	12,400	70.4	53	115	248

Appendix G: Future Traffic Generated Noise (Soft Site Parameters)								
Street Name	Segment	Route Type	Speed (mph)	Future ADT Volumes	Future CNEL (dBA @ 50 Feet)	Distance to 70 CNEL	Distance to 65 CNEL	Distance to 60 CNEL
Evans Road	Citrus - Nuevo	2	45	12,100	70.3	53	113	244
Evans Road	Nuevo Road - Murietta	2	45	10,800	69.8	49	105	226
Evans Road	Murietta - San Jacinto	2	45	9,500	69.3	45	96	208
Evans Road	San Jacinto Road - I-215	2	45	14,500	71.1	59	128	275
Evans Road	I-215 - Ellis Avenue	2	45	12,600	70.5	54	116	251
Fieldstone	Goetz - Green River Parkway	1	45	700	56.4	6	13	29
"G" Street	San Jacinto - 4th (SR 74)	1	25	23,100	66.9	31	67	145
"G" Street	4th - Case	1	25	14,900	65.0	23	50	108
Goetz Road	Case - Ellis	2	50	9,000	69.9	50	107	230
Goetz Road	Ellis - Mountain	2	50	7,500	69.2	44	95	204
Goetz Road	Mountain - Mapes	2	50	12,900	71.5	63	136	292
Goetz Road	Mapes - Fieldstone Dr.	2	50	13,300	71.6	64	139	298
Goetz Road	Fieldstone Dr. - Ethanac	2	55	12,500	72.2	70	150	324
Goetz Road	Ethanac - Valley Road	2	45	12,900	70.6	55	118	255
Goetz Road	South of Valley Road	2	45	2,500	63.5	18	40	85
Green River Parkway	Murietta - Ethanac	1	30	100	44.7	1	2	5
Green River Parkway	Murietta - Fieldstone	1	30	100	44.7	1	2	5
Green River Parkway	Fieldstone Dr. - Murietta	1	30	200	47.7	2	4	8
Harvill	Oleander - Markham	1	50	11,100	69.5	46	99	213
Harvill	Markham - Ramona Expressway	1	50	11,300	69.5	47	100	216
Harvill	Ramona Expressway - Placentia	2	50	5,200	67.6	34	74	160
I-215	North of Oleander	5	65	180,200	85.9	570	1,229	2,647
I-215	Oleander - Ramona Expressway	5	65	176,500	85.8	563	1,212	2,611
I-215	Ramona Expressway - Placentia	5	65	160,500	85.4	528	1,138	2,451
I-215	Placentia Avenue - Nuevo	5	65	160,500	85.4	528	1,138	2,451
I-215	Nuevo Road - SR 74 (4th St.)	5	65	159,500	85.3	526	1,133	2,440
I-215	SR 74 - Evans	6	65	137,000	84.5	461	993	2,139
I-215	Evans - Case	6	65	138,500	84.5	464	1,000	2,154
I-215	Case - Ethanac	7	65	124,900	83.3	383	825	1,778

Appendix G: Future Traffic Generated Noise (Soft Site Parameters)								
Street Name	Segment	Route Type	Speed (mph)	Future ADT Volumes	Future CNEL (dBA @ 50 Feet)	Distance to 70 CNEL	Distance to 65 CNEL	Distance to 60 CNEL
I-215	South of Ethanac	7	65	124,500	83.3	382	824	1,775
Indian Avenue	North of Oleander Avenue	2	50	4,100	66.5	29	63	136
Indian Avenue	Oleander - Markham	2	45	4,300	65.8	26	57	122
Indian Avenue	Markham - Ramona	2	45	3,000	64.3	21	45	96
Indian Avenue	Ramona Expressway - Rider Street	2	45	1,900	62.3	15	33	71
Indian Avenue	Rider - Placentia	2	35	5,400	64.9	23	49	106
Indian Avenue	Placentia - Orange	2	35	5,500	65.0	23	50	108
Indian Avenue	Orange - E. Frontage Rd.	2	35	6,300	65.6	25	55	118
Jarvis	Perris - Redlands	1	35	5,000	62.5	16	34	73
Mapes	Goetz - "A"	1	35	6,100	63.4	18	39	84
Mapes	"A" - McPherson	1	35	1,300	56.6	6	14	30
Mapes	McPherson - Sophie	1	35	1,300	56.6	6	14	30
Mapes	Sophie - Mountain	1	35	1,300	56.6	6	14	30
Mapes	Mountain - Marie	1	35	4,300	61.8	14	31	66
Markham	West of Harvill	1	45	13,700	69.3	45	96	207
Markham	I-215 - Harvill	1	35	100	45.5	1	3	5
Markham	Wade - Patterson	1	35	100	45.5	1	3	5
Markham	Patterson - Webster	1	35	2,100	58.7	9	19	41
Markham	Webster - Indian	1	35	2,900	60.1	11	24	51
Markham	Indian - Perris	1	35	2,900	60.1	11	24	51
Markham	Perris - Redlands	1	35	1,400	57.0	7	15	31
May Ranch Parkway	Evans - Rider Street	1	35	22,500	69.0	43	93	200
McPherson	North of Mountain	1	30	1,700	57.0	7	15	32
McPherson	Mapes - Watson	1	30	-	-	-	-	-
McPherson	Watson - Ethanac	1	30	-	-	-	-	-
Morgan	Nevada - Webster	1	40	2,300	60.3	11	24	52
Morgan	Webster - Indian	2	40	2,100	61.8	14	31	66
Morgan	Indian - Perris	2	40	4,600	65.2	24	52	112
Morgan	Perris - Redlands	1	40	6,700	65.0	23	50	107

Appendix G: Future Traffic Generated Noise (Soft Site Parameters)								
Street Name	Segment	Route Type	Speed (mph)	Future ADT Volumes	Future CNEL (dBA @ 50 Feet)	Distance to 70 CNEL	Distance to 65 CNEL	Distance to 60 CNEL
Morgan	East of Evans - Evans	1	40	800	55.7	6	12	26
Mountain	West of SR 74	1	35	5,900	63.2	18	38	82
Mountain	SR 74 - Sophie	1	40	4,800	63.5	18	40	86
Mountain	Sophie - McPherson	1	40	4,400	63.1	17	38	81
Mountain	McPherson - "A" Street	1	25	2,800	57.8	8	16	36
Murrieta Road	Placentia - Orange	1	35	4,600	62.1	15	32	69
Murrieta Road	Nuevo Road - Evans	1	25	7,200	61.9	14	31	67
Murrieta Road	Case Road - Green Valley Pkwy	1	45	9,300	67.6	35	74	160
Murrieta Road	Green Valley Pkwy -Green Valley Pkwy So.	1	45	9,700	67.8	35	76	165
Murrieta Road	Green Valley Pkwy So. - Ethanac	1	45	8,900	67.4	34	72	156
Murrieta Road	Ethanac - McCall	1	50	3,400	64.3	21	45	97
Navajo Road	NW of 4th	1	35	7,600	64.3	21	45	97
Nevada Frontage Rd	Markham - Ramona Pkwy	1	45	2,600	62.0	15	32	68
Nevada Frontage Rd	Ramona Pkwy - Morgan	1	45	4,500	64.4	21	46	99
Nevada Frontage Rd	Morgan - Rider	1	45	4,200	64.1	20	44	94
Nuevo Road	Webster - I-215	2	50	4,300	66.7	30	65	141
Nuevo Road	I-215 to East Frontage Road	2	40	17,900	71.1	59	128	276
Nuevo Road	East Frontage Road - Perris Boulevard	2	40	18,200	71.2	60	130	279
Nuevo Road	Perris Boulevard - Redlands Avenue	1	40	17,700	69.2	44	95	205
Nuevo Road	Redlands Avenue - Wilson	1	40	18,000	69.3	45	96	207
Nuevo Road	Wilson Avenue - Murrietta Road	1	40	15,400	68.6	40	87	186
Nuevo Road	Murrietta Road - Evans	1	55	20,500	73.0	79	171	369
Nuevo Road	Evans - Dunlap	1	55	17,500	72.3	72	154	332
Nuevo Road	East of Dunlap	1	55	17,500	72.3	72	154	332
Old Elsinore Road	Oleander - Ramona	1	45	8,300	67.1	32	69	148
Old Elsinore Road	Ramona - Rider	1	45	13,800	69.3	45	97	208
Old Elsinore Road	Rider - Mack	1	45	11,500	68.5	40	86	185
Old Elsinore Road	Mack - Nuevo	1	50	12,600	70.0	50	108	232
Old Elsinore Road	Nuevo - San Jacinto	1	50	11,100	69.5	46	99	213

Appendix G: Future Traffic Generated Noise (Soft Site Parameters)								
Street Name	Segment	Route Type	Speed (mph)	Future ADT Volumes	Future CNEL (dBA @ 50 Feet)	Distance to 70 CNEL	Distance to 65 CNEL	Distance to 60 CNEL
Oleander Avenue	West of Harvill	1	45	16,200	70.0	50	108	232
Oleander Avenue	Harvill - I-215	1	45	25,300	71.9	67	145	312
Oleander Avenue	I-215 - Patterson	2	45	16,200	71.6	64	138	296
Oleander Avenue	Patterson - Heacock	2	45	13,400	70.8	56	121	261
Oleander Avenue	Heacock - Indian	2	45	7,600	68.3	39	83	179
Oleander Avenue	Indian Avenue - Perris Boulevard	2	45	7,300	68.1	38	81	174
Oleander Avenue	Perris Boulevard - Laselle	1	45	5,500	65.3	24	52	113
Orange Avenue	West of I-215	1	35	3,500	60.9	12	27	58
Orange Avenue	E. Frontage Rd. - Indian Avenue	1	35	1,400	57.0	7	15	31
Orange Avenue	Indian Road - Perris	1	35	4,600	62.1	15	32	69
Orange Avenue	Perris Boulevard - Redlands	1	40	6,700	65.0	23	50	107
Orange Avenue	Redlands - Wilson	1	40	9,100	66.3	28	61	131
Orange Avenue	Wilson - Evans	1	40	9,300	66.4	29	62	133
Orange Avenue	Evans - Dunlap	1	40	4,900	63.6	19	40	87
Patterson	Oleander - Markham	1	30	8,900	64.2	21	44	95
Perris Boulevard	North of Oleander	2	50	34,600	75.8	122	262	565
Perris Boulevard	Oleander - Markham	2	55	27,000	75.5	117	251	541
Perris Boulevard	Markham - Ramona	2	55	26,000	75.3	114	245	528
Perris Boulevard	Ramona Expressway - Morgan	2	45	24,900	73.5	85	183	395
Perris Boulevard	Morgan - Rider	2	45	25,600	73.6	87	187	402
Perris Boulevard	Rider Street - Placentia Avenue	2	45	25,500	73.6	86	186	401
Perris Boulevard	Placentia Avenue - Orange	2	45	24,600	73.4	84	182	392
Perris Boulevard	Orange - Citrus	2	50	17,200	72.8	76	164	354
Perris Boulevard	Citrus - Nuevo	2	50	17,600	72.9	78	167	360
Perris Boulevard	Nuevo - E. Jarvis Avenue	2	35	25,700	71.7	65	140	301
Perris Boulevard	E. Jarvis - San Jacinto	2	35	27,900	72.1	69	148	318
Perris Boulevard	San Jacinto - 4th	2	35	24,000	71.4	62	134	288
Perris Boulevard	4th Street - 11th	2	30	7,000	66.0	27	58	125
Perris Boulevard	11th - Ellis	1	30	7,000	63.2	17	38	81

Appendix G: Future Traffic Generated Noise (Soft Site Parameters)								
Street Name	Segment	Route Type	Speed (mph)	Future ADT Volumes	Future CNEL (dBA @ 50 Feet)	Distance to 70 CNEL	Distance to 65 CNEL	Distance to 60 CNEL
Placentia Avenue	West of Harvill	1	45	14,200	69.4	46	99	212
Placentia Avenue	Harvill - I-215	2	45	14,600	71.1	60	128	277
Placentia Avenue	I-215 - East Frontage Rd.	2	45	-	-	-	-	-
Placentia Avenue	East Frontage Rd. - Indian Avenue	2	40	30,200	73.4	84	182	391
Placentia Avenue	Indian Avenue - Perris Boulevard	2	40	29,600	73.3	83	179	386
Placentia Avenue	Perris Boulevard - Redlands Avenue	1	40	6,100	64.6	22	47	101
Placentia Avenue	Redlands Avenue - Wilson	1	40	6,100	64.6	22	47	101
Placentia Avenue	Wilson - Murietta	1	45	6,300	65.9	27	57	124
Placentia Avenue	Murietta - Evans	1	45	5,600	65.4	25	53	114
Phillips Street	Mountain - Mapes	1	35	-	-	-	-	-
Phillips Street	Mapes - Ethanac	1	35	-	-	-	-	-
Ramona Expressway	I-215 - Nevada Avenue	2	50	55,800	77.9	167	360	776
Ramona Expressway	Nevada Avenue - Webster Avenue	2	55	43,900	77.6	161	347	748
Ramona Expressway	Webster Avenue - Indian Avenue	2	55	41,400	77.4	155	334	719
Ramona Expressway	Indian Avenue - Perris Boulevard	2	55	37,800	77.0	146	314	677
Ramona Expressway	Perris Boulevard - Redlands Avenue	2	55	41,600	77.4	155	335	722
Ramona Expressway	Redlands Avenue - Evans Road	2	55	45,700	77.8	166	357	768
Ramona Expressway	Evans Road - Bradley Road	2	55	39,500	77.2	150	324	697
Ramona Expressway	Bradley Road - Rider Street	2	55	39,300	77.1	150	323	695
Ramona Expressway	East of Rider Street	2	55	38,700	77.1	148	319	688
Redlands Avenue	Oleander - Markham	1	45	-	-	-	-	-
Redlands Avenue	Markham - Ramona	1	45	13,600	69.2	44	96	206
Redlands Avenue	Ramona - Morgan	1	45	14,700	69.6	47	101	217
Redlands Avenue	Morgan - Rider	1	45	16,500	70.1	51	109	235
Redlands Avenue	Rider Street - Placentia Avenue	1	45	21,400	71.2	60	130	279
Redlands Avenue	Placentia Avenue - Orange	1	35	21,200	68.8	41	89	192
Redlands Avenue	Orange - Citrus	1	45	15,700	69.9	49	105	227
Redlands Avenue	Citrus - Nuevo	1	25	18,400	65.9	27	58	125
Redlands Avenue	Nuevo - E. Jarvis Avenue	1	45	24,700	71.8	66	143	307

Appendix G: Future Traffic Generated Noise (Soft Site Parameters)								
Street Name	Segment	Route Type	Speed (mph)	Future ADT Volumes	Future CNEL (dBA @ 50 Feet)	Distance to 70 CNEL	Distance to 65 CNEL	Distance to 60 CNEL
Redlands Avenue	E. Jarvis - San Jacinto	1	45	24,400	71.8	66	141	305
Redlands Avenue	San Jacinto Road - I-215	1	45	24,700	71.8	66	143	307
Redlands Avenue	I-215 - 4th (SR 74)	1	35	26,400	69.7	48	103	222
Redlands Avenue	4th - Ellis	1	30	18,600	67.4	34	72	156
Rider Street	West of Alexander	1	35	4,300	61.8	14	31	66
Rider Street	Alexander - Old Elsinore	1	35	8,300	64.7	22	48	103
Rider Street	Old Elsinore - Marie	1	40	4,600	63.3	18	39	83
Rider Street	Marie - Harvill	1	40	11,600	67.3	33	72	154
Rider Street	Nevada - Webster	1	40	3,900	62.6	16	35	75
Rider Street	Webster - Indian	2	40	3,600	64.2	20	44	95
Rider Street	Indian Avenue - Perris Boulevard	2	40	4,600	65.2	24	52	112
Rider Street	Perris - Wilson	1	40	4,000	62.7	16	35	76
Rider Street	Wilson - Redlands	1	40	3,700	62.4	16	33	72
Rider Street	Redlands - Evans	1	40	10,700	67.0	32	68	146
Rider Street	Evans - May Ranch Pkwy	1	40	4,900	63.6	19	40	87
Rider Street	May Ranch Pkwy - Bradley	1	40	6,100	64.6	22	47	101
Rider Street	Bradley - Ramona	1	40	4,700	63.4	18	39	85
River Rd.	Watson - Ethanac	1	30	6,700	63.0	17	37	79
San Jacinto Road	East of "A" Street	1	35	6,000	63.3	18	38	83
San Jacinto Road	"A" - "D"	1	35	6,400	63.6	19	40	86
San Jacinto Road	"D" - Perris	1	35	6,800	63.8	19	42	90
San Jacinto Road	Perris - "G"	1	35	15,500	67.4	34	72	156
San Jacinto Road	"G" - Redlands	1	35	10,500	65.7	26	56	120
San Jacinto Road	Redlands - Wilson	1	45	3,300	63.1	17	37	80
San Jacinto Road	Wilson - Evans	1	45	6,300	65.9	27	57	124
San Jacinto Road	Evans – Dunlap	1	45	5,000	64.9	23	49	106
Sophie	Mountain – Mapes	1	35	9,000	65.0	23	50	108
SR-74	South of Mountain	3	55	32,600	76.4	134	289	623
SR-74	Marie – Mountain	3	55	29,600	76.0	126	271	584

Appendix G: Future Traffic Generated Noise (Soft Site Parameters)								
Street Name	Segment	Route Type	Speed (mph)	Future ADT Volumes	Future CNEL (dBA @ 50 Feet)	Distance to 70 CNEL	Distance to 65 CNEL	Distance to 60 CNEL
SR-74	Mountain – Ellis	3	55	33,400	76.5	136	294	633
SR-74	Ellis – Navajo	3	55	29,000	75.9	124	267	576
SR-74	Navajo - "A"	3	55	34,300	76.7	139	299	644
SR-74	A Street - D Street	3	35	34,500	73.1	80	173	372
SR-74	D Street - Perris Boulevard	3	25	22,100	69.6	47	102	220
SR-74	Perris Boulevard - "G"	3	35	14,400	69.3	45	97	208
SR-74	"G" – Redlands	3	35	14,600	69.3	45	97	210
SR-74	East of Redlands	3	35	7,500	66.5	29	62	135
Valley Road	South of Goetz	1	45	12,300	68.8	42	90	193
Wade	Oleander – Markham	1	30	3,300	59.9	11	23	49
Watson	"A" Street - River Road	1	30	5,400	62.0	15	32	68
Watson	River Road – McPherson	1	30	6,800	63.0	17	37	80
Webster Avenue	Oleander – Markham	2	35	5,200	64.8	22	48	104
Webster Avenue	Markham – Ramona	2	35	2,000	60.6	12	25	55
Webster Avenue	Ramona Expressway – Morgan	2	35	2,000	60.6	12	25	55
Webster Avenue	Morgan – Rider	2	35	1200	58.4	8	18	39
Wilson	Rider – Placentia	1	35	5,400	62.8	17	36	77
Wilson	Placentia – Orange	1	35	4,300	61.8	14	31	66
Wilson	Orange – Citrus	1	25	200	46.3	1	3	6
Wilson	Citrus – Nuevo	1	25	400	49.3	2	5	10
Wilson	Nuevo - San Jacinto Road	1	25	500	50.3	2	5	11

CHAPTER 7.34. - NOISE CONTROL

Sec. 7.34.010. - Declaration of policy.

Excessive noise levels are detrimental to the health and safety of individuals. Noise is considered a public nuisance, and the city discourages unnecessary, excessive or annoying noises from all sources. Creating, maintaining, causing, or allowing to be created, caused or maintained, any noise or vibration in a manner prohibited by the provisions of the ordinance codified in this chapter is a public nuisance and shall be punishable as a misdemeanor.

(Code 1972, § 7.34.010; Ord. No. 1082, § 2(part), 2000)

Sec. 7.34.020. - Definitions.

(a) *General.* The following words, terms and phrases, when used in this chapter, shall have the meanings ascribed to them in this section, except where the context clearly indicates a different meaning:

Ambient noise means the all-encompassing noise associated with a given environment usually being composed of sounds from many sources near and far. For the purpose of this chapter, ambient noise level is the level obtained when the noise level is averaged over a period of five minutes without inclusion of noise from isolated identifiable sources at the location and time of day near that at which a comparison is to be made.

Decibel (dB) means an intensity unit which denotes the ratio between two quantities which are proportional to power; the number of decibels corresponding to the ratio is ten times the common logarithm of this ratio.

Sound amplifying equipment means any machine or device for the amplification of the human voice, music or any other sound. The term "sound amplifying equipment" does not include standard vehicle radios when used and heard only by the occupants of the vehicle in which the vehicle radio is installed. The term "sound amplifying equipment," as used in this chapter, does not include warning devices on any vehicle used only for traffic safety purposes and shall not include communications equipment used by public or private utilities when restoring utility service following a public emergency or when doing work required to protect person or property from an imminent exposure to danger.

Sound level (noise level) in decibels is the value of a sound measurement using the "A" weighting network of a sound level meter. Slow response of the sound level meter needle shall be used except where the sound is impulsive or rapidly varying in nature, in which case, fast response shall be used.

Sound level meter means an instrument, including a microphone, an amplifier, an output meter and frequency weighting networks, for the measurement of sound levels, which satisfies the pertinent requirements in American National Standards Institute's specification S1.4-1971 or the most recent revision for type S-2A general purpose sound level meters.

(b) *Supplementary definitions of technical terms.* Definitions of technical terms not defined in this section shall be obtained from the American National Standards Institute's Acoustical Terminology S1-1971 or the most recent revision thereof.

(Code 1972, § 7.34.020; Ord. No. 1082, § 2(part), 2000)

Sec. 7.34.030. - Measurement methods.

(a) Sound shall be measured with a sound level meter as defined in section 7.34.020.

(b) Unless otherwise provided, outdoor measurements shall be taken with the microphone located at any point on the property line of the noise source but no closer than five feet from any wall or vertical obstruction and three to five feet above ground level whenever possible.

(c) Unless otherwise provided, indoor measurements shall be taken inside the structure with the microphone located at any point as follows:

(1) No less than three feet above floor level;

(2) No less than five feet from any wall or vertical obstruction; and

(3) Not under common possession and control with the building or portion of the building from which the sound is emanating.

(Code 1972, § 7.34.030; Ord. No. 1082, § 2(part), 2000)

Sec. 7.34.040. - Sound amplification.

No person shall amplify sound using sound amplifying equipment contrary to any of the following:

(1) The only amplified sound permitted shall be either music or the human voice, or both.

(2) The volume of amplified sound shall not exceed the noise levels set forth in this subsection when measured outdoors at or beyond the property line of the property from which the sound emanates.

Time Period	Maximum Noise Level
10:01 p.m.—7:00 a.m.	60 dBA
7:01 a.m.—10:00 p.m.	80 dBA

(Code 1972, § 7.34.040; Ord. No. 1082, § 2(part), 2000)

Sec. 7.34.050. - General prohibition.

(a) It unlawful for any person to willfully make, cause or suffer, or permit to be made or caused, any loud excessive or offensive noises or sounds which unreasonably disturb the peace and quiet of any residential neighborhood or which are physically annoying to persons of ordinary sensitivity or which are so harsh, prolonged or unnatural or unusual in their use, time or place as to occasion physical discomfort to the inhabitants of the city, or any section thereof. The standards for dBA noise level in section 7.34.040 shall apply to this section. To the extent that the noise created causes the noise level at the property line to exceed the ambient noise level by more than 1.0 decibels, it shall be presumed that the noise being created also is in violation of this section.

(b) The characteristics and conditions which should be considered in determining whether a violation of the provisions of this section exists should include, but not be limited to, the following:

(1) The level of the noise;

(2) Whether the nature of the noise is usual or unusual;

(3) Whether the origin of the noise is natural or unnatural;

(4) The level of the ambient noise;

(5) The proximity of the noise to sleeping facilities;

(6) The nature and zoning of the area from which the noise emanates and the area where it is received;

(7) The time of day or night the noise occurs;

(8) The duration of the noise; and

(9) Whether the noise is recurrent, intermittent or constant.

(Code 1972, § 7.34.050; Ord. No. 1082, § 2(part), 2000)

Sec. 7.34.060. - Construction noise.

It is unlawful for any person between the hours of 7:00 p.m. of any day and 7:00 a.m. of the following day, or on a legal holiday, with the exception of Columbus Day and Washington's birthday, or on Sundays to erect, construct, demolish, excavate, alter or repair any building or structure in such a manner as to create disturbing, excessive or offensive noise. Construction activity shall not exceed 80 dBA in residential zones in the city.

(Code 1972, § 7.34.060; Ord. No. 1082, § 2(part), 2000)

Sec. 7.34.070. - Refuse vehicles and parking lot sweepers.

No person shall operate or permit to be operated a refuse compacting, processing or collection vehicle or parking lot sweeper between the hours of 7:00 p.m. to 7:00 a.m. in any residential area unless a permit has been applied for and granted by the city.

(Code 1972, § 7.34.070; Ord. No. 1082, § 2(part), 2000)

Sec. 7.34.080. - Disturbing, excessive, offensive noises; declaration of certain acts constituting.

The following activities, among others, are declared to cause loud, disturbing, excessive or offensive noises in violation of this section and are unlawful, namely:

(1) *Horns, signaling devices, etc.* Unnecessary use or operation of horns, signaling devices or other similar devices on automobiles, motorcycles or any other vehicle.

(2) *Radios, television sets, phonographs, loud speaking amplifiers and similar devices.* The use or operation of any sound production or reproduction device, radio receiving set, musical instrument, drums, phonograph, television set, loudspeakers, sound amplifier, or other similar machine or device for the producing or reproducing of sound, in such a manner as to disturb the peace, quiet or comfort of any reasonable person of normal sensitivity in any area of the city is prohibited. This provision shall not apply to any participant in a licensed parade or to any person who has been otherwise duly authorized by the city to engage in such conduct.

(3) *Animals.*

a. The keeping or maintenance, or the permitting to be kept or maintained, upon any premises owned, occupied or controlled by any person of any animal or animals which by any frequent or long-continued noise shall cause annoyance or discomfort to a reasonable person of normal sensitiveness

in the vicinity.

b. The noise from any such animal or animals that disturbs two or more residents residing in separate residences adjacent to any part of the property on which the subject animal or animals are kept or maintained, or three or more residents residing in separate residences in close proximity to the property on which the subject animal or animals are kept or maintained, shall be prima facie evidence of a violation of this section.

(4) *Hospitals, schools, libraries, rest homes, long-term medical or mental care facilities.* To make loud, disturbing, excessive noises adjacent to a hospital, school, library, rest home or long-term medical or mental care facility, which noise unreasonably interferes with the workings of such institutions or which disturbs or unduly annoys occupants in said institutions.

(5) *Playing of radios on buses and trolleys.* The operation of any radio, phonograph or tape player on an urban transit bus or trolley so as to emit noise that is audible to any other person in the vehicle is prohibited.

(6) *Playing of radios, phonographs and other sound production or reproduction devices in public parks and public parking lots and streets adjacent thereto.* The operation of any radio, phonograph, television set or any other sound production or reproduction device in any public park or any public parking lot, or street adjacent to such park or beach, without the prior written approval of the city manager or the administrator, in such a manner that such radio, phonograph, television set or sound production or reproduction device emits a sound level exceeding those found in the table in section 7.34.040.

(7) *Leaf blowers.*

a. The term "leaf blower" means any portable, hand-held or backpack, engine-powered device with a nozzle that creates a directable airstream which is capable of and intended for moving leaves and light materials.

b. No person shall operate a leaf blower in any residential zoned area between the hours of 7:00 p.m. and 8:00 a.m. on weekdays and 5:00 p.m. and 9:00 a.m. on weekends or on legal holidays.

c. No person may operate any leaf blower at a sound level in excess of 80 decibels measured at a distance of 50 feet or greater from the point of noise origin.

d. Leaf blowers shall be equipped with functional mufflers and an approved sound limiting device required to ensure that the leaf blower is not capable of generating a sound level exceeding any limit prescribed in this section.

(Code 1972, § 7.34.080; Ord. No. 1082, § 2(part), 2000)

Sec. 7.34.090. - Burglar alarms.

(a) Audible burglar alarms for structures or motor vehicles are prohibited unless the operation of such burglar alarm can be terminated within 20 minutes of being activated.

(b) Notwithstanding the requirements of this provision, any member of the county sheriff's department, Perris Division, shall have the right to take such steps as may be reasonable and necessary to disconnect any such alarm installed in any building, dwelling or motor vehicle at any time during the period of its activation. On or after 30 days from the effective date of the ordinance codified in this chapter, any building, dwelling or motor vehicle upon which a burglar alarm has been installed shall prominently display the telephone number at which communication may be made with the owner of such building, dwelling or motor vehicle.

(Code 1972, § 7.34.090; Ord. No. 1082, § 2(part), 2000)

Sec. 7.34.100. - Motor vehicles.

(a) Off-highway.

(1) Except as otherwise provided for in this chapter, it shall be unlawful to operate any motor vehicle of any type on any site, other than on a public street or highway as defined in the California Vehicle Code, in any manner so as to cause noise in excess of those noise levels permitted for on-highway motor vehicles as specified in the table for "45-mile-per-hour or less speed limits" contained in section 23130 of the California Vehicle Code and as corrected for distances set forth in subsection (a)(2) of this section.

(2) The maximum noise level as the on-highway vehicle passes may be measured at a distance of other than 50 feet from the centerline of travel, provided the measurement is further adjusted by adding algebraically the application correction as follows:

Distance (feet)	Correction (decibels)
25	−6
28	−5
32	−4
35	−3
40	−2
45	−1
50 (preferred distance)	0
56	+1
63	+2
70	+3
80	+4
90	+5

100	+6

(b) Nothing in this section shall apply to authorized emergency vehicles when being used in emergency situations including the blowing of sirens and/or horns.

(Code 1972, § 7.34.100; Ord. No. 1082, § 2(part), 2000)

Appendix B

Field Data and Photos

Field Sheet

Project: Pacific Lantana TTM 37907 Noise Impact Study **Engineer:** D. Shivaiah

Date: 9/16/2021
JN: 0888-2021-01

Measurement Address: **City:** Perris

Site No.: 1

Sound Level Meter:
Piccolo II
Serial # P0218042101
Serial # P0218092808
Serial # P0221010801
Serial # P0221010802

Calibrator:
CA114 Sound Calibrator
Serial # 500732

Calibration Record:

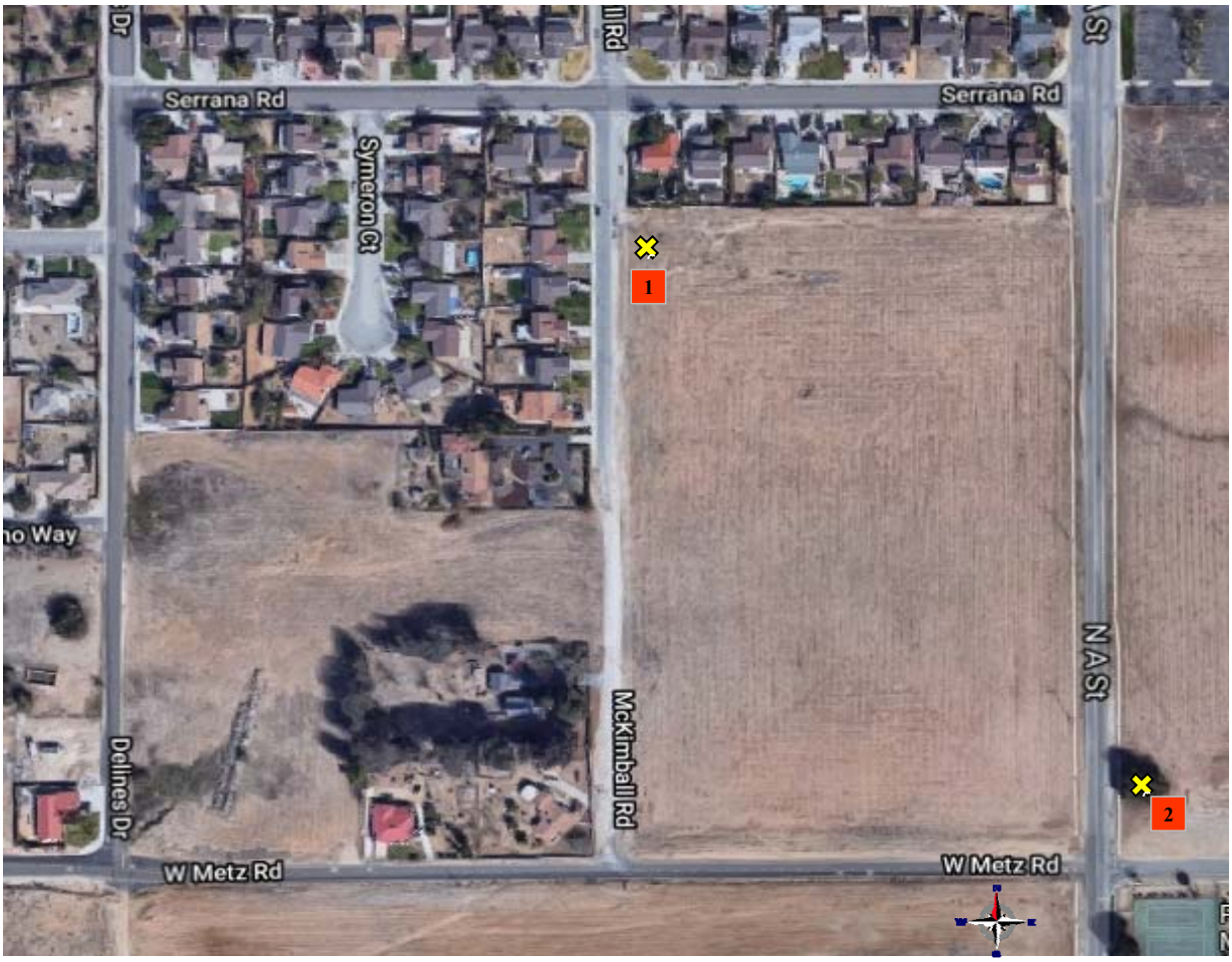
	Input, dB/	Reading, dB/	Offset, dB/	Time
1	94.0			
2	94.0			3:48 PM
3	94.0			
4	94.0			3:56 PM

Notes:
Temp: 88
Windspeed: 5 MPH
Direction: SW
Skies: Clear
Camera:
Photo Nos.

Meter Settings:
☒ A-WTD ☐ LINEAR ☒ SLOW ☐ 1/1 OCT ☒ INTERVALS ___60____- MINUTE
☐ C-WTD ☐ IMPULSE ☐ FAST ☐ 1/3 OCT ☒ L_N PERCENTILE VALUES

Notes:

Measurement Type:
Long-term X
Short-term



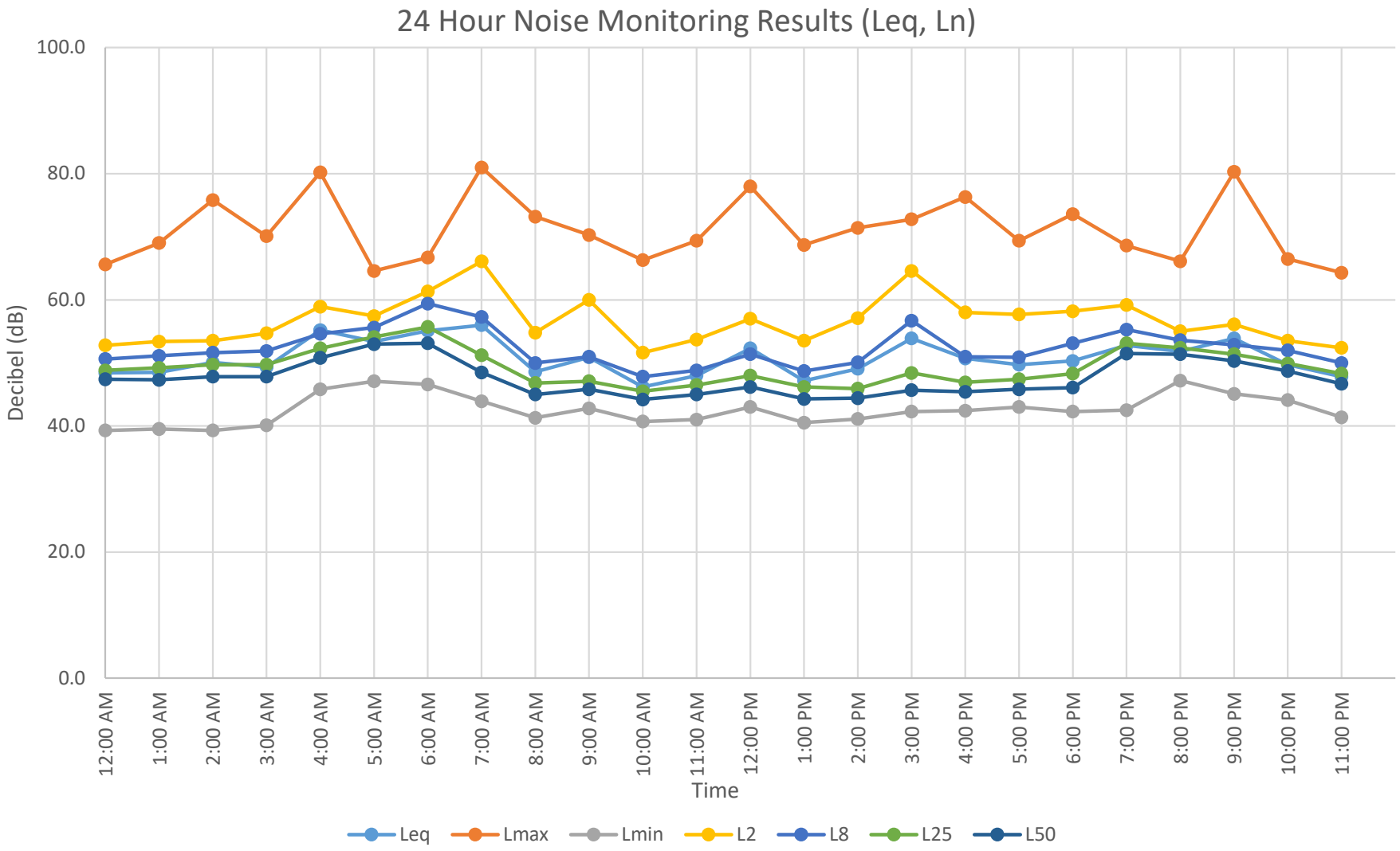
RK engineering group, inc.

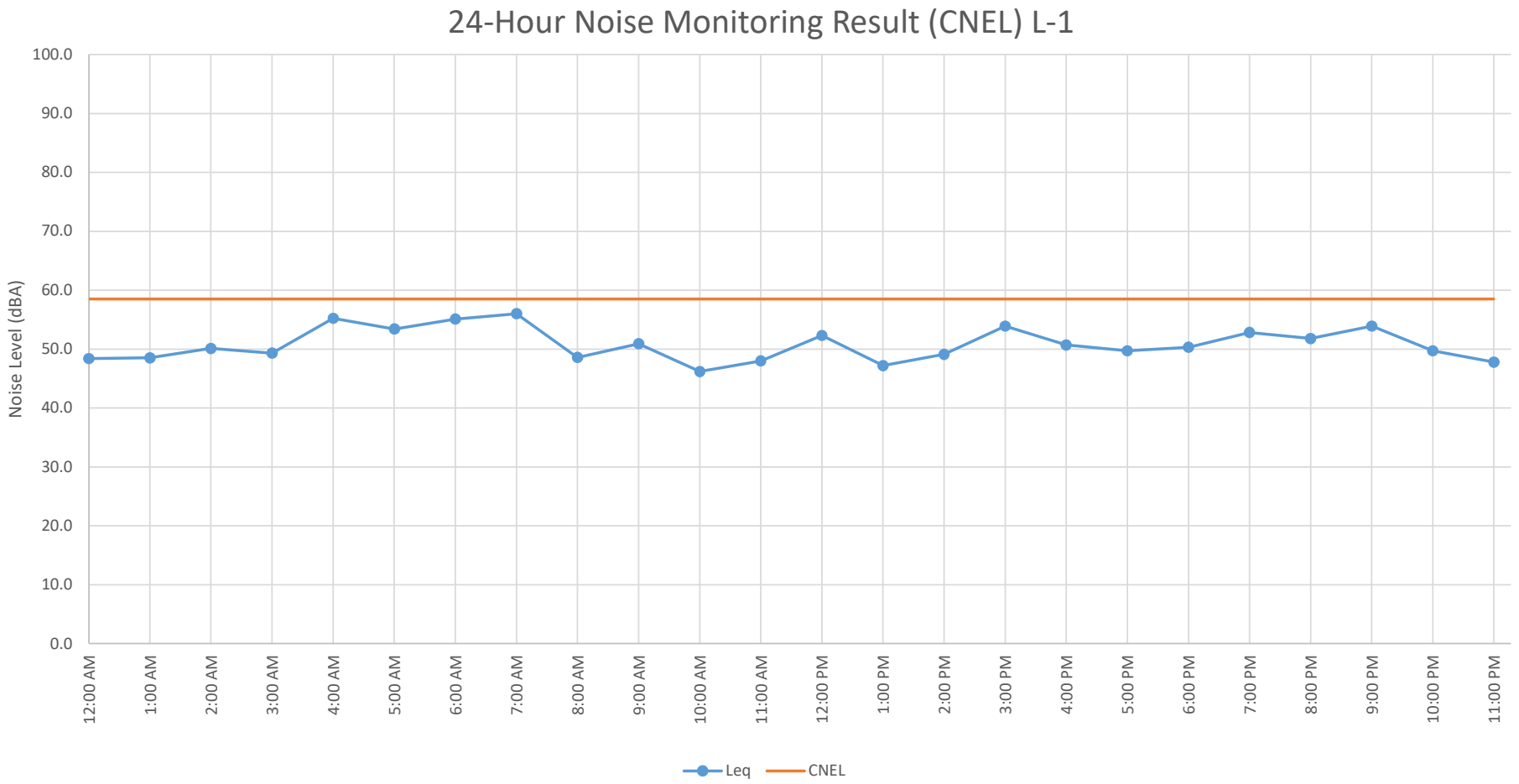
Field Sheet - Location-1 Photos

Project: Pacific Lantana TTM 37907 Noise Impact Study **Engineer:** D. Shivaiah	**Date:** 9/16/2021 **JN:** 0888-2021-01
Measurement Address: **City:** Perris Along the western property line at approximately 30 feet from the northern property line and approximately 40 feet from the centerline of the existing McKimball Road.	**Site No.:** 1

RK engineering group, inc.

PROJECT:	Pacific Lantana TTM 37907 Noise Impact Study					JOB #:	0888-2021-01
NOISE METER	Piccolo II SLM, 24-Hour Measurement					DATE:	16-Sep-21
LOCATION:	Along the western property line at approximately 30 feet from the northern property line and approximately 40 feet from the centerline of the existing McKimball Road.					BY:	D. Shivaiah
Time	Leq	Lmax	Lmin	L2	L8	L25	L50
12:00 AM	48.4	65.6	39.3	52.8	50.6	48.8	47.4
1:00 AM	48.5	69.0	39.5	53.4	51.1	49.2	47.3
2:00 AM	50.1	75.8	39.3	53.5	51.6	49.7	47.8
3:00 AM	49.3	70.1	40.1	54.7	51.9	49.7	47.8
4:00 AM	55.2	80.2	45.8	58.9	54.6	52.3	50.8
5:00 AM	53.4	64.6	47.1	57.4	55.6	54.1	53.0
6:00 AM	55.1	66.7	46.6	61.3	59.4	55.7	53.1
7:00 AM	56.0	81.0	43.9	66.1	57.3	51.2	48.5
8:00 AM	48.6	73.2	41.3	54.8	50.0	46.8	45.0
9:00 AM	50.9	70.3	42.8	60.0	51.0	47.1	45.8
10:00 AM	46.2	66.3	40.7	51.6	47.8	45.5	44.2
11:00 AM	48.0	69.4	41.0	53.7	48.8	46.5	45.0
12:00 PM	52.3	78.0	43.0	57.0	51.4	48.0	46.2
1:00 PM	47.2	68.7	40.5	53.5	48.7	46.2	44.3
2:00 PM	49.1	71.4	41.1	57.1	50.1	45.9	44.4
3:00 PM	53.9	72.8	42.3	64.6	56.7	48.4	45.7
4:00 PM	50.7	76.3	42.4	58.0	51.0	46.9	45.4
5:00 PM	49.7	69.4	43.0	57.7	50.9	47.4	45.8
6:00 PM	50.3	73.6	42.3	58.2	53.1	48.3	46.1
7:00 PM	52.8	68.6	42.5	59.2	55.3	53.1	51.5
8:00 PM	51.8	66.1	47.2	55.0	53.6	52.4	51.4
9:00 PM	53.9	80.3	45.1	56.1	52.9	51.4	50.3
10:00 PM	49.7	66.5	44.1	53.5	52.0	49.9	48.7
11:00 PM	47.8	64.3	41.4	52.4	50.0	48.3	46.7
Daytime	51.5	81.0	40.5	59.3	52.8	49.1	47.5
Nighttime	52.0	80.2	39.3	56.7	54.3	51.8	50.0


24 Hour Noise Monitoring Results (Leq, Ln)
100.0
80.0
60.0
40.0
20.0
0.0
Decibel (dB)
12:00 AM
1:00 AM
2:00 AM
3:00 AM
4:00 AM
5:00 AM
6:00 AM
7:00 AM
8:00 AM
9:00 AM
10:00 AM
11:00 AM
12:00 PM
1:00 PM
2:00 PM
3:00 PM
4:00 PM
5:00 PM
6:00 PM
7:00 PM
8:00 PM
9:00 PM
10:00 PM
11:00 PM
Time
Leq
Lmax
Lmin
L2
L8
L25
L50

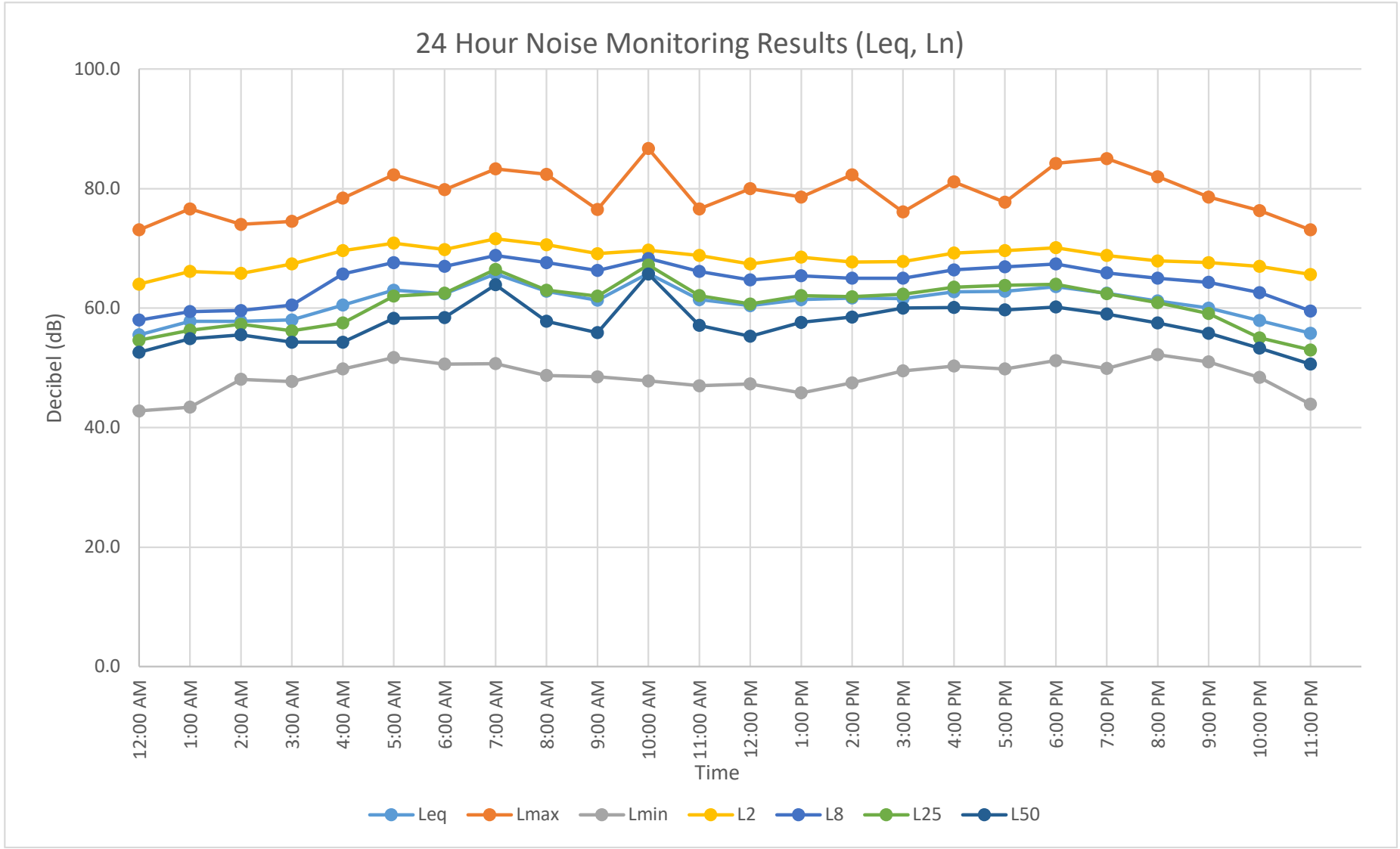

24-Hour Noise Monitoring Result (CNEL) L-1
Noise Level (dBA)
100.0
90.0
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
12:00 AM
1:00 AM
2:00 AM
3:00 AM
4:00 AM
5:00 AM
6:00 AM
7:00 AM
8:00 AM
9:00 AM
10:00 AM
11:00 AM
12:00 PM
1:00 PM
2:00 PM
3:00 PM
4:00 PM
5:00 PM
6:00 PM
7:00 PM
8:00 PM
9:00 PM
10:00 PM
11:00 PM
Leq
CNEL

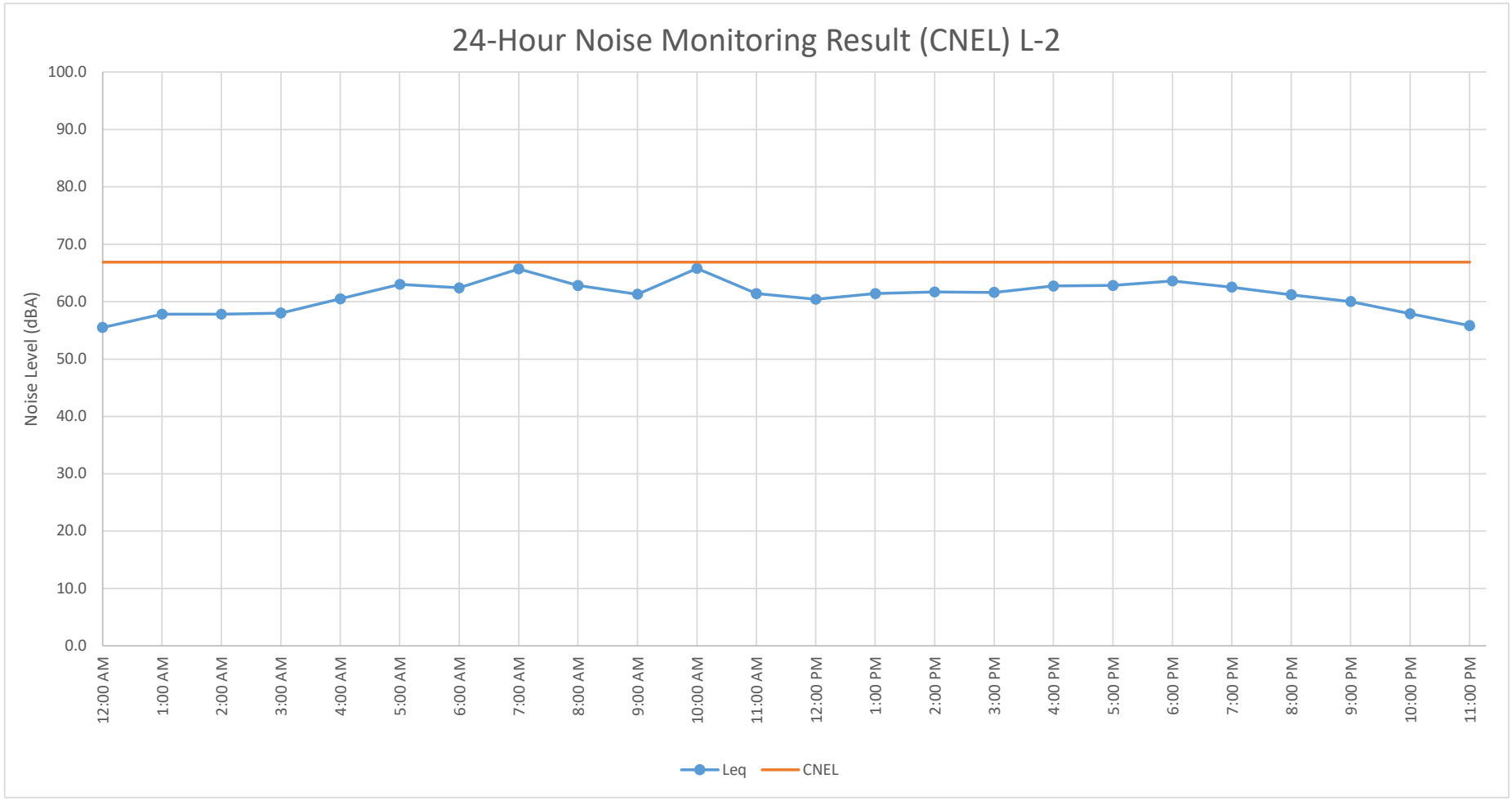
Field Sheet - Location-2 Photos

Project: Pacific Lantana TTM 37907 Noise Impact Study	**Engineer:** D. Shivaiah	**Date:**	9/16/2021
		JN:	0888-2021-01
Measurement Address:	**City:** Perris	**Site No.:**	2
At the northeast corner of Metz Road and A Street at approximately 60 feet from the centerline of A Street and approximately 110 feet from the centerline of Metz Road.			

RK engineering group, inc.

PROJECT:	Pacific Lantana TTM 37907 Noise Impact Study					JOB #:	0888-2021-01
NOISE METER	Piccolo II SLM, 24-Hour Measurement					DATE:	16-Sep-21
LOCATION:	At the northeast corner of Metz Road and A Street at approximately 60 feet from the centerline of A Street and approximately 110 feet from the centerline of Metz Road.					BY:	D. Shivaiah
Time	Leq	Lmax	Lmin	L2	L8	L25	L50
12:00 AM	55.5	73.1	42.8	64.0	58.0	54.6	52.6
1:00 AM	57.8	76.6	43.4	66.1	59.4	56.3	54.9
2:00 AM	57.8	74.0	48.1	65.8	59.6	57.3	55.5
3:00 AM	58.0	74.5	47.7	67.4	60.5	56.2	54.3
4:00 AM	60.5	78.4	49.8	69.6	65.7	57.5	54.3
5:00 AM	63.0	82.3	51.7	70.9	67.6	62.0	58.3
6:00 AM	62.4	79.8	50.6	69.8	67.0	62.5	58.4
7:00 AM	65.7	83.3	50.7	71.6	68.8	66.5	63.9
8:00 AM	62.8	82.4	48.7	70.6	67.6	63.0	57.8
9:00 AM	61.3	76.5	48.5	69.1	66.3	62.0	55.9
10:00 AM	65.8	86.7	47.8	69.7	68.3	67.2	65.7
11:00 AM	61.4	76.6	47.0	68.8	66.1	62.1	57.1
12:00 PM	60.4	80.0	47.3	67.4	64.7	60.7	55.3
1:00 PM	61.4	78.6	45.8	68.5	65.4	62.1	57.6
2:00 PM	61.7	82.3	47.5	67.7	65.0	61.9	58.5
3:00 PM	61.6	76.1	49.5	67.8	65.0	62.3	60.0
4:00 PM	62.7	81.1	50.3	69.2	66.4	63.5	60.1
5:00 PM	62.8	77.7	49.8	69.6	66.9	63.8	59.7
6:00 PM	63.6	84.2	51.2	70.1	67.4	64.0	60.2
7:00 PM	62.5	85.0	49.9	68.8	65.9	62.4	59.0
8:00 PM	61.2	82.0	52.2	67.9	65.0	60.9	57.5
9:00 PM	60.0	78.6	51.0	67.6	64.3	59.1	55.8
10:00 PM	57.9	76.3	48.4	67.0	62.6	55.0	53.3
11:00 PM	55.8	73.1	43.9	65.6	59.5	53.0	50.6
Daytime	62.5	86.7	45.8	69.0	66.3	63.0	59.8
Nighttime	59.7	82.3	42.8	68.0	63.7	58.6	55.5


24 Hour Noise Monitoring Results (Leq, Ln)
100.0
80.0
60.0
40.0
20.0
0.0
Decibel (dB)
12:00 AM
1:00 AM
2:00 AM
3:00 AM
4:00 AM
5:00 AM
6:00 AM
7:00 AM
8:00 AM
9:00 AM
10:00 AM
11:00 AM
12:00 PM
1:00 PM
2:00 PM
3:00 PM
4:00 PM
5:00 PM
6:00 PM
7:00 PM
8:00 PM
9:00 PM
10:00 PM
11:00 PM
Time
Leq
Lmax
Lmin
L2
L8
L25
L50


24-Hour Noise Monitoring Result (CNEL) L-2
Noise Level (dBA)
100.0
90.0
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
12:00 AM
1:00 AM
2:00 AM
3:00 AM
4:00 AM
5:00 AM
6:00 AM
7:00 AM
8:00 AM
9:00 AM
10:00 AM
11:00 AM
12:00 PM
1:00 PM
2:00 PM
3:00 PM
4:00 PM
5:00 PM
6:00 PM
7:00 PM
8:00 PM
9:00 PM
10:00 PM
11:00 PM
Leq
CNEL

Appendix C

Roadway Noise Calculation Results

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO)

PROJECT: Tract 37907 (Pacific Lantana)
ROADWAY: North A Street (Opening Year Conditions)
LOCATION: Nearest Adjacent Sensitive Receptors

JOB #: 0888-2021-01
DATE: 4/25/2024
ENGINEER: B. Morrison

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	10,584
SPEED =	40
PK HR % =	10
NEAR LANE/FAR LANE DIST	40
ROAD ELEVATION =	0.0
GRADE =	0.0 %
PK HR VOL =	1,058

RECEIVER INPUT DATA

RECEIVER DISTANCE =		35
DIST C/L TO WALL =		0
RECEIVER HEIGHT =		5.0
WALL DISTANCE FROM RECEIVER =		35
PAD ELEVATION =		0.0
ROADWAY VIEW:	LF ANGLE=	-90
	RT ANGLE=	90
	DF ANGLE=	180

SITE CONDITIONS

AUTOMOBILES =	15	
MEDIUM TRUCKS =	15	(10 = HARD SITE, 15 = SOFT SITE)
HEAVY TRUCKS =	15	

WALL INFORMATION

HTH WALL=	0.0	
AMBIENT=	0.0	
BARRIER =	0	(0 = WALL, 1 = BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVENING	NIGHT	DAILY
AUTOMOBILES	0.756	0.140	0.104	0.9200
MEDIUM TRUCKS	0.480	0.020	0.500	0.0300
HEAVY TRUCKS	0.480	0.020	0.500	0.0500

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES	2.0	28.88	- -
MEDIUM TRUCKS	4.0	28.74	- -
HEAVY TRUCKS	8.0	28.88	0.00

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	68.2	66.2	64.9	58.8	67.3	67.9
MEDIUM TRUCKS	62.3	58.3	50.5	59.8	65.9	65.9
HEAVY TRUCKS	69.3	65.4	57.6	66.8	72.9	73.0
NOISE LEVELS (dBA)	72.3	69.2	65.8	68.1	74.6	74.8

NOISE IMPACTS (WITH TOPO AND BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	68.2	66.2	64.9	58.8	67.3	67.9
MEDIUM TRUCKS	62.3	58.3	50.5	59.8	65.9	65.9
HEAVY TRUCKS	69.3	65.4	57.6	66.8	72.9	73.0
NOISE LEVELS (dBA)	72.3	69.2	65.8	68.1	74.6	74.8

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	73	157	337	727
LDN	71	153	330	710

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO)

PROJECT: Tract 37907 (Pacific Lantana)
ROADWAY: North A Street (Opening Year Plus Project Conditions)
LOCATION: Nearest Adjacent Sensitive Receptors

JOB #: 0888-2021-01
DATE: 4/25/2024
ENGINEER: B. Morrison

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	11,105
SPEED =	40
PK HR % =	10
NEAR LANE/FAR LANE DIST	40
ROAD ELEVATION =	0.0
GRADE =	0.0 %
PK HR VOL =	1,111

RECEIVER INPUT DATA

RECEIVER DISTANCE =	35
DIST C/L TO WALL =	0
RECEIVER HEIGHT =	5.0
WALL DISTANCE FROM RECEIVER =	35
PAD ELEVATION =	0.0
ROADWAY VIEW: LF ANGLE=	-90
RT ANGLE=	90
DF ANGLE=	180

SITE CONDITIONS

AUTOMOBILES =	15	
MEDIUM TRUCKS =	15	(10 = HARD SITE, 15 = SOFT SITE)
HEAVY TRUCKS =	15	

WALL INFORMATION

HTH WALL=	0.0	
AMBIENT=	0.0	
BARRIER =	0	(0 = WALL, 1 = BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVENING	NIGHT	DAILY
AUTOMOBILES	0.756	0.140	0.104	0.9200
MEDIUM TRUCKS	0.480	0.020	0.500	0.0300
HEAVY TRUCKS	0.480	0.020	0.500	0.0500

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES	2.0	28.88	- -
MEDIUM TRUCKS	4.0	28.74	- -
HEAVY TRUCKS	8.0	28.88	0.00

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	68.4	66.4	65.1	59.0	67.5	68.1
MEDIUM TRUCKS	62.5	58.5	50.8	60.0	66.1	66.2
HEAVY TRUCKS	69.6	65.6	57.8	67.0	73.2	73.2
NOISE LEVELS (dBA)	72.5	69.4	66.0	68.3	74.8	75.0

NOISE IMPACTS (WITH TOPO AND BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	68.4	66.4	65.1	59.0	67.5	68.1
MEDIUM TRUCKS	62.5	58.5	50.8	60.0	66.1	66.2
HEAVY TRUCKS	69.6	65.6	57.8	67.0	73.2	73.2
NOISE LEVELS (dBA)	72.5	69.4	66.0	68.3	74.8	75.0

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	75	162	348	751
LDN	73	158	340	733

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO)

PROJECT: Tract 37907 Pacific Lantana
ROADWAY: A Steet
LOCATION: Nearest Backyard/Patio Area from the adjacent roadway
JOB #: 0888-2021-01
DATE: 23-Sep-21
ENGINEER: D. Shivaiah

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	32,300
SPEED =	40
PK HR % =	10
NEAR LANE/FAR LANE DIST	63
ROAD ELEVATION =	0.0
GRADE =	0.0 %
PK HR VOL =	3,230

RECEIVER INPUT DATA

RECEIVER DISTANCE =		87
DIST C/L TO WALL =		67
RECEIVER HEIGHT =		5.0
WALL DISTANCE FROM RECEIVER =		20
PAD ELEVATION =		0.0
ROADWAY VIEW:	LF ANGLE=	-90
	RT ANGLE=	90
	DF ANGLE=	180

SITE CONDITIONS

AUTOMOBILES =	10	(10 = HARD SITE, 15 = SOFT SITE)
MEDIUM TRUCKS =	10	
HEAVY TRUCKS =	10	

WALL INFORMATION

HTH WALL=	6.0
AMBIENT=	0.0
BARRIER =	1 (0 = WALL, 1 = BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVENING	NIGHT	DAILY
AUTOMOBILES	0.695	0.129	0.096	0.9200
MEDIUM TRUCKS	0.014	0.001	0.015	0.0300
HEAVY TRUCKS	0.024	0.001	0.025	0.0500

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES	2.0	79.29	- -
MEDIUM TRUCKS	4.0	79.19	- -
HEAVY TRUCKS	8.0	79.19	0.00

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	68.7	66.3	65.0	59.0	67.4	68.0
MEDIUM TRUCKS	62.8	43.6	35.8	45.0	51.2	51.2
HEAVY TRUCKS	69.8	52.9	45.1	54.3	60.4	60.5
NOISE LEVELS (dBA)	72.8	66.5	65.1	60.4	68.3	68.8

NOISE IMPACTS (WITH TOPO AND BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	59.8	57.4	56.1	50.1	58.5	59.1
MEDIUM TRUCKS	54.4	35.2	27.4	36.6	42.7	42.8
HEAVY TRUCKS	61.9	44.9	37.1	46.3	52.5	52.5
NOISE LEVELS (dBA)	64.0	57.8	56.3	51.6	59.5	60.1

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	66	209	662	2093
LDN	59	185	586	1854

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO)

PROJECT: Tract 37907 Pacific Lantana
ROADWAY: A Street
LOCATION: Nearest Residential Building First Floor Façade

JOB #: 0888-2021-01
DATE: 23-Sep-21
ENGINEER: D. Shivaiah

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	32,300
SPEED =	40
PK HR % =	10
NEAR LANE/FAR LANE DIST	63
ROAD ELEVATION =	0.0
GRADE =	0.0 %
PK HR VOL =	3,230

RECEIVER INPUT DATA

RECEIVER DISTANCE =		87
DIST C/L TO WALL =		67
RECEIVER HEIGHT =		5.0
WALL DISTANCE FROM RECEIVER =		20
PAD ELEVATION =		0.0
ROADWAY VIEW:	LF ANGLE=	-90
	RT ANGLE=	90
	DF ANGLE=	180

SITE CONDITIONS

AUTOMOBILES =	10	(10 = HARD SITE, 15 = SOFT SITE)
MEDIUM TRUCKS =	10	
HEAVY TRUCKS =	10	

WALL INFORMATION

HTH WALL=	6.0	
AMBIENT=	0.0	
BARRIER =	1	(0 = WALL, 1 = BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVENING	NIGHT	DAILY
AUTOMOBILES	0.695	0.129	0.096	0.9200
MEDIUM TRUCKS	0.014	0.001	0.015	0.0300
HEAVY TRUCKS	0.024	0.001	0.025	0.0500

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES	2.0	79.29	- -
MEDIUM TRUCKS	4.0	79.19	- -
HEAVY TRUCKS	8.0	79.19	0.00

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	68.7	66.3	65.0	59.0	67.4	68.0
MEDIUM TRUCKS	62.8	43.6	35.8	45.0	51.2	51.2
HEAVY TRUCKS	69.8	52.9	45.1	54.3	60.4	60.5
NOISE LEVELS (dBA)	72.8	66.5	65.1	60.4	68.3	68.8

NOISE IMPACTS (WITH TOPO AND BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	59.8	57.4	56.1	50.1	58.5	59.1
MEDIUM TRUCKS	54.4	35.2	27.4	36.6	42.7	42.8
HEAVY TRUCKS	61.9	44.9	37.1	46.3	52.5	52.5
NOISE LEVELS (dBA)	64.0	57.8	56.3	51.6	59.5	60.1

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	66	209	662	2093
LDN	59	185	586	1854

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO)

PROJECT:	Tract 37907 Pacific Lantana	JOB #:	0888-2021-01
ROADWAY:	A Street	DATE:	23-Sep-21
LOCATION:	Nearest Residential Building First Floor Façade	ENGINEER:	D. Shivaiah

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	32,300	
SPEED =	40	
PK HR % =	10	
NEAR LANE/FAR LANE DIST	63	
ROAD ELEVATION =	0.0	
GRADE =	0.0	%
PK HR VOL =	3,230	

RECEIVER INPUT DATA

RECEIVER DISTANCE =		87
DIST C/L TO WALL =		67
RECEIVER HEIGHT =		14.0
WALL DISTANCE FROM RECEIVER =		20
PAD ELEVATION =		0.0
ROADWAY VIEW:	LF ANGLE=	-90
	RT ANGLE=	90
	DF ANGLE=	180

SITE CONDITIONS

AUTOMOBILES =	10	(10 = HARD SITE, 15 = SOFT SITE)
MEDIUM TRUCKS =	10	
HEAVY TRUCKS =	10	

WALL INFORMATION

HTH WALL=	6.0	
AMBIENT=	0.0	
BARRIER =	1	(0 = WALL, 1 = BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVENING	NIGHT	DAILY
AUTOMOBILES	0.695	0.129	0.096	0.9200
MEDIUM TRUCKS	0.014	0.001	0.015	0.0300
HEAVY TRUCKS	0.024	0.001	0.025	0.0500

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES	2.0	81.98	- -
MEDIUM TRUCKS	4.0	81.71	- -
HEAVY TRUCKS	8.0	81.32	0.00

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	68.5	66.2	64.9	58.8	67.3	67.9
MEDIUM TRUCKS	62.6	43.4	35.7	44.9	51.0	51.1
HEAVY TRUCKS	69.7	52.7	45.0	54.2	60.3	60.4
NOISE LEVELS (dBA)	72.6	66.4	64.9	60.2	68.1	68.7

NOISE IMPACTS (WITH TOPO AND BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	68.5	66.2	64.9	58.8	67.3	67.9
MEDIUM TRUCKS	62.6	43.4	35.7	44.9	51.0	51.1
HEAVY TRUCKS	69.7	52.7	45.0	54.2	60.3	60.4
NOISE LEVELS (dBA)	72.6	66.4	64.9	60.2	68.1	68.7

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	64	203	641	2026
LDN	57	180	568	1795

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO)

PROJECT:	Tract 37907 Pacific Lantana	JOB #:	0888-2021-01
ROADWAY:	Metz Road	DATE:	23-Sep-21
LOCATION:	Backyard/Patio Area	ENGINEER:	D. Shivaiah

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	11,700	
SPEED =	35	
PK HR % =	10	
NEAR LANE/FAR LANE DIST	28	
ROAD ELEVATION =	0.0	
GRADE =	0.0	%
PK HR VOL =	1,170	

RECEIVER INPUT DATA

RECEIVER DISTANCE =	73	
DIST C/L TO WALL =	48	
RECEIVER HEIGHT =	5.0	
WALL DISTANCE FROM RECEIVER =	25	
PAD ELEVATION =	0.0	
ROADWAY VIEW: LF ANGLE=	-90	
RT ANGLE=	90	
DF ANGLE=	180	

SITE CONDITIONS

AUTOMOBILES =	10	(10 = HARD SITE, 15 = SOFT SITE)
MEDIUM TRUCKS =	10	
HEAVY TRUCKS =	10	

WALL INFORMATION

HTH WALL=	6.0	
AMBIENT=	0.0	
BARRIER =	1	(0 = WALL, 1 = BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVENING	NIGHT	DAILY
AUTOMOBILES	0.736	0.136	0.102	0.9742
MEDIUM TRUCKS	0.009	0.000	0.009	0.0184
HEAVY TRUCKS	0.004	0.000	0.004	0.0074

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES	2.0	71.11	- -
MEDIUM TRUCKS	4.0	70.98	- -
HEAVY TRUCKS	8.0	71.71	0.00

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	63.3	61.2	59.9	53.9	62.3	62.9
MEDIUM TRUCKS	55.8	34.6	27.1	35.8	42.0	42.0
HEAVY TRUCKS	57.0	31.7	28.3	32.9	39.1	39.2
NOISE LEVELS (dBA)	64.8	61.2	59.9	54.0	62.4	63.0

NOISE IMPACTS (WITH TOPO AND BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	54.2	52.1	50.7	44.7	53.1	53.8
MEDIUM TRUCKS	47.3	26.1	18.6	27.3	33.5	33.5
HEAVY TRUCKS	57.0	31.7	28.3	32.9	39.1	39.2
NOISE LEVELS (dBA)	55.8	52.2	50.9	45.0	53.3	54.0

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	15	46	145	459
LDN	13	40	126	398

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO)

PROJECT: Tract 37907 Pacific Lantana
ROADWAY: Metz Road
LOCATION: Nearest Residential Building Property Line.

JOB #: 0888-2021-01
DATE: 23-Sep-21
ENGINEER: D. Shivaiah

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	11,700
SPEED =	35
PK HR % =	10
NEAR LANE/FAR LANE DIST	28
ROAD ELEVATION =	0.0
GRADE =	0.0 %
PK HR VOL =	1,170

RECEIVER INPUT DATA

RECEIVER DISTANCE =		73
DIST C/L TO WALL =		48
RECEIVER HEIGHT =		5.0
WALL DISTANCE FROM RECEIVER =		25
PAD ELEVATION =		0.0
ROADWAY VIEW:	LF ANGLE=	-90
	RT ANGLE=	90
	DF ANGLE=	180

SITE CONDITIONS

AUTOMOBILES =	10	(10 = HARD SITE, 15 = SOFT SITE)
MEDIUM TRUCKS =	10	
HEAVY TRUCKS =	10	

WALL INFORMATION

HTH WALL=	6.0	
AMBIENT=	0.0	
BARRIER =	1	(0 = WALL, 1 = BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVENING	NIGHT	DAILY
AUTOMOBILES	0.736	0.136	0.102	0.9742
MEDIUM TRUCKS	0.009	0.000	0.009	0.0184
HEAVY TRUCKS	0.004	0.000	0.004	0.0074

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES	2.0	71.11	- -
MEDIUM TRUCKS	4.0	70.98	- -
HEAVY TRUCKS	8.0	71.71	0.00

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	63.3	61.2	59.9	53.9	62.3	62.9
MEDIUM TRUCKS	55.8	34.6	27.1	35.8	42.0	42.0
HEAVY TRUCKS	57.0	31.7	28.3	32.9	39.1	39.2
NOISE LEVELS (dBA)	64.8	61.2	59.9	54.0	62.4	63.0

NOISE IMPACTS (WITH TOPO AND BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	54.2	52.1	50.7	44.7	53.1	53.8
MEDIUM TRUCKS	47.3	26.1	18.6	27.3	33.5	33.5
HEAVY TRUCKS	57.0	31.7	28.3	32.9	39.1	39.2
NOISE LEVELS (dBA)	55.8	52.2	50.9	45.0	53.3	54.0

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	15	46	145	459
LDN	13	40	126	398

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO)

PROJECT: Tract 37907 Pacific Lantana
ROADWAY: Metz Road
LOCATION: Nearest Residential Building Property Line.

JOB #: 0888-2021-01
DATE: 23-Sep-21
ENGINEER: D. Shivaiah

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	11,700
SPEED =	35
PK HR % =	10
NEAR LANE/FAR LANE DIST	28
ROAD ELEVATION =	0.0
GRADE =	0.0 %
PK HR VOL =	1,170

RECEIVER INPUT DATA

RECEIVER DISTANCE =		73
DIST C/L TO WALL =		48
RECEIVER HEIGHT =		14.0
WALL DISTANCE FROM RECEIVER =		25
PAD ELEVATION =		0.0
ROADWAY VIEW:	LF ANGLE=	-90
	RT ANGLE=	90
	DF ANGLE=	180

SITE CONDITIONS

AUTOMOBILES =	10	
MEDIUM TRUCKS =	10	(10 = HARD SITE, 15 = SOFT SITE)
HEAVY TRUCKS =	10	

WALL INFORMATION

HTH WALL=	6.0	
AMBIENT=	0.0	
BARRIER =	1	(0 = WALL, 1 = BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVENING	NIGHT	DAILY
AUTOMOBILES	0.736	0.136	0.102	0.9742
MEDIUM TRUCKS	0.009	0.000	0.009	0.0184
HEAVY TRUCKS	0.004	0.000	0.004	0.0074

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES	2.0	72.64	- -
MEDIUM TRUCKS	4.0	72.34	- -
HEAVY TRUCKS	8.0	71.90	0.00

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	63.2	61.1	59.8	53.8	62.2	62.8
MEDIUM TRUCKS	55.7	34.5	27.0	35.7	41.9	41.9
HEAVY TRUCKS	57.0	31.7	28.3	32.9	39.1	39.2
NOISE LEVELS (dBA)	64.8	61.1	59.8	53.9	62.3	62.9

NOISE IMPACTS (WITH TOPO AND BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	63.2	61.1	59.8	53.8	62.2	62.8
MEDIUM TRUCKS	55.7	34.5	27.0	35.7	41.9	41.9
HEAVY TRUCKS	57.0	31.7	28.3	32.9	39.1	39.2
NOISE LEVELS (dBA)	64.8	61.1	59.8	53.9	62.3	62.9

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	14	45	142	449
LDN	12	39	123	390

Appendix D

Construction Noise and Vibration Calculation Results

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 4/25/2024
Case Description: Tract 37907 (Pacific Lantana)

---- Receptor #1 ----

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Site Preparation	Residential	46.2	46.2	46.2

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	20	0
Dozer	No	40		81.7	20	0
Dozer	No	40		81.7	20	0
Tractor	No	40	84		20	0
Tractor	No	40	84		20	0
Tractor	No	40	84		20	0
Tractor	No	40	84		20	0

Results

Calculated (dBA)

Equipment		*Lmax	Leq
Dozer		89.6	85.6
Dozer		89.7	85.7
Dozer		89.7	85.7
Tractor		92	88
Tractor		92	88
Tractor		92	88
Tractor		92	88
	Total	92	95.6

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 4/25/2024
Case Description: Tract 37907 (Pacific Lantana)

---- Receptor #1 ----

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Grading	Residential	46.2	46.2	46.2

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	20	0
Excavator	No	40		80.7	20	0
Grader	No	40	85		20	0
Dozer	No	40		81.7	20	0
Scraper	No	40		83.6	20	0
Scraper	No	40		83.6	20	0
Tractor	No	40	84		20	0
Tractor	No	40	84		20	0

Results

Calculated (dBA)

Equipment		*Lmax	Leq
Excavator		88.7	84.7
Excavator		88.7	84.7
Grader		93	89
Dozer		89.6	85.6
Scraper		91.5	87.6
Scraper		91.6	87.6
Tractor		92	88
Tractor		92	88
	Total	93	96.2

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 4/25/2024
Case Description: Tract 37907 (Pacific Lantana)

---- Receptor #1 ----

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Building Construction	Residential	46.2	46.2	46.2

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	20	0
Pickup Truck	No	40		75	20	0
Pickup Truck	No	40		75	20	0
Pickup Truck	No	40		75	20	0
Generator	No	50		80.6	20	0
Tractor	No	40	84		20	0
Tractor	No	40	84		20	0
Tractor	No	40	84		20	0
Welder / Torch	No	40		74	20	0

Results

Calculated (dBA)

Equipment		*Lmax	Leq
Crane		88.5	80.6
Pickup Truck		83	79
Pickup Truck		83	79
Pickup Truck		83	79
Generator		88.6	85.6
Tractor		92	88
Tractor		92	88
Tractor		92	88
Welder / Torch		82	78
	Total	92	94.2

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 4/25/2024
Case Description: Tract 37907 (Pacific Lantana)

---- Receptor #1 ----

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Paving	Residential	46.2	46.2	46.2

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Paver	No	50		77.2	20	0
Paver	No	50		77.2	20	0
Paver	No	50		77.2	20	0
Paver	No	50		77.2	20	0
Tractor	No	40	84		20	0
Tractor	No	40	84		20	0

Results

Calculated (dBA)

Equipment		*Lmax	Leq
Paver		85.2	82.2
Paver		85.2	82.1
Paver		85.2	82.1
Paver		85.2	82.1
Tractor		92	88
Tractor		92	88
	Total	92	92.8

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 4/25/2024
Case Description: Tract 37907 (Pacific Lantana)

---- Receptor #1 ----

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Architectural Coating	Residential	46.2	46.2	46.2

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40		77.7	20	0

Results

Calculated (dBA)

Equipment		*Lmax	Leq
Compressor (air)		85.6	81.6
	Total	85.6	81.6

*Calculated Lmax is the Loudest value.

VIBRATION IMPACTS FROM CONSTRUCTION AND OPERATIONS

PROJECT:	Tract 37907 Pacific Lantana	JOB #:	0888-2021-01
ACTIVITY:	Vibratory Roller	DATE:	16-Sep-21
LOCATION:	Nearest Structure	ENGINEER:	D. Shivaiah

VIBRATION INPUT/OUTPUT DATA

OTHER CONSTRUCTION EQUIPMENT

$$PPV = PPV_{ref}(25/D)^{n} \text{ (in/sec)}$$

PPV =	**0.210 in/sec**

Equipment Type =	1	Vibratory Roller
PPV_{ref} =	0.210	Reference PPV at 25 ft.
D =	25.00	Distance from Equipment to receiver in ft.
n =	1.10	Vibration attenuation rate through the ground

EQUIPMENT PPV REFERENCE LEVELS

Type	Equipment	Reference PPV
1	Vibratory Roller	0.210
2	Large Bulldozer	0.089
3	Caisson Drilling	0.089
4	Loaded Trucks	0.076
5	Jackhammer	0.035
6	Small Bulldozer	0.003
7	Crack and Seat	2.400

VIBRATION IMPACTS FROM CONSTRUCTION AND OPERATIONS

PROJECT:	Tract 37907 Pacific Lantana	JOB #:	0888-2021-01
ACTIVITY:	Large Bulldozer	DATE:	16-Sep-21
LOCATION:	Nearest Structure	ENGINEER:	D. Shivaiah

VIBRATION INPUT/OUTPUT DATA

OTHER CONSTRUCTION EQUIPMENT

$$PPV = PPV_{ref}(25/D)^{n} \text{ (in/sec)}$$

PPV =	**0.089 in/sec**

Equipment Type =	2	Large Bulldozer
PPV_{ref} =	0.089	Reference PPV at 25 ft.
D =	25.00	Distance from Equipment to receiver in ft.
n =	1.10	Vibration attenuation rate through the ground

EQUIPMENT PPV REFERENCE LEVELS

Type	Equipment	Reference PPV
1	Vibratory Roller	0.210
2	Large Bulldozer	0.089
3	Caisson Drilling	0.089
4	Loaded Trucks	0.076
5	Jackhammer	0.035
6	Small Bulldozer	0.003
7	Crack and Seat	2.400

VIBRATION IMPACTS FROM CONSTRUCTION AND OPERATIONS

PROJECT:	Tract 37907 Pacific Lantana	JOB #:	0888-2021-01
ACTIVITY:	Loaded Trucks	DATE:	16-Sep-21
LOCATION:	Nearest Structure	ENGINEER:	D. Shivaiah

VIBRATION INPUT/OUTPUT DATA

OTHER CONSTRUCTION EQUIPMENT

$$PPV = PPV_{ref}(25/D)^{n} \text{ (in/sec)}$$

PPV =	**0.076 in/sec**

Equipment Type =	4	Loaded Trucks
PPV_{ref} =	0.076	Reference PPV at 25 ft.
D =	25.00	Distance from Equipment to receiver in ft.
n =	1.10	Vibration attenuation rate through the ground

EQUIPMENT PPV REFERENCE LEVELS

Type	Equipment	Reference PPV
1	Vibratory Roller	0.210
2	Large Bulldozer	0.089
3	Caisson Drilling	0.089
4	Loaded Trucks	0.076
5	Jackhammer	0.035
6	Small Bulldozer	0.003
7	Crack and Seat	2.400