Avenue L4 Warehouse

NOISE AND VIBRATION ANALYSIS

CITY OF LANCASTER

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LIST OF ABBREVIATED TERMS

(1)	Reference
ADT	Average Daily Traffic
AI	Aerospace Industrial
AIA	Airport Influence Area
AICUZ	Air Installation Compatible Use Zone
ALUC	Airport Land Use Commission
ANSI	American National Standards Institute
Calveno	California Vehicle Noise
CEQA	California Environmental Quality Act
CNEL	Community Noise Equivalent Level
dBA	A-weighted decibels
EPA	Environmental Protection Agency
FHWA	Federal Highway Administration
FICON	Federal Interagency Committee on Noise
FTA	Federal Transit Administration
INCE	Institute of Noise Control Engineering
L_{eq}	Equivalent continuous (average) sound level
L_{max}	Maximum level measured over the time interval
L_{min}	Minimum level measured over the time interval
mph	Miles per hour
OPR	Office of Planning and Research
PPV	Peak particle velocity
Project	Avenue L4 Warehouse
REMEL	Reference Energy Mean Emission Level
RMS	Root-mean-square
VdB	Vibration Decibels

EXECUTIVE SUMMARY

Urban Crossroads, Inc. has prepared this noise study to determine the potential noise impacts and the necessary noise mitigation measures, if any, for Avenue L4 Warehouse ("Project"). The Project is proposed to consist of a single warehouse building with a total of 217,700 square feet (sf). This study has been prepared to satisfy applicable City of Lancaster standards and thresholds of significance based on guidance provided by Appendix G of the California Environmental Quality Act (CEQA) Guidelines. (1)

The results of this Avenue L4 Warehouse Noise and Vibration Analysis are summarized below based on the significance criteria in Section 4 of this report. Table ES-1 shows the findings of significance for each potential noise and/or vibration impact under CEQA before and after any required mitigation measures.

TABLE ES-1: SUMMARY OF CEQA SIGNIFICANCE FINDINGS

Analysis	Report Section	Significance Findings	
		Unmitigated	Mitigated
Off-Site Traffic Noise	7	*Less Than Significant*	-
Operational Noise	9	*Less Than Significant*	-
Construction Noise	10	*Less Than Significant*	-
Concrete Pour Noise		*Less Than Significant*	-
Construction Vibration		*Less Than Significant*	-

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1 INTRODUCTION

This noise analysis has been completed to determine the noise impacts associated with the development of the proposed Avenue L4 Warehouse ("Project"). This noise study briefly describes the proposed Project, provides information regarding noise fundamentals, sets out the local regulatory setting, presents the study methods and procedures for transportation related CNEL traffic noise analysis, and evaluates the future exterior noise environment. In addition, this study includes an analysis of the potential Project-related long-term stationary-source operational noise and short-term construction noise and vibration impacts.

1.1 SITE LOCATION

The proposed project is located south of Avenue L and west of Sierra Highway in the City of Lancaster, as shown on Exhibit 1-A. The Project site is currently vacant and is surrounded by a mix of uses. This includes undeveloped land to the west and the south. The area to the north and east of the site consists of industrial truck and utility storage activities. The City of Lancaster General Plan designates the Project site as Light Industrial use.

1.2 PROJECT DESCRIPTION

The Project is proposed to consist of a single building with a total of 217,700 square feet (sf) as shown on Exhibit 1-B. For the purposes of this analysis, the Project has been evaluated assuming 32,655 sf of general light industrial use (15% of overall square footage) and 185,045 sf of warehouse use (remaining 85% of the overall square footage). The Project is anticipated to be developed within a single phase with an anticipated opening year of 2024. The on-site Project-related noise sources are expected to include: loading dock activity, roof-top air conditioning units, trash enclosure activity, parking lot vehicle movements, and truck movements.

EXHIBIT 1-A: LOCATION MAP

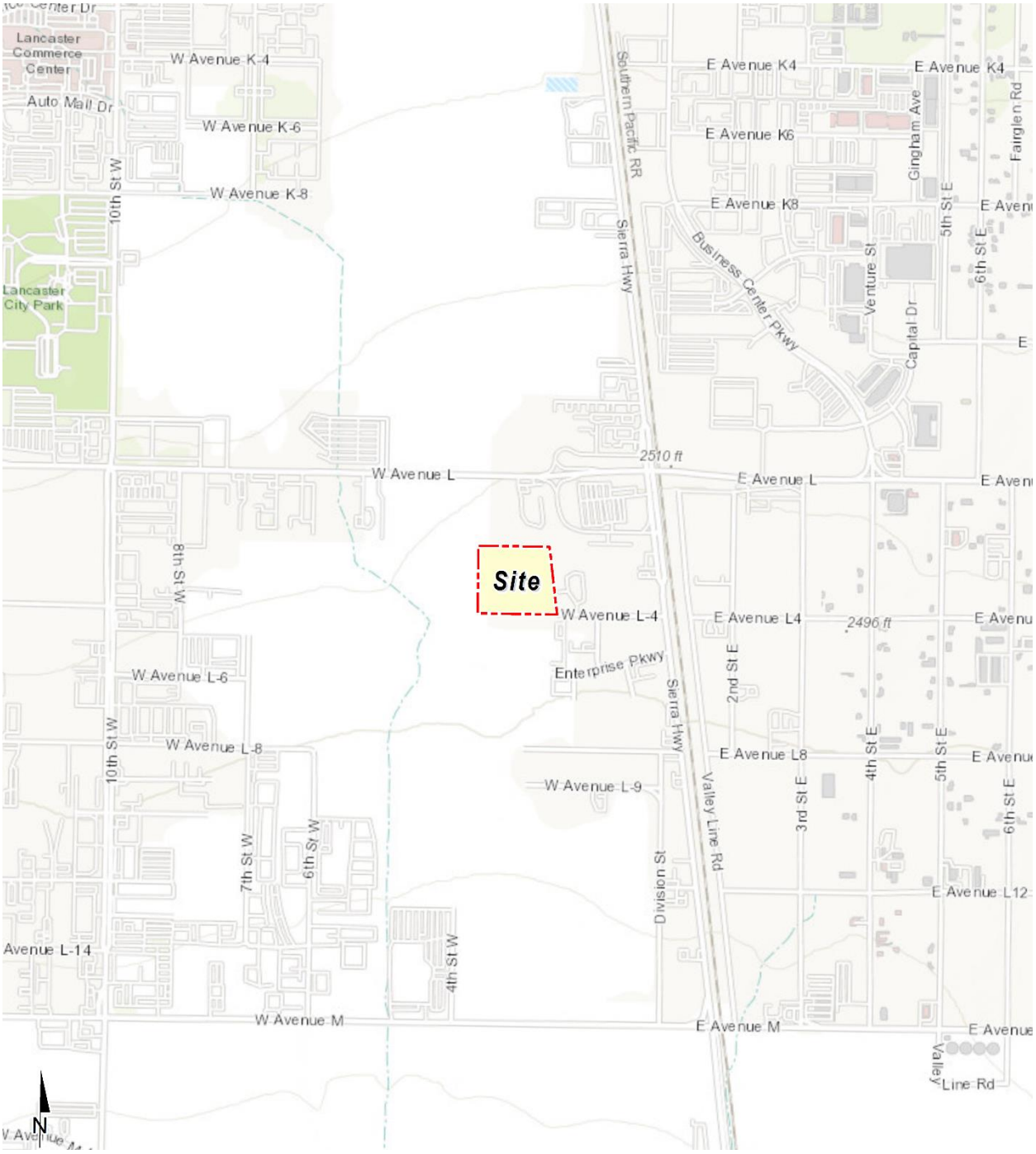
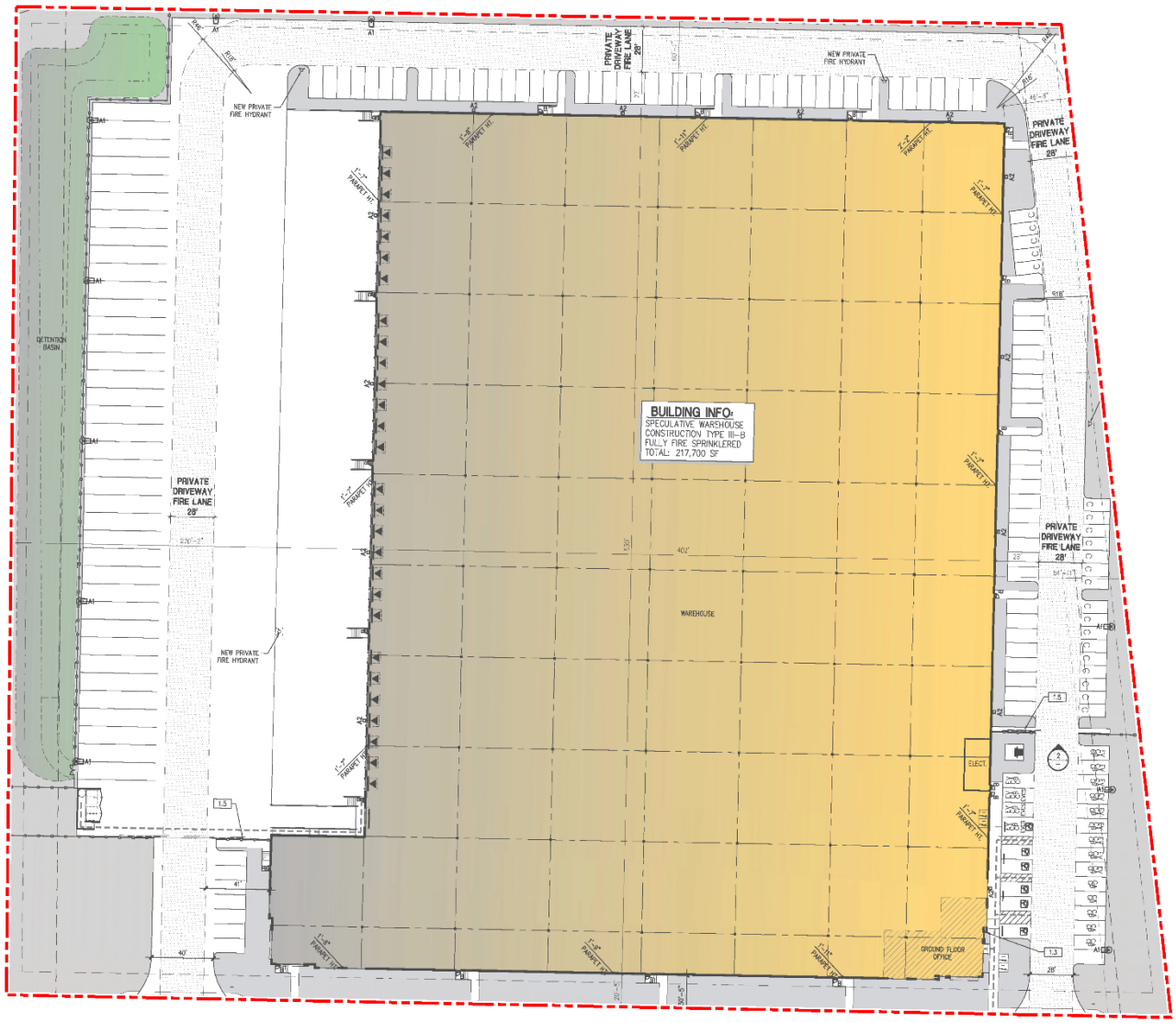


EXHIBIT 1-B: SITE PLAN



LEGEND:

Site Boundary

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2 FUNDAMENTALS

Noise is simply defined as "unwanted sound." Sound becomes unwanted when it interferes with normal activities, when it causes actual physical harm or when it has adverse effects on health. Noise is measured on a logarithmic scale of sound pressure level known as a decibel (dB). A-weighted decibels (dBA) approximate the subjective response of the human ear to broad frequency noise source by discriminating against very low and very high frequencies of the audible spectrum. They are adjusted to reflect only those frequencies which are audible to the human ear. Exhibit 2-A presents a summary of the typical noise levels and their subjective loudness and effects that are described in more detail below.

EXHIBIT 2-A: TYPICAL NOISE LEVELS

COMMON OUTDOOR ACTIVITIES	COMMON INDOOR ACTIVITIES	A - WEIGHTED SOUND LEVEL dBA	SUBJECTIVE LOUDNESS	EFFECTS OF NOISE
THRESHOLD OF PAIN		140	INTOLERABLE OR DEAFENING	HEARING LOSS
NEAR JET ENGINE		130		
		120		
JET FLY-OVER AT 300m (1000 ft)	ROCK BAND	110		
LOUD AUTO HORN		100	VERY NOISY	
GAS LAWN MOWER AT 1m (3 ft)		90		
DIESEL TRUCK AT 15m (50 ft), at 80 km/hr (50 mph)	FOOD BLENDER AT 1m (3 ft)	80		SPEECH INTERFERENCE
NOISY URBAN AREA, DAYTIME	VACUUM CLEANER AT 3m (10 ft)	70	LOUD	
HEAVY TRAFFIC AT 90m (300 ft)	NORMAL SPEECH AT 1m (3 ft)	60		
QUIET URBAN DAYTIME	LARGE BUSINESS OFFICE	50	MODERATE	SLEEP DISTURBANCE
QUIET URBAN NIGHTTIME	THEATER, LARGE CONFERENCE ROOM (BACKGROUND)	40		
QUIET SUBURBAN NIGHTTIME	LIBRARY	30	FAINT	NO EFFECT
QUIET RURAL NIGHTTIME	BEDROOM AT NIGHT, CONCERT HALL (BACKGROUND)	20		
	BROADCAST/RECORDING STUDIO	10	VERY FAINT	
LOWEST THRESHOLD OF HUMAN HEARING	LOWEST THRESHOLD OF HUMAN HEARING	0		

Source: Environmental Protection Agency Office of Noise Abatement and Control, Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety (EPA/ONAC 550/9-74-004) March 1974.

2.1 RANGE OF NOISE

Since the range of intensities that the human ear can detect is so large, the scale frequently used to measure intensity is a scale based on multiples of 10, the logarithmic scale. The scale for measuring intensity is the decibel scale. Each interval of 10 decibels indicates a sound energy ten times greater than before, which is perceived by the human ear as being roughly twice as loud. (2) The most common sounds vary between 40 dBA (very quiet) to 100 dBA (very loud). Normal conversation at three feet is roughly at 60 dBA, while loud jet engine noises equate to 110 dBA

at approximately 1,000 feet, which can cause serious discomfort. (3) Another important aspect of noise is the duration of the sound and the way it is described and distributed in time.

2.2 NOISE DESCRIPTORS

Environmental noise descriptors are generally based on averages, rather than instantaneous, noise levels. The most used metric is the equivalent level (L_{eq}). Equivalent sound levels are not measured directly but are calculated from sound pressure levels typically measured in A-weighted decibels (dBA). The equivalent sound level (L_{eq}) represents a steady state sound level containing the same total energy as a time varying signal over a given sample period and is commonly used to describe the "average" noise levels within the environment.

Peak hour or average noise levels, while useful, do not completely describe a given noise environment. Noise levels lower than peak hour may be disturbing if they occur during times when quiet is most desirable, namely evening and nighttime (sleeping) hours. To account for this, the Community Noise Equivalent Level (CNEL), representing a composite 24-hour noise level is utilized. The CNEL is the weighted average of the intensity of a sound, with corrections for time of day, and averaged over 24 hours. The time-of-day corrections require the addition of 5 decibels to dBA L_{eq} sound levels in the evening from 7:00 p.m. to 10:00 p.m., and the addition of 10 decibels to dBA L_{eq} sound levels at night between 10:00 p.m. and 7:00 a.m. These additions are made to account for the noise sensitive time periods during the evening and night hours when noise can become more intrusive. CNEL does not represent the actual sound level heard at any time, but rather represents the total sound exposure. The City of Lancaster relies on the 24-hour CNEL level to assess land use compatibility with transportation related noise sources.

2.3 SOUND PROPAGATION

When sound propagates over a distance, it changes in level and frequency content. The way noise reduces with distance depends on the following factors.

2.3.1 GEOMETRIC SPREADING

Sound from a localized source (i.e., a stationary point source) propagates uniformly outward in a spherical pattern. The sound level attenuates (or decreases) at a rate of 6 dB for each doubling of distance from a point source. Highways consist of several localized noise sources on a defined path and hence can be treated as a line source, which approximates the effect of several point sources. Noise from a line source propagates outward in a cylindrical pattern, often referred to as cylindrical spreading. Sound levels attenuate at a rate of 3 dB for each doubling of distance from a line source. (2)

2.3.2 GROUND ABSORPTION

The propagation path of noise from a highway to a receiver is usually very close to the ground. Noise attenuation from ground absorption and reflective wave canceling adds to the attenuation associated with geometric spreading. Traditionally, the excess attenuation has also been expressed in terms of attenuation per doubling of distance. This approximation is usually

sufficiently accurate for distances of less than 200 ft. For acoustically hard sites (i.e., sites with a reflective surface between the source and the receiver, such as a parking lot or body of water), no excess ground attenuation is assumed. For acoustically absorptive or soft sites (i.e., those sites with an absorptive ground surface between the source and the receiver such as soft dirt, grass, or scattered bushes and trees), an excess ground attenuation value of 1.5 dB per doubling of distance is normally assumed. When added to the cylindrical spreading, the excess ground attenuation results in an overall drop-off rate of 4.5 dB per doubling of distance from a line source. (4)

2.3.3 ATMOSPHERIC EFFECTS

Receivers located downwind from a source can be exposed to increased noise levels relative to calm conditions, whereas locations upwind can have lowered noise levels. Sound levels can be increased at large distances (e.g., more than 500 feet) due to atmospheric temperature inversion (i.e., increasing temperature with elevation). Other factors such as air temperature, humidity, and turbulence can also have significant effects. (2)

2.3.4 SHIELDING

A large object or barrier in the path between a noise source and a receiver can substantially attenuate noise levels at the receiver. The amount of attenuation provided by shielding depends on the size of the object and the frequency content of the noise source. Shielding by trees and other such vegetation typically only has an "out of sight, out of mind" effect. That is, the perception of noise impact tends to decrease when vegetation blocks the line-of-sight to nearby residents. However, for vegetation to provide a substantial, or even noticeable, noise reduction, the vegetation area must be at least 15 feet high, 100 feet wide and dense enough to completely obstruct the line-of-sight between the source and the receiver. This size of vegetation may provide up to 5 dBA of noise reduction. The Federal Highway Administration (FHWA) does not consider the planting of vegetation to be a noise abatement measure. (5)

2.4 NOISE CONTROL

Noise control is the process of obtaining an acceptable noise environment for an observation point or receiver by controlling the noise source, transmission path, receiver, or all three. This concept is known as the source-path-receiver concept. In general, noise control measures can be applied to these three elements.

2.5 NOISE BARRIER ATTENUATION

Effective noise barriers can reduce noise levels by 10 to 15 dBA, cutting the loudness of traffic noise in half. A noise barrier is most effective when placed close to the noise source or receiver. Noise barriers, however, do have limitations. For a noise barrier to work, it must block the line-of-sight path of sound from the noise source.

2.6 LAND USE COMPATIBILITY WITH NOISE

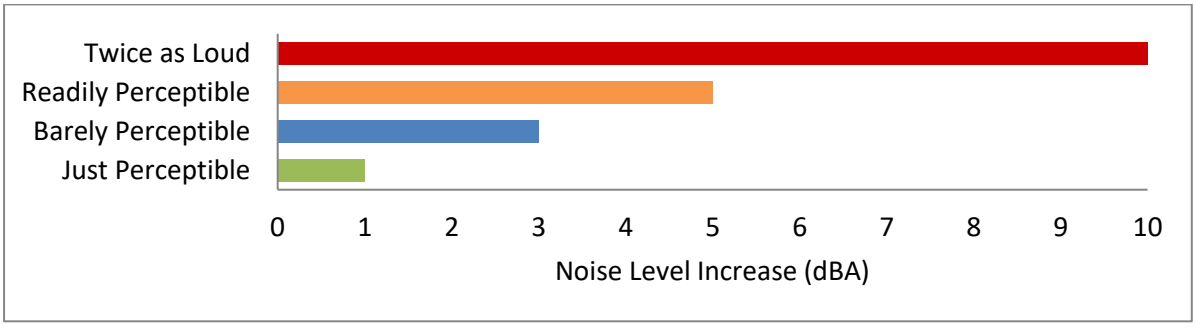
Some land uses are more tolerant of noise than others. For example, schools, hospitals, churches, and residences are more sensitive to noise intrusion than are commercial or industrial developments and related activities. As ambient noise levels affect the perceived amenity or livability of a development, so too can the mismanagement of noise impacts impair the economic health and growth potential of a community by reducing the area's desirability as a place to live, shop and work. For this reason, land use compatibility with the noise environment is an important consideration in the planning and design process. The FHWA encourages State and Local government to regulate land development in such a way that noise-sensitive land uses are either prohibited from being located adjacent to a highway, or that the developments are planned, designed, and constructed in such a way that noise impacts are minimized. (6)

2.7 COMMUNITY RESPONSE TO NOISE

Approximately sixteen percent of the population has a very low tolerance for noise and will object to any noise not of their making. Consequently, even in the quietest environment, some complaints may occur. Twenty to thirty percent of the population will not complain even in very severe noise environments. (7 pp. 8-6) Thus, a variety of reactions can be expected from people exposed to any given noise environment.

Surveys have shown that community response to noise varies from no reaction to vigorous action for newly introduced noises averaging from 10 dB below existing to 25 dB above existing. (8) According to research originally published in the Noise Effects Handbook (7), the percentage of high annoyance ranges from approximately 0 percent at 45 dB or less, 10 percent are highly annoyed around 60 dB, and increases rapidly to approximately 70 percent being highly annoyed at approximately 85 dB or greater. Despite this variability in behavior on an individual level, the population can be expected to exhibit the following responses to changes in noise levels as shown on Exhibit 2-B. A change of 3 dBA is considered barely perceptible, and changes of 5 dBA are considered readily perceptible. (4)

EXHIBIT 2-B: NOISE LEVEL INCREASE PERCEPTION



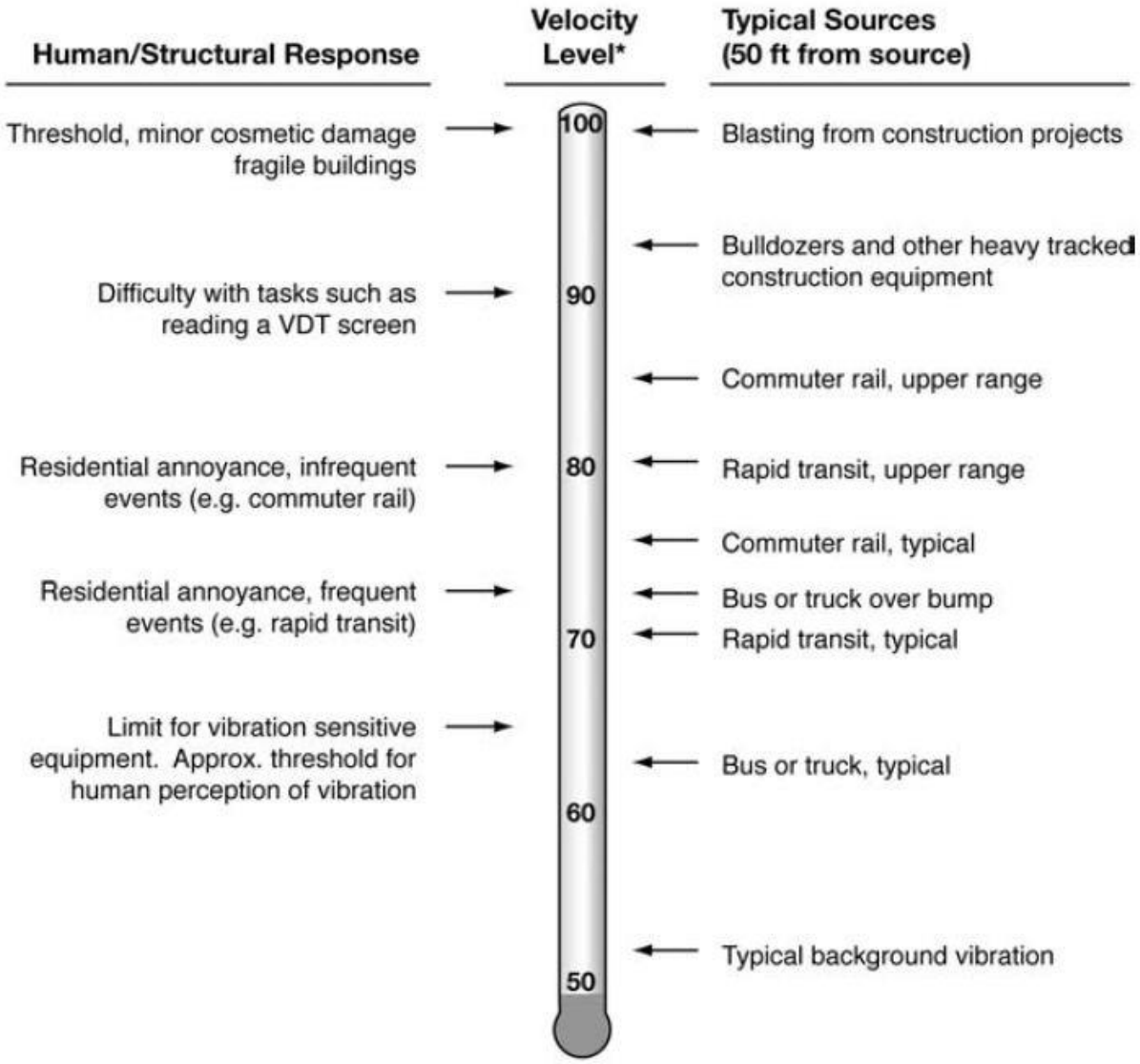
2.8 VIBRATION

Per the Federal Transit Administration (FTA) *Transit Noise Impact and Vibration Impact Assessment Manual* (8) , vibration is the periodic oscillation of a medium or object. The rumbling sound caused by the vibration of room surfaces is called structure-borne noise. Sources of ground-borne vibrations include natural phenomena (e.g., earthquakes, volcanic eruptions, sea waves, landslides) or human-made causes (e.g., explosions, machinery, traffic, trains, construction equipment). Vibration sources may be continuous, such as factory machinery, or transient, such as explosions. As is the case with airborne sound, ground-borne vibrations may be described by amplitude and frequency.

There are several different methods that are used to quantify vibration. The peak particle velocity (PPV) is defined as the maximum instantaneous peak of the vibration signal. The PPV is most frequently used to describe vibration impacts to buildings but is not always suitable for evaluating human response (annoyance) because it takes some time for the human body to respond to vibration signals. Instead, the human body responds to average vibration amplitude often described as the root mean square (RMS). The RMS amplitude is defined as the average of the squared amplitude of the signal and is most frequently used to describe the effect of vibration on the human body. Decibel notation (VdB) is commonly used to measure RMS. Decibel notation (VdB) serves to reduce the range of numbers used to describe human response to vibration. Typically, ground-borne vibration generated by man-made activities attenuates rapidly with distance from the source of the vibration. Sensitive receivers for vibration include structures (especially older masonry structures), people (especially residents, the elderly, and sick), and vibration-sensitive equipment and/or activities.

The background vibration-velocity level in residential areas is generally 50 VdB. Ground-borne vibration is normally perceptible to humans at approximately 65 VdB. For most people, a vibration-velocity level of 75 VdB is the approximate dividing line between barely perceptible and distinctly perceptible levels. Typical outdoor sources of perceptible ground-borne vibration are construction equipment, steel-wheeled trains, and traffic on rough roads. If a roadway is smooth, the ground-borne vibration is rarely perceptible. The range of interest is from approximately 50 VdB, which is the typical background vibration-velocity level, to 100 VdB, which is the general threshold where minor damage can occur in fragile buildings. Exhibit 2-C illustrates common vibration sources and the human and structural response to ground-borne vibration.

EXHIBIT 2-C: TYPICAL LEVELS OF GROUND-BORNE VIBRATION



* *RMS Vibration Velocity Level in VdB relative to 10^{-6} inches/second*

Source: Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual.

3 REGULATORY SETTING

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. In most areas, automobile and truck traffic is the major source of environmental noise. Traffic activity generally produces an average sound level that remains constant with time. Air and rail traffic, and commercial and industrial activities are also major sources of noise in some areas. Federal, state, and local agencies regulate different aspects of environmental noise. Federal and state agencies generally set noise standards for mobile sources such as aircraft and motor vehicles, while regulation of stationary sources is left to local agencies.

3.1 STATE OF CALIFORNIA NOISE REQUIREMENTS

The State of California regulates freeway noise, sets standards for sound transmission, provides occupational noise control criteria, identifies noise standards, and provides guidance for local land use compatibility. State law requires that each county and city adopt a General Plan that includes a Noise Element which is to be prepared per guidelines adopted by the Governor's Office of Planning and Research (OPR) (9). The purpose of the Noise and safety Element is to *limit the exposure of the community to excessive noise levels*. In addition, the California Environmental Quality Act (CEQA) requires that all known environmental effects of a project be analyzed, including environmental noise impacts.

3.2 CITY OF LANCASTER GENERAL PLAN SAFETY ELEMENT

The City of Lancaster has included a Noise section in the Safety Element (10) of the General Plan to control and abate environmental noise, and to protect the citizens of Lancaster from excessive exposure to noise. The Noise section specifies the maximum exterior noise levels allowable for new developments impacted by transportation noise sources such as arterial roads, freeways, airports and railroads. To protect City of Lancaster residents from excessive noise, the Noise section contains the following goal related to the Project:

Goal 4.3 *Promote noise-compatible land use relationships by implementing the noise standards identified in Table 4-3 to be utilized for design purposes in new development and establishing a program to attenuate the existing noise problem.*

To ensure noise issues are addressed (Goal 4-3), the Noise section identifies the following policies:

4.3.1 Ensure that noise-sensitive land uses and noise generators are located and so that City noise objectives will be achieved.

4.3.2 Wherever feasible, manage the generation of single event noise levels (SENL) from motor vehicles, trains, aircraft, commercial, industrial, construction, and other activities such that SENL levels are no greater than 15 dBA above the noise objectives included in the Plan for Public Health and Safety.

4.3.3 Ensure that the provision of noise attenuation does not create significant negative visual impacts.

The City of Lancaster General Plan Noise section specifies the noise levels allowable for new developments. The *Noise Compatible Land Use Objectives* (Table 4-3) identify an exterior noise level of 70 dBA CNEL for the Project related industrial use and 65 dBA CNEL for the nearby noise-sensitive residential land uses. The City of Lancaster General Plan Noise section standards are shown on Exhibit 3-A. These standards typically apply to transportation-related (mobile) noise sources.

EXHIBIT 3-A: NOISE COMPATIBLE LAND USE OBJECTIVES

Land Use	Maximum Exterior CNEL	Maximum Interior CNEL
Rural, Single-Family, Multi-Family Residential	65 dBA	45 dBA
Schools: Classrooms Playgrounds	65 dBA 70 dBA	45 dBA --
Libraries	--	50 dBA
Hospitals/Convalescent Facilities: Living Areas Sleeping Areas	-- --	50 dBA 40 dBA
Commercial and Industrial Office Areas	70 dBA --	-- 50 dBA

Source: City of Lancaster General Plan, Safety Element, Table 4-3.

3.3 OPERATIONAL NOISE STANDARDS

To analyze noise impacts originating from a designated fixed location or private property such as the Avenue L4 Warehouse Project, stationary-source (operational) noise such as the expected loading dock activity, roof-top air conditioning units, trash enclosure activity, parking lot vehicle movements, and truck movements are typically evaluated against standards established under a jurisdiction's municipal code. Section 8.24.030 of the City of Lancaster Municipal Code (LMC) included in Appendix 3.1 states that *no person shall make, cause or suffer, or permit to be made upon any premises owned, occupied or controlled by him/her any unnecessary noises or sounds which are physically annoying to persons of ordinary sensitiveness which are so harsh or so prolonged or unnatural or unusual in their use, time, or place as to occasion physical discomfort to the inhabitants of any neighborhood*. However, the LMC does not identify specific exterior noise level standards for non-residential zones. (11) Therefore, the County of Los Angeles exterior noise level standards are used in this noise study to assess the potential impacts at adjacent sensitive receiver locations.

The Los Angeles County Code (LACC), Chapter 12.08 Noise Control, Section 12.08.390[A] establishes the noise level standards for stationary noise sources. Since the Project's light industrial land use could potentially impact adjacent noise-sensitive uses in the Project study area, this noise study relies on the more conservative residential noise level standards to describe potential operational noise impacts.

For residential properties, the exterior noise level must not exceed 50 dBA L_{eq} during the daytime hours (7:00 a.m. to 10:00 p.m.) and 45 dBA L_{eq} during the nighttime hours (10:00 p.m. to 7:00 a.m.). As such, Section 12.08.390[B] indicates that if the existing ambient noise level already exceeds any of the exterior noise level limit categories, then the standard must be adjusted to reflect the ambient conditions. Chapter 12.08 Noise Control from the Los Angeles County Code of Ordinances is included in Appendix 3.2.

3.4 CONSTRUCTION NOISE STANDARDS

To control noise impacts associated with the construction of the proposed Project, the City of Lancaster has established limits to the hours of operation. The LMC has set restrictions to the hours during which construction activity may take place. LMC Section 8.24.040, *Loud, unnecessary and unusual noises prohibited – Construction and Building,* indicates that *a person at any time on Sunday or any day between the hours of 8:00 p.m. and 7:00 a.m. shall not perform any construction or repair work of any kind upon any building or structure or perform any earth excavating, filling or moving where any of the foregoing entails the use of any air compressor, jack hammer, power-driven drill, riveting machine, excavator, diesel-powered truck, tractor or other earth moving equipment, hard hammers on steel or iron or any other machine tool, device or equipment which makes loud noises within 500 feet of an occupied dwelling, apartment, hotel, mobile home or other place of residence.* (11) Therefore, the Project's construction activity shall be limited to the permitted hours of 7:00 a.m. to 8:00 p.m. on any day with no activity allowed on Sundays.

However, neither the City of Lancaster General Plan Noise Element or Municipal Code establish numeric maximum acceptable construction source noise levels at potentially affected receivers, which would allow for a quantified determination of what CEQA constitutes a *substantial temporary or permanent increase in ambient noise levels*. Therefore, a numerical construction threshold based on Federal Transit Administration (FTA) *Transit Noise and Vibration Impact Assessment Manual* is used for analysis of daytime construction impacts, as discussed below.

According to the FTA, local noise ordinances are typically not very useful in evaluating construction noise. They usually relate to nuisance and hours of allowed activity, and sometimes specify limits in terms of maximum levels, but are generally not practical for assessing the impact of a construction project. Project construction noise criteria should account for the existing noise environment, the absolute noise levels during construction activities, the duration of the construction, and the adjacent land use. Due to the lack of standardized construction noise thresholds, the FTA provides guidelines that can be considered reasonable criteria for construction noise assessment. The FTA considers a daytime exterior construction noise level of 80 dBA L_{eq} and a nighttime exterior construction noise level of 70 dBA L_{eq} as a reasonable threshold for noise sensitive residential land use (8 p. 179).

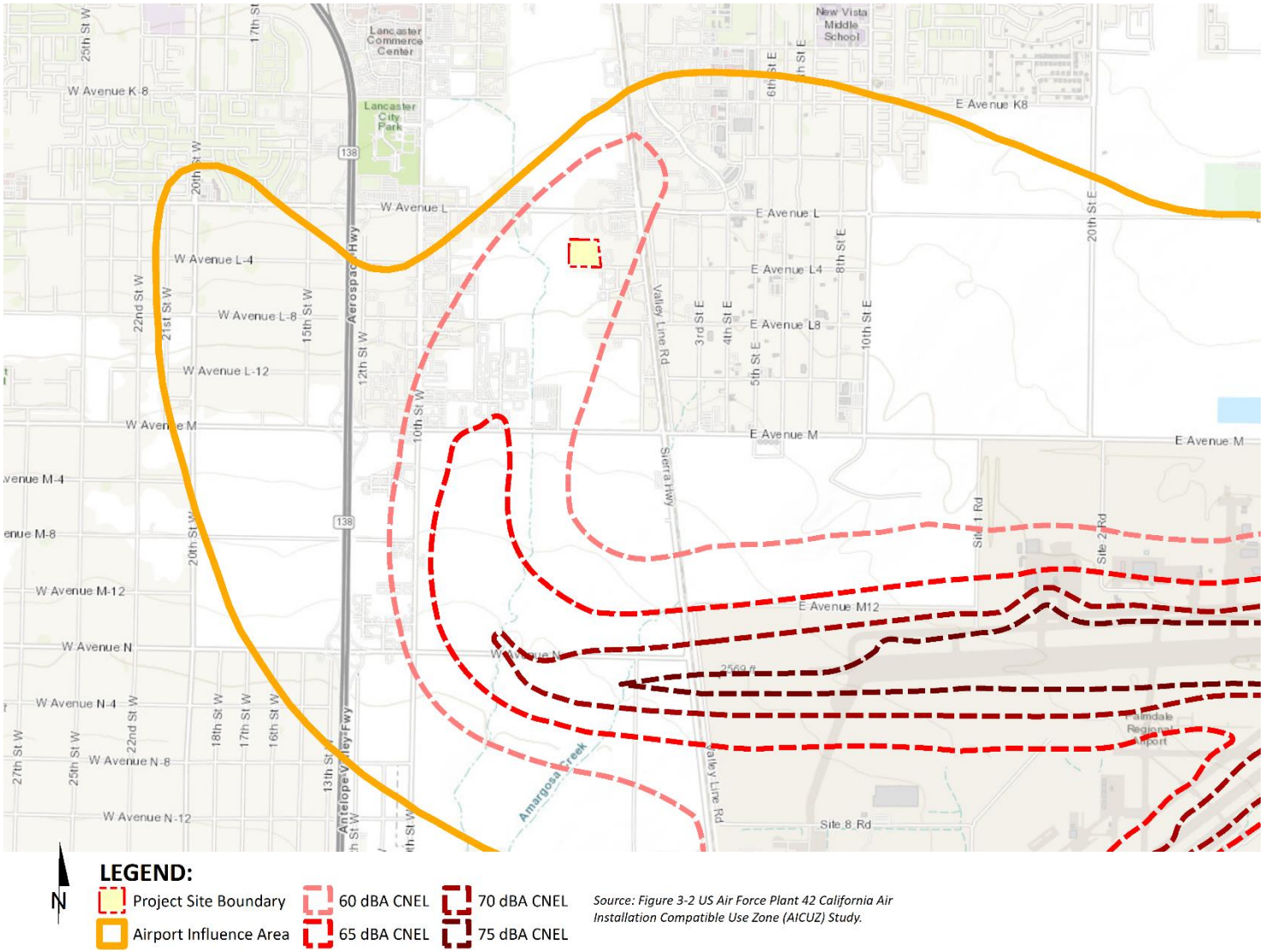
3.5 CONSTRUCTION VIBRATION STANDARDS

Construction activity can result in varying degrees of ground-borne vibration, depending on the equipment and methods used, distance to the affected structures and soil type. Construction vibration is generally associated with pile driving and rock blasting. Other construction equipment such as air compressors, light trucks, hydraulic loaders, etc., generates little or no ground vibration (8). To analyze vibration impacts originating from the operation and construction of the Avenue L4 Warehouse, vibration-generating activities are appropriately evaluated against standards established under a City's Municipal Code, if such standards exist. However, the City of Lancaster and the County of Los Angeles do not identify specific construction vibration level limits. Therefore, for analysis purposes, the Caltrans *Transportation and Construction Vibration Guidance Manual*, (12 p. 38) Table 19, vibration damage are used in this noise study to assess potential temporary construction-related impacts at adjacent building locations. The nearest noise sensitive buildings can best be described as "older residential structures" with a maximum acceptable continuous vibration threshold of 0.3 PPV (in/sec).

3.6 ON-SITE AIRCRAFT NOISE (PALMDALE AIRPORT/USAF PLANT 42)

The Project site is located approximately 2.1 miles northwest to Runway 7 of the Palmdale Airport/USAF Plant 42. This places the Project site within the Airport Influence Area (AIA) according to the Los Angeles County Airport Land Use Commission (ALUC) as shown on Exhibit 3-B. (13) The ALUC is a county-level agency required by the State to develop a plan for promoting compatibility between local airports and surrounding land uses. The ALUC is responsible for designating an AIA for every airport within its jurisdiction. An AIA is an airport planning area boundary that consists of all areas in which current or future airport-related noise, over flight, safety, and/or airspace protection factors may significantly affect land uses or necessitate restrictions on those areas. In addition, as shown on Exhibit 3-B, the Project site is located outside the 65 dBA CNEL aircraft noise level contour boundaries. Therefore, according to the Noise Land Use Compatibility Criteria (see Exhibit 3-A), the Project's industrial land use is considered *normally acceptable*.

EXHIBIT 3-B: PALMDALE AIRPORT/USAF PLANT 42 NOISE CONTOURS



Source: Figure 3-2 US Air Force Plant 42 California Air Installation Compatible Use Zone (AICUZ) Study.

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4 SIGNIFICANCE CRITERIA

The following significance criteria are based on currently adopted guidance provided by Appendix G of the California Environmental Quality Act (CEQA) Guidelines. (1) For the purposes of this report, impacts would be potentially significant if the Project results in or causes:

A. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

B. Generation of excessive ground-borne vibration or ground-borne noise levels?

C. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

4.1 NOISE LEVEL INCREASES (THRESHOLD A)

Noise level increases resulting from the Project are evaluated based on the Appendix G CEQA Guidelines described above at the closest sensitive receiver locations. Under CEQA, consideration must be given to the magnitude of the increase, the existing baseline ambient noise levels, and the location of noise-sensitive receivers to determine if a noise increase represents a significant adverse environmental impact. This approach recognizes *that there is no single noise increase that renders a noise impact significant.* (14) This is primarily because of the wide variation in individual thresholds of annoyance and differing individual experiences with noise. Thus, an important way of determining a person's subjective reaction to a new noise is the comparison of it to the existing environment to which one has adapted—the so-called *ambient* environment. In general, the more a new noise level exceeds the previously existing ambient noise level, the less acceptable the new noise level will typically be judged.

4.1.1 NOISE-SENSITIVE RECEIVERS

The Federal Interagency Committee on Noise (FICON) (15) developed guidance to be used for the assessment of project-generated increases in noise levels that consider the ambient noise level. The FICON recommendations are based on studies that relate aircraft noise levels to the percentage of persons highly annoyed by aircraft noise. Although the FICON recommendations were specifically developed to assess aircraft noise impacts, these recommendations are often used in environmental noise impact assessments involving the use of cumulative noise exposure metrics, such as the average-daily noise level (CNEL) and equivalent continuous noise level (L_{eq}).

As previously stated, the approach used in this noise study recognizes *that there is no single noise increase that renders the noise impact significant*, based on a 2008 California Court of Appeal ruling on Gray v. County of Madera. (14) For example, if the ambient noise environment is quiet (<60 dBA) and the new noise source greatly increases the noise levels, an impact may occur if the noise criteria may be exceeded. Therefore, for this analysis, a *readily perceptible* 5 dBA or greater project-related noise level increase is considered a significant impact when the without project noise levels are below 60 dBA. Per the FICON, in areas where the without project noise levels

range from 60 to 65 dBA, a 3 dBA *barely perceptible* noise level increase appears to be appropriate for most people. When the without project noise levels already exceed 65 dBA, any increase in community noise louder than 1.5 dBA or greater is considered a significant impact if the noise criteria for a given land use is exceeded, since it likely contributes to an existing noise exposure exceedance. The FICON guidance provides an established source of criteria to assess the impacts of substantial temporary or permanent increase in baseline ambient noise levels. Based on the FICON criteria, the amount to which a given noise level increase is considered acceptable is reduced when the without Project (baseline) noise levels are already shown to exceed certain land-use specific exterior noise level criteria. The specific levels are based on typical responses to noise level increases of 5 dBA or *readily perceptible*, 3 dBA or *barely perceptible*, and 1.5 dBA depending on the underlying without Project noise levels for noise-sensitive uses. These levels of increases and their perceived acceptance are consistent with guidance provided by both the Federal Highway Administration (4 p. 9) and Caltrans (16 p. 2_48).

4.1.2 NON-NOISE-SENSITIVE RECEIVERS

The City of Lancaster General Plan *Noise Compatible Land Use Objectives* was used to establish the satisfactory noise levels of significance for the non-noise-sensitive land uses in the Project study area. As previously shown on Exhibit 3-A, a maximum exterior noise level criteria of 70 dBA CNEL is used to describe non-noise-sensitive land use. To determine if Project-related traffic noise level increases are significant at off-site non-noise-sensitive land uses, a *barely perceptible* 3 dBA criteria is used. When the without Project noise levels are greater than the *normally acceptable* 70 dBA CNEL land use criteria, a *barely perceptible* 3 dBA or greater noise level increase is considered a significant impact since the noise level criteria is already exceeded. The noise level increases used to determine significant impacts for non-noise-sensitive land uses is generally consistent with the FICON noise level increase thresholds for noise-sensitive land uses but instead rely on the City of Lancaster *Noise Compatible Land Use Objectives* 70 dBA CNEL exterior noise level criteria for non-noise sensitive land uses.

4.2 VIBRATION (THRESHOLD B)

As described in Section 3.5, for the vibration impacts originating from the construction of Avenue L4 Warehouse, vibration-generating activities are appropriately evaluated using the Caltrans vibration damage thresholds to assess potential temporary construction-related impacts at the nearest building locations. The nearest noise sensitive buildings can best be described as “older residential structures” with a maximum acceptable continuous vibration threshold of 0.3 PPV (in/sec).

4.3 CEQA GUIDELINES NOT FURTHER ANALYZED (THRESHOLD C)

CEQA Noise Threshold C applies when there are nearby public and private airports and/or air strips and focuses on land use compatibility of the Project to nearby airports and airstrips. The closest airport which would require additional noise analysis under CEQA guideline C is the Palmdale Airport/USAF Plant 42 located approximately 2.1 miles northwest of Runway 7. As previously indicated in Section 3.6, the Project site is located outside the 65 dBA CNEL airport

noise impact zone. Therefore, airport noise impacts are considered *less than significant,* and no further noise analysis is required under CEQA Noise Threshold C.

4.4 SIGNIFICANCE CRITERIA SUMMARY

Noise impacts shall be considered significant if any of the following occur as a direct result of the proposed development. Table 4-1 shows the significance criteria summary matrix that includes the allowable criteria used to identify potentially significant incremental noise level increases.

TABLE 4-1: SIGNIFICANCE CRITERIA SUMMARY

Analysis	Receiving Land Use	Condition(s)	Significance Criteria	
			Daytime	Nighttime
Off-Site	Noise-Sensitive[1]	if ambient is < 60 dBA CNEL	≥ 5 dBA CNEL Project increase	
		if ambient is 60 - 65 dBA CNEL	≥ 3 dBA CNEL Project increase	
		if ambient is > 65 dBA CNEL	≥ 1.5 dBA CNEL Project increase	
	Non-Noise-Sensitive[2]	if ambient is > 70 dBA CNEL	≥ 3 dBA CNEL Project increase	
Operational	Residential	Exterior Noise Standards[3]	50 dBA L_{eq}	45 dBA L_{eq}
	Noise-Sensitive	if ambient is < 60 dBA Leq[1]	≥ 5 dBA L_{eq} Project increase	
		if ambient is 60 - 65 dBA Leq[1]	≥ 3 dBA L_{eq} Project increase	
		if ambient is > 65 dBA Leq[1]	≥ 1.5 dBA L_{eq} Project increase	
Construction	Noise-Sensitive	Noise Level Threshold[4]	80 dBA L_{eq}	70 dBA L_{eq}
		Vibration Level Threshold[5]	0.3 PPV (in/sec)	

[1] FICON, 1992.
[2] The City of Lancaster General Plan Safety Element Noise Compatible Land Use Objectives (Exhibit 3-A)
[3] Los Angeles County Code, Chapter 12.08 Noise Control, Section 12.08.390[A] (Appendix 3.2)
[4] Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual.
[5] Caltrans Transportation and Construction Vibration Guidance Manual, April 2020 Table 19
"Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.;"PPV" = peak particle velocity

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5 EXISTING NOISE LEVEL MEASUREMENTS

To assess the existing noise level environment, 24-hour noise level measurements were taken at four locations in the Project study area. The receiver locations were selected to describe and document the existing noise environment within the Project study area. Exhibit 5-A provides the boundaries of the Project study area and the noise level measurement locations. To fully describe the existing noise conditions, noise level measurements were collected by Urban Crossroads, Inc. on Wednesday, January 18, 2023. Appendix 5.1 includes study area photos.

5.1 MEASUREMENT PROCEDURE AND CRITERIA

To describe the existing noise environment, the hourly noise levels were measured during typical weekday conditions over a 24-hour period. By collecting individual hourly noise level measurements, it is possible to describe the daytime and nighttime hourly noise levels and calculate the 24-hour CNEL. The long-term noise readings were recorded using Piccolo Type 2 integrating sound level meter and dataloggers. The Piccolo sound level meters were calibrated using a Larson-Davis calibrator, Model CAL 150. All noise meters were programmed in "slow" mode to record noise levels in "A" weighted form. The sound level meters and microphones were equipped with a windscreen during all measurements. All noise level measurement equipment satisfies the American National Standards Institute (ANSI) standard specifications for sound level meters ANSI S1.4-2014/IEC 61672-1:2013. (17)

5.2 NOISE MEASUREMENT LOCATIONS

The long-term noise level measurements were positioned as close to the nearest sensitive receiver locations as possible to assess the existing ambient hourly noise levels surrounding the Project site. Both Caltrans and the FTA recognize that it is not reasonable to collect noise level measurements that can fully represent every part of a private yard, patio, deck, or balcony normally used for human activity when estimating impacts for new development projects. This is demonstrated in the Caltrans general site location guidelines which indicate that, *sites must be free of noise contamination by sources other than sources of interest. Avoid sites located near sources such as barking dogs, lawnmowers, pool pumps, and air conditioners unless it is the express intent of the analyst to measure these sources*. (2) Further, FTA guidance states, t*hat it is not necessary nor recommended that existing noise exposure be determined by measuring at every noise-sensitive location in the project area. Rather, the recommended approach is to characterize the noise environment for clusters of sites based on measurements or estimates at representative locations in the community*. (8)

Based on recommendations of Caltrans and the FTA, it is not necessary to collect measurements at each individual building or residence, because each receiver measurement represents a group of buildings that share acoustical equivalence. (8) In other words, the area represented by the receiver shares similar shielding, terrain, and geometric relationship to the reference noise source. Receivers represent a location of noise sensitive areas and are used to estimate the future noise level impacts. Collecting reference ambient noise level measurements at the nearby sensitive receiver locations allows for a comparison of the before and after Project noise levels

and is necessary to assess potential noise impacts due to the Project's contribution to the ambient noise levels.

5.3 NOISE MEASUREMENT RESULTS

The noise measurements presented below focus on the average or equivalent sound levels (L_{eq}). The equivalent sound level (L_{eq}) represents a steady state sound level containing the same total energy as a time varying signal over a given sample period. Table 5-1 identifies the hourly daytime (7:00 a.m. to 10:00 p.m.) and nighttime (10:00 p.m. to 7:00 a.m.) noise levels at each noise level measurement location.

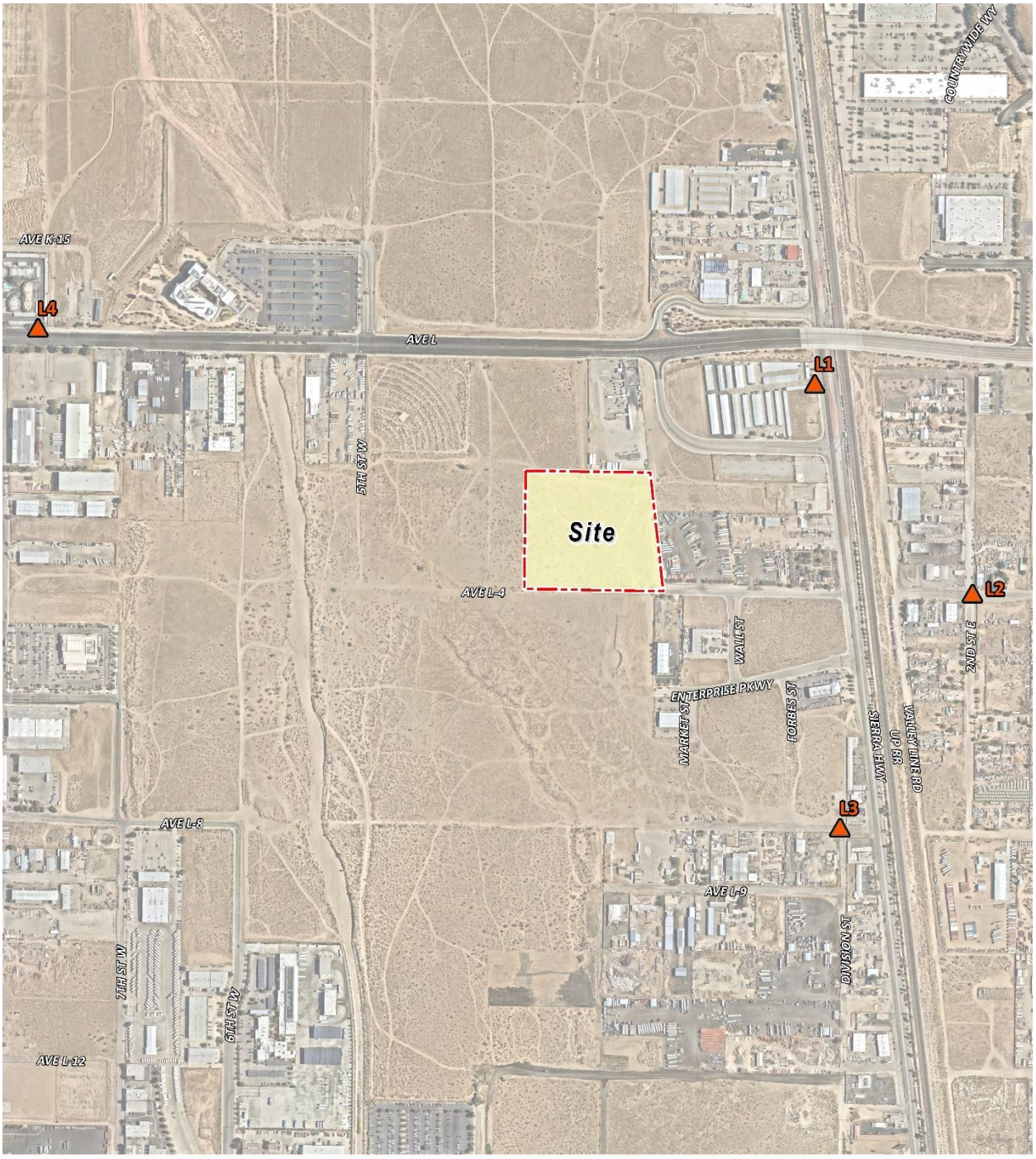
TABLE 5-1: 24-HOUR AMBIENT NOISE LEVEL MEASUREMENTS

Location[1]	Description	Energy Average Noise Level (dBA L_{eq})[2]	
		Daytime	Nighttime
L1	Located northeast of the Project site near the A-American Self Storage at 141 W Avenue L.	71.7	68.3
L2	Located east of the Project site near the existing residence at 42616 2nd St. E	60.1	58.7
L3	Located south of the Project site near the existing Score Turf building located at 42359 Division Street.	55.4	55.3
L4	Located northwest of the Project site near the existing Montecito Apartments located at 835 W Ave L.	71.7	68.3

[1] See Exhibit 5-A for the noise level measurement locations.
[2] Energy (logarithmic) average levels. The long-term 24-hour measurement worksheets are included in Appendix 5.2. "Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

Table 5-1 provides the (energy average) noise levels used to describe the daytime and nighttime ambient conditions. These daytime and nighttime energy average noise levels represent the average of all hourly noise levels observed during these time periods expressed as a single number. Appendix 5.2 provides summary worksheets of the noise levels for each hour as well as the minimum, maximum, L_1, L_2, L_5, L_8, L_{25}, L_{50}, L_{90}, L_{95}, and L_{99} percentile noise levels observed during the daytime and nighttime periods.

EXHIBIT 5-A: NOISE MEASUREMENT LOCATIONS



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6 TRAFFIC NOISE METHODS AND PROCEDURES

The following section outlines the methods and procedures used to estimate and analyze the future traffic noise environment. Consistent with City of Lancaster *Land Use Compatibility Criteria* (see Exhibit 3-A), all transportation related noise levels are presented in terms of the 24-hour CNEL's.

6.1 FHWA TRAFFIC NOISE PREDICTION MODEL

The expected roadway noise level increases from vehicular traffic were calculated by Urban Crossroads, Inc. using a computer program that replicates the Federal Highway Administration (FHWA) Traffic Noise Prediction Model- FHWA-RD-77-108. (18) The FHWA Model arrives at a predicted noise level through a series of adjustments to the Reference Energy Mean Emission Level (REMEL). In California the national REMELs are substituted with the California Vehicle Noise (Calveno) Emission Levels. (19) Adjustments are then made to the REMEL to account for: the roadway classification (e.g., collector, secondary, major or arterial), the roadway active width (i.e., the distance between the center of the outermost travel lanes on each side of the roadway), the total average daily traffic (ADT), the travel speed, the percentages of automobiles, medium trucks, and heavy trucks in the traffic volume, the roadway grade, the angle of view (e.g., whether the roadway view is blocked), the site conditions ("hard" or "soft" relates to the absorption of the ground, pavement, or landscaping), and the percentage of total ADT which flows each hour throughout a 24-hour period. Research conducted by Caltrans has shown that the use of soft site conditions is appropriate for the application of the FHWA traffic noise prediction model used in this analysis. (20)

6.1.1 OFF-SITE TRAFFIC NOISE PREDICTION MODEL INPUTS

Table 6-1 presents the roadway parameters used to assess the Project's off-site transportation noise impacts. Table 6-1 identifies the seven off-site study area roadway segments, the distance from the centerline to adjacent land use based on the functional roadway classifications per the City of Lancaster General Plan Circulation Element, and the posted vehicle speeds. The ADT volumes used in this study area presented on Table 6-2 are based on *Avenue L4 Warehouse Traffic Analysis*, prepared by Urban Crossroads, Inc. for the following traffic scenarios. (21)

- Existing 2023 Traffic Conditions
- Existing Plus Project 2023 Traffic Conditions
- Existing Plus Ambient Growth Plus Cumulative (EAC) 2024 Traffic Conditions
- Existing Plus Ambient Growth Plus Cumulative (EAPC) 2024 Plus Project Traffic Conditions

The ADT volumes vary for each roadway segment based on the existing traffic volumes and the combination of project traffic distributions. This analysis relies on a comparative evaluation of the off-site traffic noise impacts at the boundary of the right-of-way of the receiving adjacent land use, without and with project ADT traffic volumes from the Project traffic study.

TABLE 6-1: OFF-SITE ROADWAY PARAMETERS

ID	Roadway	Segment	Receiving Land Use[1]	Classification[2]	Distance from Centerline to Receiving Land Use (Feet)[3]	Vehicle Speed (mph)
1	Sierra Hwy.	n/o Avenue L West	Non-Sensitive	Secondary	42'	55
2	Sierra Hwy.	s/o Avenue L East	Non-Sensitive	Secondary	42'	55
3	Sierra Hwy.	n/o Avenue L4	Non-Sensitive	Secondary	42'	55
4	Sierra Hwy.	s/o Avenue L4	Non-Sensitive	Secondary	42'	55
5	Avenue L West	w/o Sierra Hwy.	Non-Sensitive	Collector	32'	25
6	Avenue L East	w/o Sierra Hwy.	Non-Sensitive	Collector	32'	25
7	Avenue L4	w/o Sierra Hwy.	Non-Sensitive	Collector	32'	25

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to adjacent residential land uses.
[2] County of Los Angeles General Plan Circulation Element functional roadway classification.
[3] Distance to receiving land use is based upon the right-of-way distances.

To quantify the off-site noise levels, the Project related truck trips were added to the heavy truck category in the FHWA noise prediction model. The addition of the Project related truck trips increases the percentage of heavy trucks in the vehicle mix. This approach recognizes that the FHWA noise prediction model is significantly influenced by the number of heavy trucks in the vehicle mix.

Table 6-3 provides the time of day (daytime, evening, and nighttime) vehicle splits. The daily Project truck trip-ends were assigned to the individual off-site study area roadway segments based on the Project truck trip distribution percentages documented in the *Avenue L4 Warehouse Traffic Analysis*. Using the Project truck trips in combination with the Project trip distribution, Urban Crossroads, Inc. calculated the number of additional Project truck trips and vehicle mix percentages for each of the study area roadway segments. Table 6-4 shows the traffic flow by vehicle type (vehicle mix) used for all without Project traffic scenarios, and Tables 6-5 to 6-6 show the vehicle mixes used for the with Project traffic scenarios.

TABLE 6-2: AVERAGE DAILY TRAFFIC VOLUMES

ID	Roadway	Segment	Average Daily Traffic Volumes[1]			
			Existing		EAC (2024)	
			Without Project	With Project	Without Project	With Project
1	Sierra Hwy.	n/o Avenue L West	21,658	21,712	24,293	24,347
2	Sierra Hwy.	s/o Avenue L East	24,078	24,444	27,879	28,246
3	Sierra Hwy.	n/o Avenue L4	25,497	25,864	30,724	31,090
4	Sierra Hwy.	s/o Avenue L4	11,843	11,957	16,797	16,911
5	Avenue L West	w/o Sierra Hwy.	5,340	5,634	6,565	6,859
6	Avenue L East	w/o Sierra Hwy.	3,826	3,844	5,085	5,103
7	Avenue L4	w/o Sierra Hwy.	297	777	303	783

[1] L4 Avenue Warehouse Traffic Analysis, Urban Crossroads, Inc.

TABLE 6-3: TIME OF DAY VEHICLE SPLITS

Vehicle Type	Time of Day Splits[1]			Total of Time of Day Splits
	Daytime	Evening	Nighttime	
Autos	77.45%	10.62%	11.93%	100.00%
Medium Trucks	82.08%	5.47%	12.45%	100.00%
Heavy Trucks	76.80%	4.64%	18.56%	100.00%

[1] Based on the May 18, 2022, 24-hour directional vehicle classification count collected on Sierra Highway south of Enterprise Parkway (L4 Avenue Warehouse Traffic Analysis, Urban Crossroads, Inc.)
"Daytime" = 7:00 a.m. to 7:00 p.m.; "Evening" = 7:00 p.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

TABLE 6-4: WITHOUT PROJECT VEHICLE MIX

Classification	Total % Traffic Flow[1]			Total
	Autos	Medium Trucks	Heavy Trucks	
All Segments	96.58%	2.51%	0.92%	100.00%

[1] Based on the May 18, 2022, 24-hour directional vehicle classification count collected on Sierra Highway south of Enterprise Parkway (L4 Avenue Warehouse Traffic Analysis, Urban Crossroads, Inc.)

Due to the added Project truck trips, the increase in Project traffic volumes and the distributions of trucks on the study area road segments, the percentage of autos, medium trucks and heavy trucks will vary for each of the traffic scenarios. This explains why the existing and future traffic volumes and vehicle mixes vary between seemingly identical study area roadway segments.

TABLE 6-5: EXISTING (2023) WITH PROJECT VEHICLE MIX

ID	Roadway	Segment	With Project[1]			
			Autos	Medium Trucks	Heavy Trucks	Total[2]
1	Sierra Hwy.	n/o Avenue L West	96.50%	2.51%	0.98%	100.00%
2	Sierra Hwy.	s/o Avenue L East	96.22%	2.54%	1.24%	100.00%
3	Sierra Hwy.	n/o Avenue L4	96.24%	2.54%	1.22%	100.00%
4	Sierra Hwy.	s/o Avenue L4	96.40%	2.52%	1.08%	100.00%
5	Avenue L West	w/o Sierra Hwy.	95.33%	2.63%	2.04%	100.00%
6	Avenue L East	w/o Sierra Hwy.	96.59%	2.49%	0.91%	100.00%
7	Avenue L4	w/o Sierra Hwy.	82.74%	3.83%	13.43%	100.00%

[1] L4 Avenue Warehouse Traffic Analysis, Urban Crossroads, Inc.
[2] Total of vehicle mix percentage values rounded to the nearest one-hundredth.

TABLE 6-6: EAPC (2024) WITH PROJECT VEHICLE MIX

ID	Roadway	Segment	With Project[1]			
			Autos	Medium Trucks	Heavy Trucks	Total[2]
1	Sierra Hwy.	n/o Avenue L West	96.51%	2.51%	0.98%	100.00%
2	Sierra Hwy.	s/o Avenue L East	96.27%	2.54%	1.19%	100.00%
3	Sierra Hwy.	n/o Avenue L4	96.30%	2.53%	1.17%	100.00%
4	Sierra Hwy.	s/o Avenue L4	96.45%	2.51%	1.03%	100.00%
5	Avenue L West	w/o Sierra Hwy.	95.55%	2.61%	1.84%	100.00%
6	Avenue L East	w/o Sierra Hwy.	96.59%	2.50%	0.91%	100.00%
7	Avenue L4	w/o Sierra Hwy.	82.85%	3.82%	13.33%	100.00%

[1] L4 Avenue Warehouse Traffic Analysis, Urban Crossroads, Inc.
[2] Total of vehicle mix percentage values rounded to the nearest one-hundredth.

7 OFF-SITE TRAFFIC NOISE ANALYSIS

To assess the off-site transportation CNEL noise level impacts associated with development of the proposed Project, noise contours were developed based on the *Avenue L4 Warehouse Traffic Analysis* prepared by Urban Crossroads, Inc. (21) Noise contour boundaries represent the equal levels of noise exposure and are measured in CNEL from the center of the roadway.

7.1 TRAFFIC NOISE CONTOURS

Noise contours were used to assess the Project's incremental traffic-related noise impacts at land uses adjacent to roadways conveying Project traffic. The noise contours represent the distance to noise levels of a constant value and are measured from the center of the roadway for the 70, 65, and 60 dBA noise levels. The noise contours do not consider the effect of any existing noise barriers or topography that may attenuate ambient noise levels. In addition, because the noise contours reflect modeling of vehicular noise on area roadways, they appropriately do not reflect noise contributions from the surrounding stationary noise sources within the Project study area. Tables 7-1 to 7-4 present a summary of the exterior traffic noise levels for each traffic condition. Appendix 7.1 includes the traffic noise level contours worksheets for each traffic condition.

TABLE 7-1: EXISTING WITHOUT PROJECT CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Nearest Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Sierra Hwy.	n/o Avenue L West	Non-Sensitive	74.6	86	185	398
2	Sierra Hwy.	s/o Avenue L East	Non-Sensitive	75.1	92	198	427
3	Sierra Hwy.	n/o Avenue L4	Non-Sensitive	75.4	96	206	444
4	Sierra Hwy.	s/o Avenue L4	Non-Sensitive	72.0	57	124	266
5	Avenue L West	w/o Sierra Hwy.	Non-Sensitive	61.8	RW	RW	42
6	Avenue L East	w/o Sierra Hwy.	Non-Sensitive	60.4	RW	RW	34
7	Avenue L4	w/o Sierra Hwy.	Non-Sensitive	49.3	RW	RW	RW

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest receiving land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.

TABLE 7-2: EXISTING WITH PROJECT CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Nearest Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Sierra Hwy.	n/o Avenue L West	Non-Sensitive	74.7	87	187	403
2	Sierra Hwy.	s/o Avenue L East	Non-Sensitive	75.5	97	210	452
3	Sierra Hwy.	n/o Avenue L4	Non-Sensitive	75.7	101	217	468
4	Sierra Hwy.	s/o Avenue L4	Non-Sensitive	72.2	59	127	274
5	Avenue L West	w/o Sierra Hwy.	Non-Sensitive	63.8	RW	RW	57
6	Avenue L East	w/o Sierra Hwy.	Non-Sensitive	60.4	RW	RW	34
7	Avenue L4	w/o Sierra Hwy.	Non-Sensitive	61.6	RW	RW	41

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest receiving land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.

TABLE 7-3: EAC (2024) WITHOUT PROJECT CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Nearest Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Sierra Hwy.	n/o Avenue L West	Non-Sensitive	75.1	93	199	430
2	Sierra Hwy.	s/o Avenue L East	Non-Sensitive	75.7	101	219	471
3	Sierra Hwy.	n/o Avenue L4	Non-Sensitive	76.2	108	233	502
4	Sierra Hwy.	s/o Avenue L4	Non-Sensitive	73.5	72	156	336
5	Avenue L West	w/o Sierra Hwy.	Non-Sensitive	62.7	RW	RW	48
6	Avenue L East	w/o Sierra Hwy.	Non-Sensitive	61.6	RW	RW	41
7	Avenue L4	w/o Sierra Hwy.	Non-Sensitive	49.3	RW	RW	RW

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest receiving land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.

TABLE 7-4: EAPC (2024) WITH PROJECT CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Nearest Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Sierra Hwy.	n/o Avenue L West	Non-Sensitive	75.2	94	202	434
2	Sierra Hwy.	s/o Avenue L East	Non-Sensitive	76.1	107	230	495
3	Sierra Hwy.	n/o Avenue L4	Non-Sensitive	76.5	113	244	525
4	Sierra Hwy.	s/o Avenue L4	Non-Sensitive	73.7	74	159	343
5	Avenue L West	w/o Sierra Hwy.	Non-Sensitive	64.4	RW	RW	63
6	Avenue L East	w/o Sierra Hwy.	Non-Sensitive	61.6	RW	RW	41
7	Avenue L4	w/o Sierra Hwy.	Non-Sensitive	61.6	RW	RW	41

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest receiving land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.

7.2 EXISTING PROJECT TRAFFIC NOISE LEVEL INCREASES

An analysis of existing traffic noise levels plus traffic noise generated by the proposed Project has been included in this report for informational purposes and to fully analyze all the existing traffic scenarios identified in the Traffic Analysis prepared by Urban Crossroads, Inc. However, the analysis of existing off-site traffic noise levels plus traffic noise generated by the proposed Project scenario will not actually occur since the Project would not be fully constructed and operational until Year 2024 conditions. Table 7-1 shows the Existing without Project conditions CNEL noise levels. The Existing without Project exterior noise levels range from 49.3 to 75.4 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 7-2 shows the Existing with Project conditions ranging from 60.4 to 75.7 dBA CNEL. Table 7-5 shows that the Project off-site traffic noise level increases range from 0.0 to 12.3 dBA CNEL on the study area roadway segments. Based on the significance criteria for off-site traffic noise presented in Table 4-1, land uses adjacent to the study area roadway segments would experience *less than significant* noise level increases on receiving land uses due to the Project-related traffic.

TABLE 7-5: EXISTING WITH PROJECT TRAFFIC NOISE LEVEL INCREASES

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]			Incremental Noise Level Increase Threshold[3]	
				No Project	With Project	Project Increment	Limit	Exceeded?
1	Sierra Hwy.	n/o Avenue L West	Non-Sensitive	74.6	74.7	0.1	3.0	No
2	Sierra Hwy.	s/o Avenue L East	Non-Sensitive	75.1	75.5	0.4	3.0	No
3	Sierra Hwy.	n/o Avenue L4	Non-Sensitive	75.4	75.7	0.3	3.0	No
4	Sierra Hwy.	s/o Avenue L4	Non-Sensitive	72.0	72.2	0.2	3.0	No
5	Avenue L West	w/o Sierra Hwy.	Non-Sensitive	61.8	63.8	2.0	n/a	No
6	Avenue L East	w/o Sierra Hwy.	Non-Sensitive	60.4	60.4	0.0	n/a	No
7	Avenue L4	w/o Sierra Hwy.	Non-Sensitive	49.3	61.6	12.3	n/a	No

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.

[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the receiving land use.

[3] Does the Project create an incremental noise level increase exceeding the significance criteria (Table 4-1)?

"n/a" Per the County of Los Angeles General Plan Noise Element Table N-1, a barely perceptible 3 dBA or greater noise level increase is considered a significant impact when the ambient non-noise sensitive noise level is greater than the normally acceptable 70 dBA CNEL land use compatibility criteria.

7.3 EAC (2024) TRAFFIC NOISE LEVEL INCREASES

Table 7-3 presents the Existing plus Ambient Growth Plus Cumulative (EAC) without Project conditions CNEL noise levels. The EAC without Project exterior noise levels range from 49.3 to 76.2 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 7-4 shows that the EAC with Project conditions will range from 61.6 to 76.5 dBA CNEL. Table 7-6 shows that the Project off-site traffic noise level increases range from 0.0 to 12.3 dBA CNEL. Based on the significance criteria for off-site traffic noise presented in Table 4-1, land uses adjacent to the study area roadway segments would experience *less than significant* noise level increases on receiving land uses due to the Project-related traffic under EAC traffic conditions.

TABLE 7-6: EAC WITH PROJECT TRAFFIC NOISE LEVEL INCREASES

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]			Incremental Noise Level Increase Threshold[3]	
				No Project	With Project	Project Increment	Limit	Exceeded?
1	Sierra Hwy.	n/o Avenue L West	Non-Sensitive	75.1	75.2	0.1	3.0	No
2	Sierra Hwy.	s/o Avenue L East	Non-Sensitive	75.7	76.1	0.4	3.0	No
3	Sierra Hwy.	n/o Avenue L4	Non-Sensitive	76.2	76.5	0.3	3.0	No
4	Sierra Hwy.	s/o Avenue L4	Non-Sensitive	73.5	73.7	0.2	3.0	No
5	Avenue L West	w/o Sierra Hwy.	Non-Sensitive	62.7	64.4	1.7	n/a	No
6	Avenue L East	w/o Sierra Hwy.	Non-Sensitive	61.6	61.6	0.0	n/a	No
7	Avenue L4	w/o Sierra Hwy.	Non-Sensitive	49.3	61.6	12.3	n/a	No

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.

[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the receiving land use.

[3] Does the Project create an incremental noise level increase exceeding the significance criteria (Table 4-1)?

"n/a" Per the County of Los Angeles General Plan Noise Element Table N-1, a barely perceptible 3 dBA or greater noise level increase is considered a significant impact when the ambient non-noise sensitive noise level is greater than the normally acceptable 70 dBA CNEL land use compatibility criteria.

8 SENSITIVE RECEIVER LOCATIONS

To assess the potential for long-term operational and short-term construction noise impacts, the following sensitive receiver locations, as shown on Exhibit 8-A, were identified as representative locations for analysis. While a receptor represents an existing noise sensitive area, a receiver represents a single point in a noise prediction model that can represent one receptor or multiple receptors. Sensitive receivers are generally defined as locations where people reside or where the presence of unwanted sound could otherwise adversely affect the use of the land. Noise-sensitive land uses are generally considered to include schools, hospitals, single-family dwellings, mobile home parks, churches, libraries, and recreation areas. Moderately noise-sensitive land uses typically include multi-family dwellings, hotels, motels, dormitories, out-patient clinics, cemeteries, golf courses, country clubs, athletic/tennis clubs, and equestrian clubs. Land uses that are considered relatively insensitive to noise include business, commercial, and professional developments. Land uses that are typically not affected by noise include: industrial, manufacturing, utilities, agriculture, undeveloped land, parking lots, warehousing, liquid and solid waste facilities, salvage yards, and transit terminals.

To describe the potential off-site Project noise levels, four receiver locations in the vicinity of the Project site were identified. The selection of receiver locations is based on FHWA guidelines and is consistent with additional guidance provided by Caltrans and the FTA, as previously described in Section 5.2. Due to the additional attenuation from distance and the shielding of intervening structures, other sensitive land uses in the Project study area that are located at greater distances than those identified in this noise study will experience lower noise levels than those presented in this report due to the additional attenuation from distance and the shielding of intervening structures. Distance is measured in a straight line from the project boundary to each receiver location.

R1: Location R1 represents the existing residence at 42735 2nd Street E, approximately 1,688 feet northeast of the Project site. Since there are no private outdoor living areas facing the Project site, receiver R1 is placed at the building façade. A 24-hour noise measurement was taken near this location, L1, to describe the existing ambient noise environment.

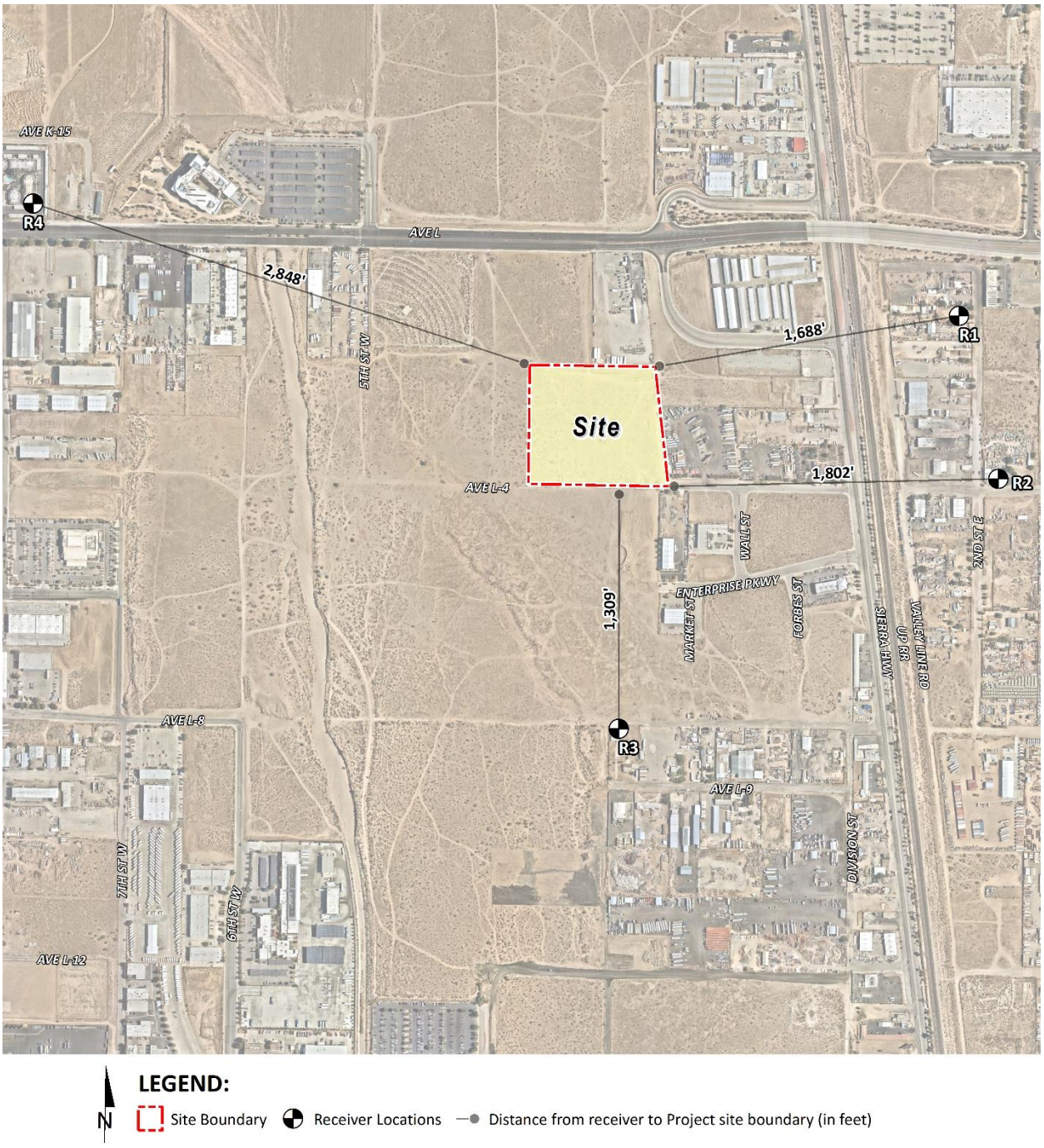
R2: Location R2 represents the existing residence at 42616 2nd Street E, approximately 1,802 feet east of the Project site. Since there are no private outdoor living areas facing the Project site, receiver R2 is placed at the building façade. A 24-hour noise measurement was taken near this location, L2, to describe the existing ambient noise environment.

R3: Location R3 represents the existing residential use located at 225 West Avenue L9, approximately 1,309 feet south of the Project site. Since there are no private outdoor living areas facing the Project site, receiver R3 is placed at the building façade. A 24-hour noise measurement was taken near this location, L3, to describe the existing ambient noise environment.

R4: Location R4 represents the existing Montecito Apartments located at 835 W Ave L, approximately 2,848 feet northwest of the Project site. Since there are no private outdoor living areas facing the Project site, receiver R4 is placed at the nearest residential

building façade. A 24-hour noise measurement was taken near this location, L4, to describe the existing ambient noise environment.

EXHIBIT 8-A: SENSITIVE RECEIVER LOCATIONS



9 OPERATIONAL NOISE IMPACTS

This section analyzes the potential stationary-source operational noise impacts at the nearest receiver locations, identified in Section 8, resulting from the operation of the proposed Avenue L4 Warehouse Project. Exhibit 9-A identifies the noise source locations used to assess the operational noise levels.

9.1 OPERATIONAL NOISE SOURCES

This operational noise analysis is intended to describe noise level impacts associated with the typical daytime and nighttime activities at the Project site. The on-site Project-related noise sources are expected to include: loading dock activity, roof-top air conditioning units, trash enclosure activity, parking lot vehicle movements, and truck movements.

9.2 REFERENCE NOISE LEVELS

To estimate the Project operational noise impacts, reference noise level measurements were collected from similar types of activities to represent the noise levels expected with the development of the proposed Project. This section provides a detailed description of the reference noise level measurements shown on Table 9-1 used to estimate the Project operational noise impacts. It is important to note that the following projected noise levels assume the worst-case noise environment with the loading dock activity, roof-top air conditioning units, trash enclosure activity, parking lot vehicle movements, and truck movements all operating at the same time. These sources of noise activity will likely vary throughout the day.

9.2.1 MEASUREMENT PROCEDURES

The reference noise level measurements presented in this section were collected using Piccolo Type 2 integrating sound level meter and dataloggers. The Piccolo sound level meters were calibrated using a Larson-Davis calibrator, Model CAL 150. All noise meters were programmed in "slow" mode to record noise levels in "A" weighted form. The sound level meters and microphones were equipped with a windscreen during all measurements. All noise level measurement equipment satisfies the American National Standards Institute (ANSI) standard specifications for sound level meters ANSI S1.4-2014/IEC 61672-1:2013. (17)

EXHIBIT 9-A: OPERATIONAL NOISE SOURCE LOCATIONS

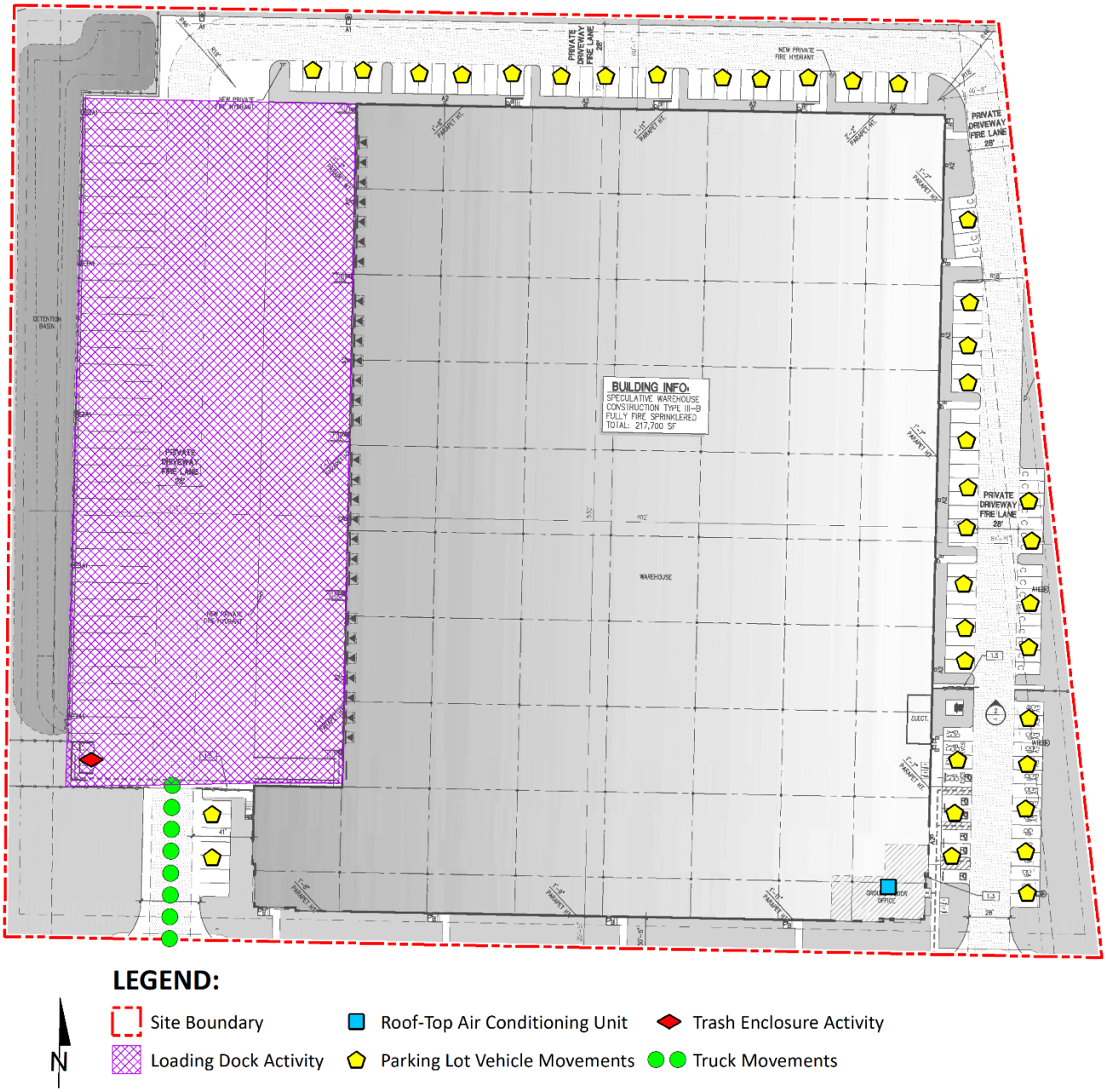


TABLE 9-1: REFERENCE NOISE LEVEL MEASUREMENTS

Noise Source[1]	Noise Source Height (Feet)	Min./ Hour[2]		Reference Noise Level (dBA L_{eq}) @ 50 Feet	Sound Power Level (dBA)[3]
		Day	Night		
Loading Dock Activity	8'	60	60	65.7	111.5
Roof-Top Air Conditioning Units	5'	39	28	57.2	88.9
Trash Enclosure Activity	5'	60	30	57.3	89.0
Parking Lot Vehicle Movements	5'	60	60	52.6	81.1
Truck Movements	8'	60	60	59.8	93.2

[1] As measured by Urban Crossroads, Inc.
[2] Anticipated duration (minutes within the hour) of noise activity during typical hourly conditions expected at the Project site. "Daytime" = 7:00 a.m. - 10:00 p.m.; "Nighttime" = 10:00 p.m. - 7:00 a.m.
[3] Sound power level represents the total amount of acoustical energy (noise level) produced by a sound source independent of distance or surroundings. Sound power levels calculated using the CadnaA noise model at the reference distance to the noise source. Numbers may vary due to size differences between point and area noise sources.

9.2.2 LOADING DOCK ACTIVITY

The reference loading dock activities are intended to describe the typical outdoor operational noise activities associated with the Project. This includes truck idling, reefer activity (refrigerator truck/cold storage), deliveries, backup alarms, trailer docking including a combination of tractor trailer semi-trucks, two-axle delivery trucks, and background operation activities. Since the noise levels generated by cold storage loading dock activity can be slightly higher due to the use of refrigerated trucks or reefers this analysis conservatively assumes that all loading dock activity is associated with cold storage facilities. The reference noise level measurement was taken in the center of the loading dock activity area and represents multiple concurrent noise sources resulting in a combined noise level of 65.7 dBA L_{eq} at a uniform distance of 50 feet. Specifically, the reference noise level measurement represents one truck located approximately 30 feet from the noise level meter with another truck passing by to park roughly 20 feet away, both with their engines idling. Throughout the reference noise level measurement, a separate docked and running reefer truck was located approximately 50 feet east of the measurement location. Additional background noise sources included truck pass-by noise, truck drivers talking to each other next to docked trucks, and air brake release noise when trucks parked.

9.2.3 ROOF-TOP AIR CONDITIONING UNITS

The noise level measurements describe a single mechanical roof-top air conditioning unit. The reference noise level represents a Lennox SCA120 series 10-ton model packaged air conditioning unit. At the uniform reference distance of 50 feet, the reference noise levels are 57.2 dBA L_{eq}. Based on the typical operating conditions observed over a four-day measurement period, the roof-top air conditioning units are estimated to operate for and average 39 minutes per hour during the daytime hours, and 28 minutes per hour during the nighttime hours. These operating conditions reflect peak summer cooling requirements with measured temperatures approaching

96 degrees Fahrenheit (°F) with average daytime temperatures of 82°F. For this noise analysis, the air conditioning units are expected to be located on the roof of the Project building.

9.2.4 TRASH ENCLOSURE ACTIVITY

To describe the noise levels associated with a trash enclosure activity, Urban Crossroads, Inc. collected a reference noise level measurement at an existing trash enclosure containing two dumpster bins. The trash enclosure noise levels describe metal gates opening and closing, metal scraping against concrete floor sounds, dumpster movement on metal wheels, and trash dropping into the metal dumpster. The reference noise levels describe trash enclosure noise activities when trash is dropped into an empty metal dumpster, as would occur at the Project site. The measured reference noise level at the uniform 50-foot reference distance is 57.3 dBA L_{eq} for the trash enclosure activity. The reference noise level describes the expected noise source activities associated with the trash enclosures for the Project's proposed building.

9.2.5 PARKING LOT VEHICLE MOVEMENTS

To describe the on-site parking lot activity, a long-term reference noise level measurement was collected in the center of activity within the staff parking lot of an unrelated warehouse distribution center. At 50 feet from the center of activity, the parking lot produced a reference noise level of 52.6 dBA L_{eq}. Parking activities are expected to take place during the full hour (60 minutes) throughout the daytime and evening hours. The parking lot noise levels are mainly due cars pulling in and out of parking spaces in combination with car doors opening and closing.

9.2.6 TRUCK MOVEMENTS

The truck movements reference noise level measurement was collected over a period of 1 hour and 28 minutes and represents multiple heavy trucks entering and exiting the outdoor loading dock area producing a reference noise level of 59.8 dBA L_{eq} at 50 feet. The noise sources included at this measurement location account for trucks entering and existing the Project driveways and maneuvering in and out of the outdoor loading dock activity area.

9.3 CADNAA NOISE PREDICTION MODEL

To fully describe the exterior operational noise levels from the Project, Urban Crossroads, Inc. developed a noise prediction model using the CadnaA (Computer Aided Noise Abatement) computer program. CadnaA can analyze multiple types of noise sources using the spatially accurate Project site plan, georeferenced Nearmap aerial imagery, topography, buildings, and barriers in its calculations to predict outdoor noise levels.

Using the ISO 9613-2 protocol, CadnaA will calculate the distance from each noise source to the noise receiver locations, using the ground absorption, distance, and barrier/building attenuation inputs to provide a summary of noise level at each receiver and the partial noise level contributions by noise source. Consistent with the ISO 9613-2 protocol, the CadnaA noise prediction model relies on the reference sound power level (L_w) to describe individual noise sources. While sound pressure levels (e.g., L_{eq}) quantify in decibels the intensity of given sound sources at a reference distance, sound power levels (L_w) are connected to the sound source and

are independent of distance. Sound pressure levels vary substantially with distance from the source and diminish because of intervening obstacles and barriers, air absorption, wind, and other factors. Sound power is the acoustical energy emitted by the sound source and is an absolute value that is not affected by the environment.

The operational noise level calculations provided in this noise study account for the distance attenuation provided due to geometric spreading, when sound from a localized stationary source (i.e., a point source) propagates uniformly outward in a spherical pattern. A default ground attenuation factor of 0.5 was used in the CadnaA noise analysis to account for mixed ground representing a combination of hard and soft surfaces. Appendix 9.1 includes the detailed noise model inputs used to estimate the Project operational noise levels presented in this section.

9.4 PROJECT OPERATIONAL NOISE LEVELS

Using the reference noise levels to represent the proposed Project operations that include loading dock activity, roof-top air conditioning units, trash enclosure activity, parking lot vehicle movements, and truck movements, Urban Crossroads, Inc. calculated the operational source noise levels that are expected to be generated at the Project site and the Project-related noise level increases that would be experienced at each of the sensitive receiver locations. Table 9-2 shows the Project operational noise levels during the daytime hours of 7:00 a.m. to 10:00 p.m. The daytime hourly noise levels at the off-site receiver locations are expected to range from 39.3 to 45.3 dBA L_{eq}.

TABLE 9-2: DAYTIME PROJECT OPERATIONAL NOISE LEVELS

Noise Source[1]	Operational Noise Levels by Receiver Location (dBA Leq)			
	R1	R2	R3	R4
Loading Dock Activity	43.1	42.4	45.1	39.2
Roof-Top Air Conditioning Units	19.7	19.7	22.8	9.3
Trash Enclosure Activity	3.3	2.8	22.6	15.7
Parking Lot Vehicle Movements	27.4	25.6	26.8	18.1
Truck Movements	2.7	12.2	28.2	20.6
Total (All Noise Sources)	**43.2**	**42.5**	**45.3**	**39.3**

[1] See Exhibit 9-A for the noise source locations. CadnaA noise model calculations are included in Appendix 9.1.

Tables 9-3 shows the Project operational noise levels during the nighttime hours of 10:00 p.m. to 7:00 a.m. The nighttime hourly noise levels at the off-site receiver locations are expected to range from 39.3 to 45.3 dBA L_{eq}. The minor differences between the daytime and nighttime noise levels are largely related to the estimated duration of noise activity as outlined in Table 9-1 and Appendix 9.1.

TABLE 9-3: NIGHTTIME PROJECT OPERATIONAL NOISE LEVELS

Noise Source[1]	Operational Noise Levels by Receiver Location (dBA Leq)			
	R1	R2	R3	R4
Loading Dock Activity	43.1	42.4	45.1	39.2
Roof-Top Air Conditioning Units	17.3	17.3	20.4	6.9
Trash Enclosure Activity	0.0	0.0	18.7	11.7
Parking Lot Vehicle Movements	27.4	25.6	26.8	18.1
Truck Movements	2.7	12.2	28.2	20.6
Total (All Noise Sources)	**43.2**	**42.5**	**45.3**	**39.3**

[1] See Exhibit 9-A for the noise source locations. CadnaA noise model calculations are included in Appendix 9.1.

9.5 PROJECT OPERATIONAL NOISE LEVEL COMPLIANCE

To demonstrate compliance with local noise regulations, the Project-only operational noise levels are evaluated against the City of Lancaster exterior noise level thresholds adjusted to reflect the ambient noise levels at the nearest noise-sensitive receiver locations. Table 9-4 shows the operational noise levels associated with Avenue L4 Warehouse Project will not exceed the City of Lancaster daytime and nighttime exterior noise level standards. Therefore, the operational noise impacts are considered *less than significant* at the nearby noise-sensitive receiver locations.

TABLE 9-4: OPERATIONAL NOISE LEVEL COMPLIANCE

Receiver Location[1]	Project Operational Noise Levels (dBA Leq)[2]		Noise Level Standards (dBA Leq)[3]		Noise Level Standards Exceeded?[4]	
	Daytime	Nighttime	Daytime	Nighttime	Daytime	Nighttime
R1	43.2	43.2	71.7	68.3	No	No
R2	42.5	42.5	60.1	58.7	No	No
R3	45.3	45.3	55.4	55.3	No	No
R4	39.3	39.3	71.7	68.3	No	No

[1] See Exhibit 8-A for the sensitive receiver locations.
[2] Proposed Project operational noise level calculations are included in Appendix 9-1.
[3] Exterior noise level standards adjusted to reflect the ambient noise levels (see Table 5-1) per the County of Los Angeles County Code, Chapter 12.08 Noise Control, Section 12.08.390[B] (Appendix 3.2)
[4] Do the estimated Project operational noise source activities exceed the noise level standards?
"Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

9.6 PROJECT OPERATIONAL NOISE LEVEL INCREASES

To describe the Project operational noise level increases, the Project operational noise levels are combined with the existing ambient noise levels measurements for the nearby receiver locations that may be potentially impacted by Project operational noise sources. Since the units used to measure noise, decibels (dB), are logarithmic units, the Project-operational and existing ambient noise levels cannot be combined using standard arithmetic equations. (2) Instead, they must be logarithmically added using the following base equation:

$$SPL_{Total} = 10\log_{10}[10^{SPL1/10} + 10^{SPL2/10} + \ldots 10^{SPLn/10}]$$

where "SPL1," "SPL2," etc. are equal to the sound pressure levels being combined, or in this case, the Project-operational and existing ambient noise levels. The difference between the combined Project and ambient noise levels describes the Project noise level increases to the existing ambient noise environment. Noise levels that would be experienced at receiver locations when Project-source noise is added to the daytime and nighttime ambient conditions are presented on Tables 9-5 and 9-6, respectively. As indicated on Table 9-5, the Project will generate a daytime operational noise level increases ranging from 0.0 to 0.4 dBA L_{eq} at the nearest receiver locations. Table 9-6 shows that the Project will generate a nighttime operational noise level increases ranging from 0.0 to 0.4 dBA L_{eq} at the nearest receiver locations. Project-related operational noise level increases would not exceed the operational noise level increase significance criteria presented in Table 4-1. Therefore, Project related operational noise level increases at the sensitive receiver locations will be *less than significant.*

TABLE 9-5: DAYTIME PROJECT OPERATIONAL NOISE LEVEL INCREASES

Receiver Location[1]	Total Project Operational Noise Level[2]	Measurement Location[3]	Reference Ambient Noise Levels[4]	Combined Project and Ambient[5]	Project Increase[6]	Increase Criteria[7]	Increase Criteria Exceeded?
R1	43.2	L1	71.7	71.7	0.0	1.5	No
R2	42.5	L2	60.1	60.2	0.1	5.0	No
R3	45.3	L3	55.4	55.8	0.4	5.0	No
R4	39.3	L4	71.7	71.7	0.0	1.5	No

[1] See Exhibit 8-A for the sensitive receiver locations.
[2] Total Project daytime operational noise levels as shown on Table 9-2.
[3] Reference noise level measurement locations as shown on Exhibit 5-A.
[4] Observed daytime ambient noise levels as shown on Table 5-1.
[5] Represents the combined ambient conditions plus the Project activities.
[6] The noise level increase expected with the addition of the proposed Project activities.
[7] Significance increase criteria as shown on Table 4-1.

TABLE 9-6: NIGHTTIME OPERATIONAL NOISE LEVEL INCREASES

Receiver Location[1]	Total Project Operational Noise Level[2]	Measurement Location[3]	Reference Ambient Noise Levels[4]	Combined Project and Ambient[5]	Project Increase[6]	Increase Criteria[7]	Increase Criteria Exceeded?
R1	43.2	L1	71.7	71.7	0.0	1.5	No
R2	42.5	L2	60.1	60.2	0.1	5.0	No
R3	45.3	L3	55.4	55.8	0.4	5.0	No
R4	39.3	L4	71.7	71.7	0.0	1.5	No

[1] See Exhibit 8-A for the sensitive receiver locations.
[2] Total Project daytime operational noise levels as shown on Table 9-2.
[3] Reference noise level measurement locations as shown on Exhibit 5-A.
[4] Observed daytime ambient noise levels as shown on Table 5-1.
[5] Represents the combined ambient conditions plus the Project activities.
[6] The noise level increase expected with the addition of the proposed Project activities.
[7] Significance increase criteria as shown on Table 4-1.

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10 CONSTRUCTION IMPACTS

This section analyzes potential impacts resulting from the short-term construction activities associated with the development of the Project. Exhibit 10-A shows the construction noise source locations in relation to the nearest sensitive receiver locations previously described in Section 8. Two additional receiver locations were identified to describe the construction building vibration levels.

- Location R5 represents the Bone Aire Motel at 42445 Sierra Highway, approximately 1,301 feet southeast of the Project site.
- Location R6 represents the potential worker receptor at 245 West Avenue L4, approximately 24 feet east of the Project site.

As outlined in Section 3.4, LMC Section 8.24.040 requires that the Project's construction activity be limited to the permitted hours of 7:00 a.m. to 8:00 p.m. on any day with no activity allowed on Sundays. In addition, since neither the City of Lancaster General Plan or Municipal Code establish numeric maximum acceptable construction source noise levels at potentially affected receivers for CEQA analysis purposes, a numerical construction threshold based on Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual is used for analysis of daytime construction impacts. The FTA considers a daytime exterior construction noise level of 80 dBA L_{eq} as a reasonable threshold for noise sensitive residential land use with a nighttime exterior construction noise level of 70 dBA L_{eq} (8 p. 179).

10.1 CONSTRUCTION NOISE LEVELS

The FTA *Transit Noise and Vibration Impact Assessment Manual* recognizes that construction projects are accomplished in several different stages and outlines the procedures for assessing noise impacts during construction. Each stage has a specific equipment mix, depending on the work to be completed during that stage. As a result of the equipment mix, each stage has its own noise characteristics; some stages have higher continuous noise levels than others, and some have higher impact noise levels than others. The Project construction activities are expected to occur in the following stages:

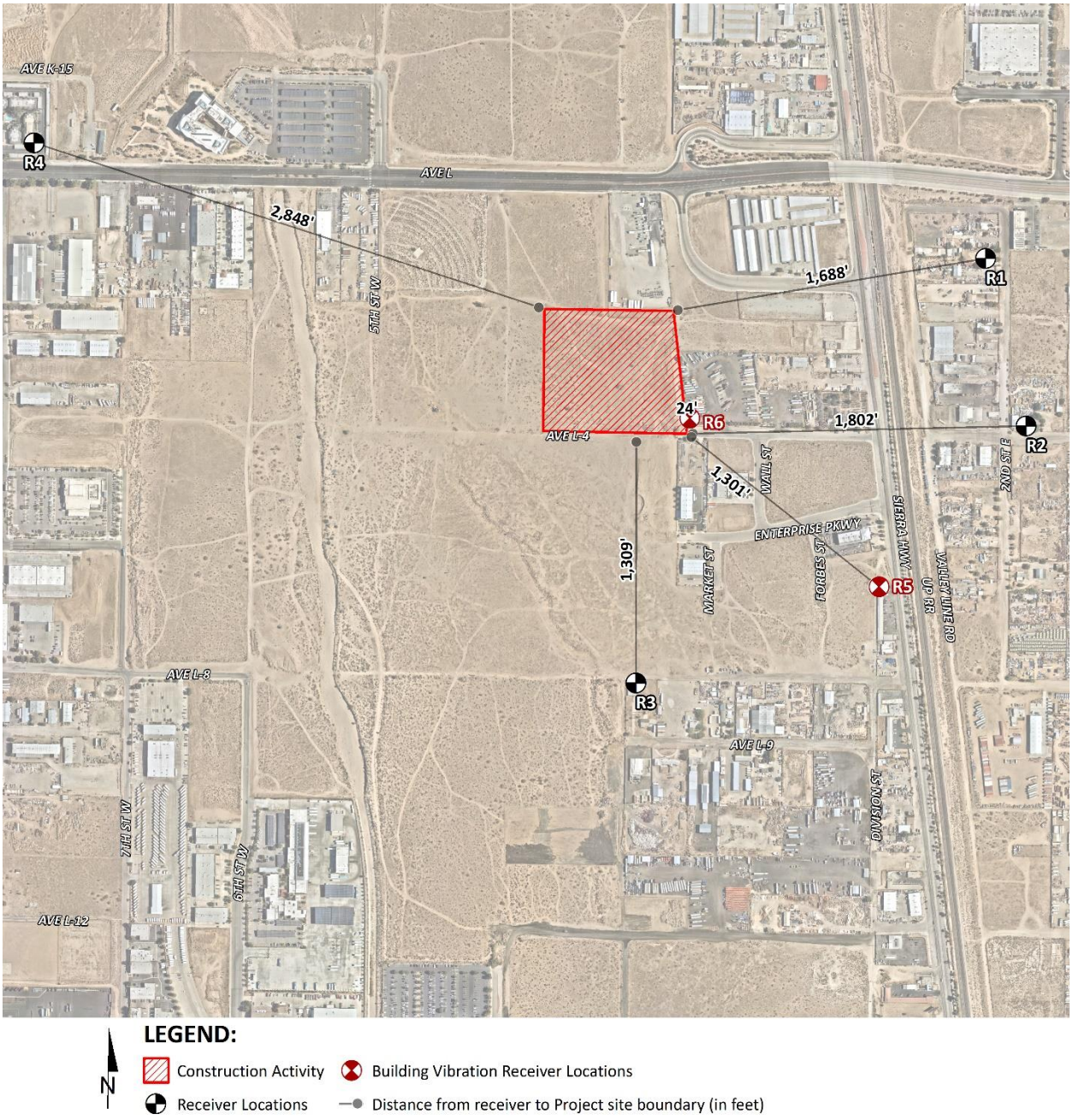
- Site Preparation
- Grading
- Building Construction
- Paving
- Architectural Coating

10.2 CONSTRUCTION REFERENCE NOISE LEVELS

To describe construction noise activities, this construction noise analysis was prepared using reference construction equipment noise levels from the Federal Highway Administration (FHWA) published the Roadway Construction Noise Model (RCNM), which includes a national database of construction equipment reference noise emission levels. (22) The RCNM equipment database, provides a comprehensive list of the noise generating characteristics for specific types of

construction equipment. In addition, the database provides an acoustical usage factor to estimate the fraction of time each piece of construction equipment is operating at full power (i.e., its loudest condition) during a construction operation.

EXHIBIT 10-A: CONSTRUCTION NOISE SOURCE AND RECEIVER LOCATIONS



10.3 CONSTRUCTION NOISE ANALYSIS

Using the reference construction equipment noise levels and the CadnaA noise prediction model, calculations of the Project construction noise level impacts at the nearby sensitive receiver locations were completed. Consistent with FTA guidance for general construction noise assessment, Table 10-1 presents the combined noise levels for the loudest construction equipment, assuming all equipment operates at the same time. As shown on Table 10-2, the construction noise levels are expected to range from 41.4 to 54.4 dBA L_{eq} at the nearby receiver locations. Appendix 10.1 includes the detailed CadnaA construction noise model inputs.

TABLE 10-1: CONSTRUCTION REFERENCE NOISE LEVELS

Construction Stage	Reference Construction Activity	Reference Noise Level @ 50 Feet (dBA L_{eq})[1]	Combined Noise Level (dBA L_{eq})[2]	Combined Sound Power Level (PWL)[3]
Site Preparation	Crawler Tractors	78	80	112
	Hauling Trucks	72		
	Rubber Tired Dozers	75		
Grading	Graders	81	83	115
	Excavators	77		
	Compactors	76		
Building Construction	Cranes	73	81	113
	Tractors	80		
	Welders	70		
Paving	Pavers	74	83	115
	Paving Equipment	82		
	Rollers	73		
Architectural Coating	Cranes	73	77	109
	Air Compressors	74		
	Generator Sets	70		

[1] FHWA Roadway Construction Noise Model (RCNM).
[2] Represents the combined noise level for all equipment assuming they operate at the same time consistent with FTA Transit Noise and Vibration Impact Assessment guidance.
[3] Sound power level represents the total amount of acoustical energy (noise level) produced by a sound source independent of distance or surroundings. Sound power levels calibrated using the CadnaA noise model at the reference distance to the noise source.

TABLE 10-2: CONSTRUCTION EQUIPMENT NOISE LEVEL SUMMARY

Receiver Location[1]	Construction Noise Levels (dBA L_{eq})					
	Site Preparation	Grading	Building Construction	Paving	Architectural Coating	Highest Levels[2]
R1	49.7	52.7	50.7	52.7	46.7	52.7
R2	49.0	52.0	50.0	52.0	46.0	52.0
R3	51.4	54.4	52.4	54.4	48.4	54.4
R4	44.4	47.4	45.4	47.4	41.4	47.4

[1] Construction noise source and receiver locations are shown on Exhibit 10-A.
[2] Construction noise level calculations based on distance from the construction activity, which is measured from the Project site boundary to the nearest receiver locations. CadnaA construction noise model inputs are included in Appendix 10.1.

10.4 CONSTRUCTION NOISE LEVEL COMPLIANCE

To evaluate whether the Project would generate potentially significant short-term noise levels at the nearest receiver locations, a construction-related daytime noise level threshold of 80 dBA L_{eq} is used as a reasonable threshold to assess the daytime construction noise level impacts. The construction noise analysis shows that the nearest receiver locations will not exceed the reasonable daytime 80 dBA L_{eq} significance threshold during Project construction activities as shown on Table 10-3. Therefore, the noise impacts due to Project construction noise are considered *less than significant* at all receiver locations.

TABLE 10-3: CONSTRUCTION NOISE LEVEL COMPLIANCE

Receiver Location[1]	Construction Noise Levels (dBA L_{eq})		
	Highest Construction Noise Levels[2]	Threshold[3]	Threshold Exceeded?[4]
R1	52.7	80	No
R2	52.0	80	No
R3	54.4	80	No
R4	47.4	80	No

[1] Construction noise source and receiver locations are shown on Exhibit 10-A.
[2] Highest construction noise level calculations based on distance from the construction noise source activity to the nearest receiver locations as shown on Table 10-2.
[3] Construction noise level thresholds as shown on Table 4-1.
[4] Do the estimated Project construction noise levels exceed the construction noise level threshold?

10.5 NIGHTTIME CONCRETE POUR NOISE ANALYSIS

It is our understanding that nighttime concrete pouring activities may occur as a part of Project building construction activities. Nighttime concrete pouring activities are often used to support reduced concrete mixer truck transit times and lower air temperatures than during the daytime hours and are generally limited to the actual building pad and loading dock areas. Any nighttime construction noise activities shall satisfy the FTA residential 70 dBA L_{eq} noise limit outlined in Table 4-1.

10.5.1 NIGHTTIME CONCRETE POUR REFERENCE NOISE LEVEL MEASUREMENTS

To estimate the noise levels due to nighttime concrete pour activities, sample reference noise level measurements were taken during a nighttime concrete pour at an unrelated construction site. Urban Crossroads, Inc. collected short-term nighttime concrete pour reference noise level measurements during the noise-sensitive nighttime hours between 1:00 a.m. to 2:00 a.m. at 27334 San Bernardino Avenue in the City of Redlands. The reference noise levels describe the expected concrete pour noise sources that may include concrete mixer truck movements and pouring activities, concrete paving equipment, rear mounted concrete mixer truck backup alarms, engine idling, air brakes, generators, and workers communicating/whistling. To describe the nighttime concrete pour noise levels associated with the construction of the Avenue L4 Warehouse, this analysis relies on reference sound pressure level of 67.7 dBA L_{eq} at 50 feet represented by a sound power level (L_w) of 100.3 dBA L_w. While the Project noise levels will depend on the actual duration of activities and specific equipment fleet in use at the time of construction, the reference sound power level of 100.3 dBA L_w is used to describe the expected Project nighttime concrete pour noise activities.

10.5.2 NIGHTTIME CONCRETE POUR NOISE LEVEL COMPLIANCE

As shown on Table 10-4, the noise levels associated with the nighttime concrete pour activities are estimated to range from 32.7 to 39.7 dBA L_{eq} and will satisfy the City of Lancaster stationary-source nighttime exterior hourly average L_{eq} residential noise level threshold at all the receiver locations. Based on the results of this analysis, all the nearest noise receiver locations will experience *less than significant* impacts due to the Project related nighttime concrete pour activities. Appendix 10.2 includes the CadnaA nighttime concrete pour noise model inputs.

TABLE 10-4: NIGHTTIME CONCRETE POUR NOISE LEVEL COMPLIANCE

Receiver Location[1]	Concrete Pour Construction Noise Levels (dBA L_{eq})		
	Exterior Noise Levels[2]	Threshold[3]	Threshold Exceeded?[4]
R1	38.0	70	No
R2	37.3	70	No
R3	39.7	70	No
R4	32.7	70	No

[1] Construction noise source and receiver locations are shown on Exhibit 10-A.
[2] Nighttime Concrete Pour noise model inputs are included in Appendix 10.2.
[3] Construction noise level thresholds as shown on Table 4-1.
[4] Do the estimated Project construction noise levels exceed the construction noise level threshold?

10.6 CONSTRUCTION VIBRATION ANALYSIS

Construction activity can result in varying degrees of ground vibration, depending on the equipment and methods employed. Operation of construction equipment causes ground vibrations that spread through the ground and diminish in strength with distance. Ground vibration levels associated with various types of construction equipment are summarized on Table 10-5.

Based on the representative vibration levels presented for various construction equipment types, it is possible to estimate the potential for human response (annoyance) and building damage using the following vibration assessment methods defined by the FTA. To describe the vibration impacts the FTA provides the following equation: $PPV_{equip} = PPV_{ref} \times (25/D)^{1.5}$

TABLE 10-5: VIBRATION SOURCE LEVELS FOR CONSTRUCTION EQUIPMENT

Equipment	PPV (in/sec) at 25 feet
Small bulldozer	0.003
Jackhammer	0.035
Loaded Trucks	0.076
Large bulldozer	0.089
Vibratory Roller	0.210

Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual

Using the vibration source level of construction equipment provided on Table 10-5 and the construction vibration assessment methodology published by the FTA, it is possible to estimate the Project vibration impacts. Table 10-6 presents the expected Project related vibration levels at the nearby receiver locations. At distances ranging from 24 to 2,848 feet from Project construction activities, construction vibration velocity levels are estimated to range from 0.000 to 0.223 PPV in/sec. Based on maximum acceptable continuous vibration threshold of 0.3 PPV (in/sec), the typical Project construction vibration levels will fall below the building damage thresholds at all the noise sensitive receiver locations. Therefore, the Project-related vibration impacts are considered *less than significant* during typical construction activities at the Project site.

TABLE 10-6: PROJECT CONSTRUCTION VIBRATION LEVELS

Location[1]	Distance to Const. Activity (Feet)[2]	Typical Construction Vibration Levels PPV (in/sec)[3]						Thresholds PPV (in/sec)[4]	Thresholds Exceeded?[5]
		Small bulldozer	Jackhammer	Loaded Trucks	Large bulldozer	Vibratory Roller	Highest Vibration Level		
R1	1,688'	0.000	0.000	0.000	0.000	0.000	0.000	0.3	No
R2	1,802'	0.000	0.000	0.000	0.000	0.000	0.000	0.3	No
R3	1,309'	0.000	0.000	0.000	0.000	0.001	0.001	0.3	No
R4	2,848'	0.000	0.000	0.000	0.000	0.000	0.000	0.3	No
R5	1,301'	0.000	0.000	0.000	0.000	0.001	0.001	0.3	No
R6	24'	0.003	0.037	0.081	0.095	0.223	0.223	0.3	No

[1] Construction noise source and receiver locations are shown on Exhibit 10-A.
[2] Distance from receiver building facade to Project construction boundary (Project site boundary).
[3] Based on the Vibration Source Levels of Construction Equipment (Table 10-5).
[4] Caltrans Transportation and Construction Vibration Guidance Manual, April 2020, Table 19, p. 38.
[5] Does the peak vibration exceed the acceptable vibration thresholds?
"PPV" = Peak Particle Velocity

11 REFERENCES

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2. **California Department of Transportation Environmental Program.** *Technical Noise Supplement - A Technical Supplement to the Traffic Noise Analysis Protocol.* Sacramento, CA : s.n., September 2013.
3. **Environmental Protection Agency Office of Noise Abatement and Control.** *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety.* March 1974. EPA/ONAC 550/9/74-004.
4. **U.S. Department of Transportation, Federal Highway Administration, Office of Environment and Planning, Noise and Air Quality Branch.** *Highway Traffic Noise Analysis and Abatement Policy and Guidance.* December 2011.
5. **U.S. Department of Transportation Federal Highway Administration.** *Highway Noise Barrier Design Handbook.* 2001.
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7. **U.S. Environmental Protection Agency Office of Noise Abatement and Control.** *Noise Effects Handbook-A Desk Reference to Health and Welfare Effects of Noise.* October 1979 (revised July 1981). EPA 550/9/82/106.
8. **U.S. Department of Transportation, Federal Transit Administration.** *Transit Noise and Vibration Impact Assessment Manual.* September 2018.
9. **Office of Planning and Research.** *State of California General Plan Guidelines.* October 2017.
10. **City of Lancaster.** *General Plan Safety Element.* July 2021.
11. —. *Municipal Code, Chapter 8.24 - Noise Regulations.*
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13. **Commission, Los Angeles County Airport Land Use.** *Los Angeles County Airport Land Use Plan.* 2004.
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15. **Federal Interagency Committee on Noise.** *Federal Agency Review of Selected Airport Noise Analysis Issues.* August 1992.
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19. **California Department of Transportation Environmental Program, Office of Environmental Engineering.** *Use of California Vehicle Noise Reference Energy Mean Emission Levels (Calveno REMELs) in FHWA Highway Traffic Noise Prediction.* September 1995. TAN 95-03.
20. **California Department of Transportation.** *Traffic Noise Attenuation as a Function of Ground and Vegetation Final Report.* June 1995. FHWA/CA/TL-95/23.

21. **Urban Crossroads.** *Avenue L4 Warehouse.* March 2023.

22. **U.S. Department of Transportation, Federal Highway Administration, Office of Environment and Planning.** *FHWA Roadway Construction Noise Model.* January, 2006.

23. **City of Lancaster.** *Municipal Code, Section 8.24 - Noise Regulations.*

12 CERTIFICATION

The contents of this noise study report represent an accurate depiction of the noise environment and impacts associated with the proposed Avenue L4 Warehouse Project. The information contained in this noise study report is based on the best available data at the time of preparation. If you have any questions, please contact me directly at (949) 584-3148.

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EDUCATION

Master of Science in Civil and Environmental Engineering
California Polytechnic State University, San Luis Obispo • December, 1993

Bachelor of Science in City and Regional Planning
California Polytechnic State University, San Luis Obispo • June, 1992

PROFESSIONAL REGISTRATIONS

PE – Registered Professional Traffic Engineer – TR 2537 • January, 2009
AICP – American Institute of Certified Planners – 013011 • June, 1997–January 1, 2012
PTP – Professional Transportation Planner • May, 2007 – May, 2013
INCE – Institute of Noise Control Engineering • March, 2004

PROFESSIONAL AFFILIATIONS

ASA – Acoustical Society of America
ITE – Institute of Transportation Engineers

PROFESSIONAL CERTIFICATIONS

Certified Acoustical Consultant – County of San Diego • March, 2018
Certified Acoustical Consultant – County of Orange • February, 2011
FHWA-NHI-142051 Highway Traffic Noise Certificate of Training • February, 2013

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APPENDIX 3.1:

CITY OF LANCASTER NOISE CONTROL

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Chapter 8.24 NOISE REGULATIONS

8.24.010 Declaration of policy.

It is declared to be the policy of the city to prohibit unnecessary, excessive and annoying noises from all sources subject to its police power. At certain levels noises are detrimental to the health and welfare of the citizenry, and, in the public interests, such noise levels shall be systematically proscribed.

(Prior code § 4-1.1)

8.24.020 Definitions.

Unless the context otherwise clearly indicates, the words and phrases used in this chapter are defined as follows:

"Commercial purpose" means and includes the use, operation or maintenance of any sound-amplifying equipment for the purpose of advertising any business, or any goods, or any services, or for the purpose of attracting the attention of the public to, or advertising for, or soliciting patronage or customers to or for any performance, show, entertainment, exhibition or event, for the purpose of demonstrating any such sound equipment.

"Day" means the time period from seven a.m. to eight p.m.

"Impulsive sound" means a short-duration sound (such as might be produced by the impact of a drop hammer or a pile driver) with one second or less duration.

"Motor vehicles" means and includes, but is not limited to, automobiles, trucks, motorcycles, mini-bikes and go-carts.

"Night" means the time period from eight p.m. to seven a.m.

"Noncommercial purpose" means the use, operation or maintenance of any sound equipment for other than a commercial purpose. "Noncommercial purpose" means and includes, but shall not be limited to, philanthropic, political, patriotic and charitable purposes.

"Person" means a person, firm, association, co-partnership, joint venture, corporation, or any entity, public or private, in nature.

"Sound" means the sensation perceived by the sense of hearing. For the purpose of this chapter, the terms "sound" and "noise" shall be used synonymously.

"Sound-amplifying equipment" means any machine or device for the amplification of the human voice, music or any other sound, but shall not include:

1. Warning devices on emergency vehicles;

2. Horns, burglar and fire alarms, or other warning devices expressly authorized by law.

"Sound truck" means any motor vehicle, or any other vehicle, regardless of motive power, whether in motion or stationary, which carries, is equipped with, or which has mounted thereon or attached thereto any sound-amplifying equipment for commercial, political and charitable purposes.

(Prior code § 4-1.2)

(Ord. No. 916, § 1, 2-10-09)

8.24.030 Loud, unnecessary and unusual noises prohibited.

Notwithstanding any other provision of this chapter, and in addition thereto, no person shall make, cause or suffer, or permit to be made upon any premises owned, occupied or controlled by him/her any unnecessary noises or sounds which are physically annoying to persons of ordinary sensitiveness which are so harsh or so prolonged or unnatural or unusual in their use, time, or place as to occasion physical discomfort to the inhabitants of any neighborhood. All animals shall be so maintained.

(Ord. 791 § 1, 2001: Ord. 693 § 1 (part), 1995: prior code § 4-1.3)

8.24.040 Loud, unnecessary and unusual noises prohibited—Construction and building.

Except as otherwise provided in this chapter, a person at any time on Sunday or any day between the hours of eight p.m. and seven a.m. shall not perform any construction or repair work of any kind upon any building or structure or perform any earth excavating, filling or moving where any of the foregoing entails the use of any air compressor, jack hammer, power-driven drill, riveting machine, excavator, diesel-powered truck, tractor or other earth-moving equipment, hard hammers on steel or iron or any other machine tool, device or equipment which makes loud noises within five hundred (500) feet of an occupied dwelling, apartment, hotel, mobile home or other place of residence.

(Ord. 693 § 1 (part), 1995: prior code § 4-1.4)

(Ord. No. 916, § 2, 2-10-09)

8.24.050 Exceptions.

A. The provisions of Section 8.24.040 do not apply to any person who performs the construction, repair, excavation or moving work pursuant to the express written permission of the city engineer to perform such work at times prohibited in Section 8.24.040. Upon receipt of an application stating the reasons for the request, the city engineer may grant such permission if he finds that:

   1. The work proposed to be done is effected with the public interest; or

   2. Hardship or injustice or unreasonable delay would result with the interruption thereof with the hours and days specified in Section 8.24.040; or

   3. The building or structure involved is devoted or intended to be devoted to a use immediately incident to public interest.

B. The provisions of Section 8.24.040 do not apply to the construction, repair or excavation during prohibited hours as may be necessary to restore property to a safe condition following a public calamity or work required to protect persons or property from imminent exposure to danger or work by private or public utility companies when restoring utility service.

(Prior code § 4-1.5)

8.24.060 Violation—Penalty.

Any person violating any of the provisions of this chapter shall be deemed guilty of a misdemeanor, and upon conviction thereof, shall be fined in the amount not exceeding one thousand dollars ($1,000.00) or be

imprisoned in the county jail for a period not exceeding six months, or by both such fine and imprisonment. Each day such violation is committed or permitted to continue shall constitute a separate offense and shall be punishable as such.

(Prior code § 4-1.6)

8.24.070 Injunctions.

As an additional remedy, the operation or maintenance of any device, instrument, vehicle or machinery in violation of any provision of this chapter shall be deemed and is declared to be a public nuisance, and may be subject to abatement summarily by a restraining order or injunction issued by a court of competent jurisdiction.

(Prior code § 4-1.7)

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APPENDIX 3.2:

COUNTY OF LOS ANGELES NOISE CONTROL

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Chapter 12.08 NOISE CONTROL

Parts:

Part 1 GENERAL PROVISIONS

12.08.010 Title for citation.

The ordinance codified in this chapter may be cited as the "noise control ordinance of the county of Los Angeles."

(Ord. 11778 § 2 (Art. 1 § 101), 1978: Ord. 11773 § 2 (Art. 1 § 101), 1978.)

12.08.020 Declaration of policy—Nuisances deemed misdemeanors.

A. In order to control unnecessary, excessive and annoying noise and vibration in the county of Los Angeles, it is declared to be the policy of the county to prohibit such noise and vibration generated from any sources as specified in this chapter. It shall be the policy of the county to maintain quiet in those areas which exhibit low noise levels and to implement programs aimed at reducing noise in those areas within the county where noise levels are above acceptable values.

B. It is determined that certain noise levels and vibration are detrimental to the public health, welfare and safety and contrary to public interest, and therefore the board of supervisors of the county does ordain and declare that creating, maintaining, causing or allowing to be created, caused or maintained any noise or vibration in a manner prohibited by or not in conformity with the provisions of this chapter is a public nuisance and shall be punishable as such.

(Ord. 11778 § 2 (Art. 2 § 201), 1978: Ord. 11773 § 2 (Art. 2 § 201), 1978.)

Part 2 DEFINITIONS

12.08.030 Terminology—Conformity with ANSI standards.

All terminology used in this chapter, not defined in this Part 2, shall be in conformance with applicable publications of the American National Standards Institute (ANSI) or its successor body.

(Ord. 11778 § 2 (Art. 3 § 301), 1978: Ord. 11773 § 2 (Art. 3 § 301), 1978.)

12.08.040 Definitions applicable.

The following words, phrases and terms as used in this chapter shall have the meanings as indicated in this Part 2.

(Ord. 11778 § 2 (Art. 3 § 302 (part)), 1978: Ord. 11773 § 2 (Art. 3 § 302 (part)), 1978.)

12.08.050 Agricultural property.

"Agricultural property" means a parcel of real property which is undeveloped for any use other than agricultural purposes.

(Ord. 11778 § 2 (Art. 3 § 302(a)), 1978: Ord. 11773 § 2 (Art. 3 § 302(a)), 1978.)

12.08.060 Ambient noise histogram.

"Ambient noise histogram" means the composite of all noise from sources near and far, excluding the alleged intrusive noise source. In this context, the ambient noise histogram shall constitute the normal or existing level of environmental noise at a given location.

(Ord. 11778 § 2 (Art. 3 § 302(b)), 1978: Ord. 11773 § 2 (Art. 3 § 302(b)), 1978.)

12.08.070 A-weighted sound level.

"A-weighted sound level" means the sound level in decibels as measured on a soundlevel meter using the A-weighting network. The level so read is designated dB (A) or dBA.

(Ord. 11778 § 2 (Art. 3 § 302(c)), 1978: Ord. 11773 § 2 (Art. 3 § 302(c)), 1978.)

12.08.080 Commercial property.

"Commercial property" means a parcel of real property which is developed and used either in part or in whole for commercial purposes. In cases of multiple land uses of any property, the county zoning classification of such property pursuant to county Ordinance 1494, as amended, shall be applicable. (See Title 22 of this code.)

(Ord. 11778 § 2 (Art. 3 § 302(d)), 1978: Ord. 11773 § 2 (Art. 3 § 302(d)), 1978.)

12.08.090 Construction.

"Construction" means any site preparation, assembly, erection, substantial repair, alteration, or similar action, for or of public or private rights-of-way, structures, utilities, or similar property.

(Ord. 11778 § 2 (Art. 3 § 302(e)), 1978: Ord. 11773 § 2 (Art. 3 § 302(e)), 1978.)

12.08.100 Cumulative period.

"Cumulative period" means an additive period of time composed of individual time segments which may be continuous or interrupted.

(Ord. 11778 § 2 (Art. 3 § 302(f)), 1978: Ord. 11773 § 2 (Art. 3 § 302(f)), 1978.)

12.08.110 Decibel.

"Decibel" means a unit for measuring the amplitude of a sound, equal to 20 times the logarithm to the base of 10 of the ratio of the pressure of the sound measured to the reference pressure, which is 20 micropascals.

(Ord. 11778 § 2 (Art. 3 § 302(g)), 1978: Ord. 11773 § 2 (Art. 3 § 302(g)), 1978.)

12.08.120 Dwelling unit.

"Dwelling unit" means a single unit providing complete independent living facilities for one or more persons, including permanent provisions for living, sleeping, eating, cooking and sanitation.

(Ord. 11778 § 2 (Art. 3 § 302(h)), 1978: Ord. 11773 § 2 (Art. 3 § 302(h)), 1978.)

12.08.130 Emergency machinery, vehicle or alarm.

"Emergency machinery, vehicle or alarm" means any machinery, vehicle or alarm used, employed, performed or operated in an effort to protect, provide or restore safe conditions in the community or for the citizenry, or work by private or public utilities when restoring utility service.

(Ord. 11778 § 2 (Art. 3 § 302(i)), 1978: Ord. 11773 (Art. 3 § 302(i)), 1978.)

12.08.140 Emergency work.

"Emergency work" means any work performed for the purpose of preventing or alleviating the physical trauma or property damage threatened or caused by an emergency.

(Ord. 11778 § 2 (Art. 3 § 302(j)), 1978: Ord. 11773 (Art. 3 § 302(j)), 1978.)

12.08.150 Fixed noise source.

"Fixed noise source" means a stationary device which creates sounds while fixed or motionless, including but not limited to residential, agricultural, industrial and commercial machinery and equipment, pumps, fans, compressors, air conditioners and refrigeration equipment.

(Ord. 11778 § 2 (Art. 3 § 302(k)), 1978: Ord. 11773 (Art. 3 § 302(k)), 1978.)

12.08.160 Grading.

"Grading" means any excavating or filling of earth material or any combination thereof conducted at a site to prepare said site for construction or other improvements thereon.

(Ord. 11778 § 2 (Art. 3 § 302(1)), 1978: Ord. 11773 (Art. 3 § 302(1)), 1978.)

12.08.170 Health care institution.

"Health care institution" means any hospital, convalescent home, or other similar facilities which provide health care, medical treatment, room, board or other services for the ill, retarded or convalescent.

(Ord. 11778 § 2 (Art. 3 § 302(m)), 1978: Ord. 11773 (Art. 3 § 302(m)), 1978.)

12.08.180 Health officer.

"Health officer" means the director of the department of public health of the county of Los Angeles, or his duly authorized representative.

(Ord. 2006-0040 § 106, 2006: Ord. 11778 § 2 (Art. 3 § 302(n)), 1978: Ord. 11773 (Art. 3 § 302(n)), 1978.)

12.08.190 Impulsive noise.

"Impulsive noise" means a sound of short duration, usually less than one second and of high intensity, with an abrupt onset and rapid decay.

(Ord. 11778 § 2 (Art. 3 § 302(o)), 1978: Ord. 11773 (Art. 3 § 302 (o)), 1978.)

12.08.200 Industrial property.

"Industrial property" means property which is developed and used either in part or in whole for manufacturing purposes. In cases of multiple land uses of any property, the county zoning classification of such property pursuant to county Ordinance 1494, as amended, shall be applicable. (See Title 22 of this code.)

(Ord. 11778 § 2 (Art. 3 § 302(p)), 1978: Ord. 11773 § 2 (Art. 3 § 302(p)), 1978.)

12.08.210 Intrusive noise.

"Intrusive noise" means that alleged offensive noise which intrudes over and above the existing ambient noise at the receptor property.

(Ord. 11778 § 2 (Art. 3 § 302(q)), 1978: Ord. 11773 § 2 (Art. 3 § 302(q)), 1978.)

12.08.220 Mobile noise source.

"Mobile noise source" means any noise source other than a fixed noise source.

(Ord. 11778 § 2 (Art. 3 § 302(r)), 1978: Ord. 11773 § 2 (Art. 3 § 302(r)), 1978.)

12.08.230 Noise disturbance.

"Noise disturbance" means an alleged intrusive noise which violates an applicable noise standard as set forth in this chapter.

(Ord. 11778 § 2 (Art. 3 § 302(s)), 1978: Ord. 11773 § 2 (Art. 3 § 302(s)), 1978.)

12.08.240 Noise histogram.

"Noise histogram" means a graphical representation of the distribution of frequency of occurrence of all noise levels near and far measured over a given period of time.

(Ord. 11778 § 2 (Art. 3 § 302(u)), 1978: Ord. 11773 § 2 (Art. 3 § 302(u)), 1978.)

12.08.250 Noise level (L_N).

"Noise level (L_N)" means that noise level expressed in decibels which exceeds the specified (L_N) value as a percentage of total time measured. For instance, an L_{25} noise level means that noise level which is exceeded 25 percent of the time measured.

(Ord. 11778 § 2 (Art. 3 § 302 (v)), 1978: Ord. 11773 § 2 (Art. 3 § 302(v)), 1978.)

12.08.260 Noise-sensitive zone.

"Noise-sensitive zone" means any area designated pursuant to Part 4 of this chapter for the purpose of ensuring exceptional quiet.

(Ord. 11778 § 2 (Art. 3 § 302(t)), 1978: Ord. 11773 § 2 (Art. 3 § 302(t)), 1978.)

12.08.270 Noise zone.

"Noise zone" means any defined area or region of a generally consistent land use, as described in Section 12.08.380.

(Ord. 11778 § 2 (Art. 3 § 302(w)), 1978: Ord. 11773 § 2 (Art. 3 § 302(w)), 1978.)

12.08.280 Person.

"Person" means any individual, firm, association, partnership, joint venture, or corporation.

(Ord. 11778 § 2 (Art. 3 § 302(x)), 1978: Ord. 11773 § 2 (Art. 3 § 302(x)), 1978.)

12.08.290 Powered model vehicle.

"Powered model vehicle" means any self-propelled airborne, waterborne or landborne plane, vessel or vehicle which is not designed to carry individuals, including but not limited to any model airplane, boat, car or rocket.

(Ord. 11778 § 2 (Art. 3 § 302(y)), 1978: Ord. 11773 § 2(Art. 3 § 302(y)), 1978.)

12.08.300 Public right-of-way.

"Public right-of-way" means any street, avenue, boulevard, highway, sidewalk or alley, or similar place, which is owned or controlled by a governmental entity.

(Ord. 11778 § 2 (Art. 3 § 302(z)), 1978: Ord. 11773 § 2 (Art. 3 § 302(z)), 1978.)

12.08.310 Pure tone noise.

"Pure tone noise" means any sound which can be judged as audible as a single pitch or a set of single pitches by the health officer, for the purposes of this chapter, a pure tone shall exist if the one-third octave band sound-pressure level in the band with the tone exceeds the arithmetic average of the sound-pressure levels of the two contiguous one-third octave bands by 5 dB for center frequencies of 500 Hertz and above, and by 8 dB for center frequencies between 160 and 400 Hertz, and by 15 dB for center frequencies less than or equal to 125 Hertz.

(Ord. 11778 § 2 (Art. 3 § 302(aa)), 1978: Ord. 11773 § 2 (Art. 3 § 302(aa)), 1978.)

12.08.320 Real property boundary.

"Real property boundary" means an imaginary line along the ground surface, and its vertical extension, which separates the real property owned by one person from that owned by another person, but not including intra-building real property divisions.

(Ord. 11778 § 2 (Art. 3 § 302(bb)), 1978: Ord. 11773 § 2 (Art. 3 § 302(bb)), 1978.)

12.08.330 Residential property.

"Residential property" means a parcel of real property which is developed and used either in part or in whole for residential purposes, other than transient uses such as hotels and motels. In cases of multiple land uses of any property, the county zoning classification of such property pursuant to county Ordinance 1494, as amended, shall be applicable.

(Ord. 11778 § 2 (Art. 3 § 302(cc)), 1978: Ord. 11773 § 2 (Art. 3 § 302(cc)), 1978.)

12.08.340 Sound level meter.

"Sound level meter" means an instrument, including a microphone, an amplifier, an output meter and frequency weighting network, for the measurement of sound levels, which satisfies the requirements pertinent for Type S2A meters in American National Standards Institute specifications for sound level meters, S1.4-1971, or the most recent revision thereof.

(Ord. 11778 § 2 (Art. 3 § 302(dd)), 1978: Ord. 11773 § 2 (Art. 3 § 302(dd)), 1978.)

12.08.350 Vibration.

"Vibration" means the minimum ground or structure-borne vibrational motion necessary to cause a normal person to be aware of the vibration by such direct means as, but not limited to, sensation by touch or visual observations of moving objects. The perception threshold shall be presumed to be a motion velocity of 0.01 in/sec over the range of 1 to 100 Hertz.

(Ord. 11778 § 2 (Art. 3. § 302(ee)), 1978: Ord. 11773 § 2 (Art. 3 § 302(ee)), 1978.)

12.08.360 Weekday.

"Weekday" means any day, Monday through Friday, which is not a legal holiday.

(Ord. 11778 § 2 (Art. 3 § 302(ff)), 1978: Ord. 11773 § 2 (Art. 3 § 302(ff), 1978.)

Part 3 COMMUNITY NOISE CRITERIA

12.08.370 Decibel measurement—Basis.

Any decibel measurement made pursuant to the provisions of this chapter shall be based on a reference sound-pressure of 20 micropascals, as measured with a sound level meter using the A-weighted network (scale) at slow response, or at the fast response when measuring impulsive sound levels and vibrations.

(Ord. 11778 § 2 (Art. 4 § 401), 1978: Ord. 11773 § 2 (Art. 4 § 401), 1978.)

12.08.380 Noise zones designated.

Receptor properties described hereinafter in this chapter are hereby assigned to the following noise zones:

Noise Zone I—Noise-sensitive area; Noise Zone II—Residential properties; Noise Zone III—Commercial properties; Noise Zone IV—Industrial properties.

(Ord. 11778 § 2 (Art. 4 § 402), 1978: Ord. 11773 § 2 (Art. 4 § 402), 1978.)

12.08.390 Exterior noise standards—Citations for violations authorized when.

A. Unless otherwise herein provided, the following exterior noise levels shall apply to all receptor properties within a designated noise zone:

Noise Zone	Designated Noise Zone Land Use (Receptor property)	Time Interval	Exterior Noise Level (dB)
I	Noise-sensitive area	Anytime	45
II	Residential properties	10:00 pm to 7:00 am (nighttime)	45
		7:00 am to 10:00 pm (daytime)	50
III	Commercial properties	10:00 pm to 7:00 am (nighttime)	55
		7:00 am to 10:00 pm (daytime)	60
IV	Industrial properties	Anytime	70

B. Unless otherwise herein provided, no person shall operate or cause to be operated, any source of sound at any location within the unincorporated county, or allow the creation of any noise on property owned, leased, occupied or otherwise controlled by such person which causes the noise level, when measured on any other property either incorporated or unincorporated, to exceed any of the following exterior noise standards:

Standard No. 1 shall be the exterior noise level which may not be exceeded for a cumulative period of more than 30 minutes in any hour. Standard No. 1 shall be the applicable noise level from subsection A of this section; or, if the ambient L50 exceeds the foregoing level, then the ambient L50 becomes the exterior noise level for Standard No. 1.

Standard No. 2 shall be the exterior noise level which may not be exceeded for a cumulative period of more than 15 minutes in any hour. Standard No. 2 shall be the applicable noise level from subsection A of this section plus 5dB; or, if the ambient L25 exceeds the foregoing level, then the ambient L25 becomes the exterior noise level for Standard No. 2.

Standard No. 3 shall be the exterior noise level which may not be exceeded for a cumulative period of more than five minutes in any hour. Standard No. 3 shall be the applicable noise level from subsection A of this section plus 20dB; or, if the ambient L8.3 exceeds the foregoing level, then the ambient L8.3 becomes exterior noise level for Standard No. 3.

Standard No. 4 shall be the exterior noise level which may not be exceeded for a cumulative period of more than one minute in any hour. Standard No. 4 shall be the applicable noise level from subsection A of this section plus 15dB; or, if the ambient L1.7 exceeds the foregoing level, then the ambient L1.7 becomes the exterior noise level for Standard No. 4.

Standard No. 5 shall be the exterior noise level which may not be exceeded for any period of time. Standard No. 5 shall be the applicable noise level from subsection A of this section plus 20dB; or, if the ambient L0 exceeds the foregoing level then the ambient L0 becomes the exterior noise level for Standard No. 5.

C. If the measurement location is on a boundary property between two different zones, the exterior noise level utilized in subsection B of this section to determine the exterior standard shall be the arithmetic mean of the exterior noise levels in subsection A of the subject zones. Except as provided for above in this subsection C, when an intruding noise source originates on an industrial property and is impacting another noise zone, the applicable exterior noise level as designated in subsection A shall be the daytime exterior noise level for the subject receptor property.

D. The ambient noise histogram shall be measured at the same location along the property line utilized in subsection B of this section, with the alleged intruding noise source inoperative. If for any reason the alleged intruding noise source cannot be turned off, the ambient noise histogram will be estimated by performing a measurement in the same general area of the alleged intruding noise source but at a sufficient distance such that the noise from the alleged intruding noise source is at least 10dB below the ambient noise histogram in order that only the actual ambient noise histogram be measured. If the difference between the ambient noise histogram and the alleged intruding noise source is 5 to 10dB, then the level of the ambient noise histogram itself can be reasonably determined by subtracting a one-decibel correction to account for the contribution of the alleged intruding noise source.

E. In the event the intrusive exceeds the exterior noise standards as set forth in subsections B and C of this section at a specific receptor property and the health officer has reason to believe that this violation at said specific receptor property was unanticipated and due to abnormal atmospheric conditions, the health officer shall issue an abatement notice in lieu of a citation. If the specific violation is abated, no citation shall be issued therefor. If, however, the specific violation is not abated, the health officer may issue a citation.

(Ord. 11778 § 2 (Art. 4 § 403), 1978: Ord. 11773 § 2 (Art. 4 § 403), 1978.)

12.08.400 Interior noise standards.

A. No person shall operate or cause to be operated within a dwelling unit, any source of sound, or allow the creation of any noise, which causes the noise level when measured inside a neighboring receiving dwelling unit to exceed the following standards:

Standard No. 1 The applicable interior noise level for cumulative period of more than five minutes in any hour; or

Standard No. 2 The applicable interior noise level plus 5dB for a cumulative period of more than one minute in any hour; or

Standard No. 3 The applicable interior noise level plus 10dB or the maximum measured ambient noise level for any period of time.

B. The following interior noise levels for multifamily residential dwellings shall apply, unless otherwise specifically indicated, within all such dwellings with windows in their normal seasonal configuration.

Noise Zone	Designated Land Use	Time Interval	Allowable Interior Noise Level (dB)
All	Multifamily	10 pm—7 am	40
	Residential	7 am—10 pm	45

C. If the measured ambient noise level reflected by the L50 exceeds that permissible within any of the interior noise standards in subsection A of Section 12.08.390, the allowable interior noise level shall be increased in 5dB increments in each standard as appropriate to reflect said ambient noise level (L50).

(Ord. 11778 § 2(Art. 4 § 404), 1978: Ord. 11773 § 2 (Art. 4 § 404), 1978.)

12.08.410 Correction for certain types of sounds.

For any source of sound which emits a pure tone or impulsive noise, the noise levels as set forth in Sections 12.08.390 and 12.08.400 shall be reduced by five decibels.

(Ord. 11778 § 2 (Art. 4 § 405), 1978: Ord. 11773 § 2 (Art. 4 § 405), 1978.)

12.08.420 Measurement methods.

A. Utilizing the A-weighting scale of the sound-level meter and the "slow" meter response (use "fast" response for impulsive type sounds), the noise level shall be measured at a position or positions at any point on the receiver's property.

B. In general, the microphone shall be located four to five feet above the ground; 10 feet or more from the nearest reflective surface, where possible. However, in those cases where another elevation is deemed appropriate, the latter shall be utilized.

C. Interior noise measurements shall be made within the affected residential unit. The measurements shall be made at a point at least four feet from the wall, ceiling or floor nearest the noise source, with windows in the normal seasonal configuration. Calibration of the measurement equipment, utilizing an acoustic calibrator, shall be performed immediately prior to recording any noise data.

(Ord. 11778 § 2 (Art. 4 § 406), 1978: Ord. 11773 § 2 (Art. 4 § 406), 1978.)

Part 4 SPECIFIC NOISE RESTRICTIONS

12.08.430 Acts deemed violations when.

Notwithstanding any other provisions of this chapter, the acts set out in this Part 4, and the causing or permitting thereof, are declared to be in violation of this chapter.

(Ord. 11778 § 2 (Art. 5 § 501 (part)), 1978: Ord. 11773 § 2 (Art. 5 § 501 (part)), 1978.)

12.08.440 Construction noise.

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

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

1. At Residential Structures.

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

	Single-family Residential	Multi-family Residential	Semiresidential/ Commercial

Daily, except Sundays and legal holidays, 7:00 a.m. to 8:00 p.m.	75dBA	80dBA	85dBA
Daily, 8:00 p.m. to 7:00 a.m. and all day Sunday and legal holidays	60dBA	64dBA	70dBA

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

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

2. At Business Structures.

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

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

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

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

(Ord. 11778 § 2 (Art. 5 § 501(c)), 1978: Ord. 11778 § 2 (Art. 5 § 501(c)), 1978.)

12.08.450 Forced-air blowers in tunnel car washes.

Operating or permitting the operation of any forced-air blower in a tunnel car wash between the hours of 7:00 a.m. and 8:00 p.m. in such a manner as to exceed any of the following sound levels is prohibited:

	Units Installed	
Measurement Location	Before 1-1-80 dB	On or After 1-1-80 dB
Any point on contiguous receptor property, five feet above grade level, no closer than three feet from any wall		
Residential	70	60
Commercial/Industrial	75	65

(Ord. 11778 § 2 (Art. 5 § 501(m)), 1978: Ord. 11773 § 2 (Art. 5 § 501(m)), 1978.)

12.08.460 Loading and unloading operations.

Loading, unloading, opening, closing or other handling of boxes, crates, containers, building materials, garbage cans or similar objects between the hours of 10:00 p.m. and 6:00 a.m. in such a manner as to cause noise disturbance is prohibited.

(Ord. 11778 § 2 (Art. 5 § 501(b)), 1978: Ord. 11773 § 2 (Art. 5 § 501(b)), 1978.)

12.08.470 Noise disturbances in noise-sensitive zones.

A. Creating or causing the creation of any noise disturbance within any noise-sensitive zone, as designated by the health officer, is prohibited, provided that conspicuous signs are displayed indicating the presence of the zone.

B. Noise-sensitive zones must be indicated by the display of conspicuous signs in at least three separate locations within 164 meters (one-tenth mile) of the institution or facility.

(Ord. 11778 § 2 (Art. 5 § 501(k)), 1978: Ord. 11773 § 2(Art. 5 § 501(k)), 1978.)

12.08.480 Places of public entertainment.

Operating, playing or permitting the operation or playing of any radio, television, phonograph, drum, musical instrument, sound amplifier or similar device which produces, reproduces or amplifies sound in any place of public entertainment at a sound level greater than 95dBA, as read by the slow response on a soundlevel meter at any point that is normally occupied by a customer is prohibited, unless a conspicuous and legible sign is located outside such place, near each public entrance, stating "WARNING: SOUND LEVELS WITHIN MAY CAUSE HEARING IMPAIRMENT."

(Ord. 11778 § 2 (Art. 5 § 501(f)), 1978: Ord. 11773 § 2 (Art. 5 § 501(f)), 1978.)

12.08.490 Powered model vehicles.

Operating or permitting the operation of powered model vehicles so as to create a noise disturbance across a residential real-property boundary, or within a noise-sensitive zone between the hours of 8:00 p.m. and 7:00 a.m. the following day is prohibited.

(Ord. 11778 § 2 (Art. 5 § 501(g)), 1978: Ord. 11773 § 2 (Art. 5 § 501(g)) 1978.)

12.08.500 Emergency signaling devices.

A. The intentional sounding or permitting the sounding outdoors of any emergency signaling device, including fire, burglar or civil-defense alarm, siren, whistle, or similar stationary emergency signaling device, except for emergency purposes or for testing, as provided in subsection B2 below, is prohibited.

B. 1. Testing of a stationary emergency signaling device shall not occur before 7:00 a.m. or after 7:00 p.m. Any such testing shall use only the minimum cycle test time. In no case shall such test time exceed 60 seconds.

2. Testing of the complete emergency signaling system, including the functioning of the signaling device, and the personnel response to the signaling device, shall not occur more than once in each calendar month. Such testing shall not occur before 7:00 a.m. or after 10:00 p.m. The time limit specified in subsection B1 above shall not apply to such complete-system testing.

C. Sounding or permitting the sounding of any exterior burglar or fire alarm, or any motor-vehicle burglar alarm is prohibited, unless such alarm is terminated within 15 minutes of activation.

(Ord. 11778 § 2 (Art. 5 § 501(i)), 1978: Ord. 11773 § 2 (Art. 5 § 501(i)), 1978.)

12.08.510 Stationary nonemergency signaling devices.

A. Sounding or permitting the sounding of any electronically amplified signal from any stationary bell, chime, siren, whistle, or similar device intended primarily for nonemergency purposes, from any place, for more than 10 consecutive seconds in any hourly period is prohibited.

B. Houses of religious worship shall be exempt for the operation of this provision.

C. Sound sources covered by this provision and not exempted under subsection B may be exempted by a variance issued by the health officer.

(Ord. 11778 § 2 (Art. 5 § 501(h)), 1978: Ord. 11773 § 2(Art. 5 § 501(h)), 1978.)

12.08.520 Refuse collection vehicles.

A. On or after three years following August 17, 1978, the effective date of the ordinance codified in this chapter, operating or permitting the operation of the compacting mechanism of any motor vehicle which compacts refuse and which creates, during the compacting cycle, a sound level in excess of 86dBA when measured at 50 feet from any point of the vehicle is prohibited.

B. Operating or permitting the operation of the compacting mechanism of any motor vehicle which compacts refuse between the hours of 10:00 p.m. and 6:00 a.m. the following day in a residential area or noise-sensitive zone, or within 500 feet thereof is prohibited.

C. Collecting refuse with collection vehicle between the hours of 10:00 p.m. and 6:00 a.m. the following day in a residential area or noise-sensitive zone or within 500 feet thereof.

D. In the case of conflict between this chapter and any other ordinance regulating refuse collection, provisions of any specific ordinance regulating refuse collection shall control.

(Ord. 11778 § 2 (Art. 5 § 501(j)), 1978: Ord. 11773 § 2 (Art. 5 § 501(j)), 1978.)

12.08.530 Residential airconditioning or refrigeration equipment.

Operating or permitting the operation of any airconditioning or refrigeration equipment in such a manner as to exceed any of the following sound levels is prohibited.

Measurement Location	Units Installed Before 1-1-80 dBA	Units Installed On or After 1-1-80 dBA
Any point on neighboring property line, 5 feet above grade level, no closer than 3 feet from any wall.	60	55
Center of neighboring patio, 5 feet above grade level, no closer than 3 feet from any wall.	55	50
Outside the neighboring living area window nearest the equipment location, not more	55	50

than 3 feet from the window opening, but at least 3 feet from any other surface.		

(Ord. 11778 § 2 (Art. 5 § 501(1)), 1978: Ord. 11773 § 2 (Art. 5 § 501(1)), 1978.)

12.08.540 Street sales.

Offering for sale, selling anything, or advertising by shouting or outcry within any residential or commercial area or noise-sensitive zone of the unincorporated areas of the county is prohibited except by variance issued by the health officer. The provisions of this section shall not be construed to prohibit the selling by outcry of merchandise, food and beverages at licensed sporting events, parades, fairs, circuses, or other similar licensed public-entertainment events.

(Ord. 11778 § 2 (Art 5 § 501(a)), 1978: Ord. 11773 § 2 (Art. 5 § 501(a)), 1978.)

12.08.541 Street sales—Restrictions on sound system speakers.

A person offering for sale, selling or advertising anything edible shall not emit music or other sounds from an external speaker affixed to a motor vehicle between the hours of 8:00 p.m. and 6:00 a.m. within any residential, commercial or noise sensitive-zone of the unincorporated area of the County. The provisions of this section shall not be construed to prohibit the selling by outcry of merchandise, food and beverages, at licensed sporting events, parades, fairs, circuses, or other similar licensed-entertainment events.

(Ord. 2002-0028 § 2, 2002)

12.08.550 Vehicle or motorboat repairs and testing.

Repairing, rebuilding, modifying or testing any motor vehicle, motorcycle or motorboat in such a manner as to cause a noise disturbance across a real-property boundary or within a noisesensitive zone is prohibited.

(Ord. 11778 § 2 (Art. 5 § 501(e)), 1978: Ord. 11773 § 2 (Art. 5 § 501(e)), 1978.)

12.08.560 Vibration.

Operating or permitting the operation of any device that creates vibration which is above the vibration perception threshold of any individual at or beyond the property boundary of the source if on private property, or at 150 feet (46 meters) from the source if on a public space or public right-of-way is prohibited. The perception threshold shall be a motion velocity of 0.01 in/sec over the range of 1 to 100 Hertz.

(Ord. 11778 § 2 (Art. 5 § 501(d)), 1978: Ord. 11773 § 2 (Art. 5 § 501(d)), 1978.)

Part 5 EXEMPTIONS

12.08.570 Activities exempt from chapter restrictions.

The following activities set out in this chapter shall be exempted from the provisions of this chapter:

A. Emergency Exemption. The emission of sound for the purpose of alerting persons to the existence of an emergency, or the emission of sound in the performance of emergency work;

B. Warning Devices. Warning devices necessary for the protection of public safety, as for example police, fire and ambulance sirens, and train horns;

C. Outdoor Activities. Activities conducted on public playgrounds and public or private school grounds, including but not limited to school athletic and school entertainment events;

D. Exemption from Exterior Noise Standards. The following activities are exclusively regulated by the prohibitions of Part 4 of this chapter:

1. Construction,
2. Stationary nonemergency signaling devices,
3. Emergency signaling devices,
4. Refuse collection vehicles,
5. Residential air-conditioning or refrigeration equipment,
6. Forced-air blowers;

E. Motion Picture Production and Related Activities;

F. Railroad Activities. All locomotives and rail cars operated by any railroad which is regulated by the California Public Utilities Commission;

G. Federal or State Preexempted Activities. Any activity, to the extent regulation thereof has been preempted by state or federal law;

H. Public Health and Safety Activities. All transportation, flood control, and utility company maintenance and construction operations at any time on public right-of-way, and those situations which may occur on private real property deemed necessary to serve the best interest of the public and to protect the public's health and well being, including but not limited to street sweeping, debris and limb removal, removal of downed wires, restoring electrical service, repairing traffic signals, unplugging sewers, snow removal, house moving, vacuuming catchbasins, removal of damaged poles and vehicles, repair of water hydrants and mains, gas lines, oil lines, sewers, etc.;

I. Motor Vehicles on Private Right-of-way and Private Property. Except as provided in Section 12.08.550, all legal vehicles of transportation operating in a legal manner in accordance with local, state and federal vehicle-noise regulations within the public right-of-way or air space, or on private property;

J. Seismic Surveys Authorized by the State Land Commission;

K. Agricultural Operations. All mechanical devices, apparatus or equivalent associated with agricultural operations conducted on agricultural property, unless if in the vicinity of residential land uses, in which case a variance permit is required to operate noise-producing devices, with the following stipulations:

1. Operations do not take place between 8:00 p.m. and 6:00 a.m., or
2. Such operations and equipment are utilized for the protection or salvage of agricultural crops during periods of potential or actual frost damage or other adverse weather conditions, or
3. Such operations and equipment are associated with agricultural pest-control through pesticide application, provided the application is made in accordance with permits issued by or regulations enforced by the county agricultural commissioner,

4. Such devices utilized for pest control which incorporate stationary or mobile noise sources (electro-mechanical birdscare devices, etc.) are operated only by permit issued by the health officer. The allowable hours and days for operation of these devices will be specified in the permit,

5. All equipment and machinery powered by internal combustion engines shall be equipped with a proper muffler and air-intake silencer in good working order;

L. Minor Maintenance to Residential Real Property. Noise sources associated with the minor maintenance of residential real property, provided said activities take place as follows:

1. During Pacific Standard Time between the hours of 8:00 a.m. and 6:00 p.m. on any day except Sunday, when such activities may take place between the hours of 9:00 a.m. and 6:00 p.m., and

2. During Daylight Savings Time between the hours of 8:00 a.m. and 7:00 p.m. on any day except Sunday, when such activities may take place between the hours of 9:00 a.m. and 6:00 p.m.;

M. Operation of Oil and Gas Wells.

1. Normal well servicing, remedial or maintenance work performed within an existing well which does not involve drilling or redrilling and which is restricted to the hours between 7:00 a.m. and 10:00 p.m., and

2. Drilling or redrilling work which is done in full compliance with the conditions of permits issued under Chapter 5, Article 1, of the County Zoning Ordinance, as amended, as set out in Title 22 of this code.

(Ord. 97-0007 § 1, 1997: Ord. 11778 § 2(Art. 6 § 601), 1978: Ord. 11773 § 2 (Art. 6 § 601), 1978.)

Part 6 VARIANCES

12.08.580 Conditions for granting variances—Health officer authority.

A. Variances from the requirements of this chapter may be granted by the health officer for a period of not to exceed two years, subject to such terms, conditions and requirements as he may deem reasonable. A variance may be granted only if the health officer makes the findings that:

1. Additional time is necessary for the applicant to alter or modify his activity, operation or noise source to comply with this chapter; or

2. The activity, operation or noise source cannot feasibly be done in a manner that would comply with the provisions of this chapter, and no other reasonable alternative is available to the applicant.

B. In granting a variance, the health officer may prescribe any conditions or requirements he deems necessary to minimize adverse effects upon the community or the surrounding neighborhood.

C. In granting variances, the health officer shall consider the magnitude of nuisance caused by the offensive noise, the uses of property within the area of impingement by the noise, operations carried on under existing nonconforming rights or conditional use permits or zone variances, the time factors related to study, design, financing and construction of remedial work, the economic factors related to age and useful life of the equipment, the general public interest, health and welfare, the feasibility of plans submitted for correction, and the effect on the community if the variance was refused.

(Ord. 11778 § 2 (Art. 7 § 701), 1978: Ord. 11773 § 2 (Art. 7 § 701), 1978.)

12.08.590 Application—Contents.

Every applicant for a variance shall file with the health officer a written application on a form prescribed by the health officer. The application shall state the name and address of the applicant, the nature of the noise source involved, and such other information as the health officer may require.

(Ord. 11778 § 2 (Art. 7 § 702), 1978: Ord. 11773 § 2 (Art. 7 § 702), 1978.)

12.08.600 Application—Fee.

Every applicant shall pay a fee of $25.00 for each application for variance.

(Ord. 11778 § 2 (Art. 7 § 703), 1978: Ord. 11773 § 2 (Art. 7 § 703), 1978.)

12.08.610 Application—Action by health officer.

A. The health officer shall act, within 30 days, if possible, on an application for a variance, and shall notify the applicant of the action taken, namely, approval, conditional approval, or denial. Before acting on an application for a variance, the health officer may require the applicant to furnish further information. Failure of the applicant to provide such further information may be grounds for denial of the variance.

B. In the event of denial of an application for a variance, the health officer shall notify the applicant in writing of the reasons therefor. The health officer shall not accept a further application unless the applicant has complied with the objections specified by the health officer as his reasons for denial.

(Ord. 11778 § 2 (Art. 7 § 704), 1978: Ord. 11773 § 2 (Art. 7 § 704), 1978.)

12.08.620 Application—Denial conditions.

The applicant may at his option deem the variance denied if the health officer fails to act on the application within 30 days after filing or within 10 days after applicant furnishes the further information requested by the health officer, whichever is later.

(Ord. 11778 § 2 (Art. 7 § 705), 1978: Ord. 11773 § 2 (Art. 7 § 705), 1978.)

12.08.630 Public hearing—For reconsideration of health officer decision.

Within 10 days after notice by the health officer of the decision on application for variance, any interested party may petition the health officer in writing for a public hearing to reconsider the decision. The health officer shall thereupon appoint a hearing officer to conduct said hearing.

(Ord. 11778 § 2 (Art. 7 § 706), 1978: Ord. 11773 § 2 (Art. 7 § 706), 1978.)

12.08.640 Public hearing—Decision and findings—Appeals.

A. Based upon the evidence presented at the public hearing, the hearing officer may affirm, modify or reverse the previous determination subject to such terms, conditions and requirements as he may deem necessary. The hearing officer shall be guided by the same considerations as set forth in Section 12.08.580.

B. A decision by the hearing officer to grant a variance may be made only if the hearing officer makes the findings that:

1. Additional time is necessary for the applicant to alter or modify his activity, operation or noise source to comply with this chapter; or

2. The activity, operation or noise source cannot feasibly be done in a manner that would comply with the provisions of this chapter, and no other reasonable alternative is available to the applicant.

C. The decision of the hearing officer shall be by written order, and shall be final. Appeals from an adverse decision shall be made to a court of competent jurisdiction.

(Ord. 11778 § 2 (Art. 7 § 707), 1978: Ord. 11773 § 2 (Art. 7 § 707), 1978.)

Part 7 VIOLATIONS AND ENFORCEMENT

12.08.650 Enforcement—Health officer powers and duties.

The health officer shall have primary responsibility for the enforcement of the noise regulations contained in this chapter. The health officer shall make all noise-level measurements required for the enforcement of this chapter. Nothing in this chapter shall prevent the health officer from efforts to obtain voluntary compliance by way of warning, notice, or educational means.

(Ord. 11778 § 2 (Art. 8 § 801), 1978: Ord. 11773 § 2 (Art. 8 § 801), 1978.)

12.08.660 Initial violations.

In the event of an initial violation of the provisions of this chapter a written notice of violation shall be given the alleged violator, specifying the time by which the condition shall be corrected or an application for permit or variance shall be received by the health officer. The health officer shall take no further action in the event the cause of the violation has been removed, the condition abated or fully corrected within the time period specified in the written notice.

(Ord. 11778 § 2 (Art. 8 § 802), 1978: Ord. 11773 § 2 (Art. 8 § 802), 1978.)

12.08.670 Violation—Penalty.

Any person violating any of the provisions of this chapter shall be deemed guilty of a misdemeanor and, upon conviction thereof, shall be punished by a fine of not more than $500.00 or be imprisoned in the County Jail for a period not exceeding six months or by both such fine and imprisonment. Each day such violation is committed or permitted to continue shall constitute a separate offense and shall be punishable as such.

(Ord. 11778 § 2 (Art. 8 § 803), 1978: Ord. 11773 § 2 (Art. 8 § 803, 1978.)

12.08.680 Severability.

If any provision, clause, sentence or paragraph of this chapter or the application thereof to any person or circumstances shall be held invalid, such invalidity shall not affect the other provisions or application of the provisions of this chapter which can be given effect without the invalid provisions or application and, to this end, the provisions of this chapter are hereby declared to be severable.

(Ord. 11778 § 2 (Art. 8 § 804), 1978: Ord. 11773 § 2 (Art. 8 § 804), 1978.)

APPENDIX 5.1:

STUDY AREA PHOTOS

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JN:14925

14925_L1_A 1.North
34, 39' 35.720000"118, 7' 50.600000"

14925_L1_A 2.South
34, 39' 35.550000"118, 7' 50.570000"

14925_L1_A 3.East
34, 39' 35.550000"118, 7' 50.540000"

14925_L1_A 4.West
34, 39' 35.490000"118, 7' 50.650000"

JN:14925

14925_L2_D 1.North
34, 39' 24.220000"118, 7' 40.030000"

14925_L2_D 2.South
34, 39' 24.180000"118, 7' 40.050000"

14925_L2_D 3.East
34, 39' 24.120000"118, 7' 40.050000"

14925_L2_D 4.West
34, 39' 24.120000"118, 7' 40.080000"

JN:14925

14925_L3_F 1.North
34, 39' 11.360000"118, 7' 48.480000"

14925_L3_F 2.South
34, 39' 11.350000"118, 7' 48.460000"

14925_L3_F 3.East
34, 39' 11.320000"118, 7' 48.350000"

14925_L3_F 4.West
34, 39' 11.320000"118, 7' 48.370000"

14925_L4_H 1.North
34, 39' 37.780000"118, 8' 41.850000"

14925_L4_H 2.South
34, 39' 37.760000"118, 8' 41.850000"

14925_L4_H 3.East
34, 39' 37.720000"118, 8' 41.690000"

14925_L4_H 4.West
34, 39' 37.690000"118, 8' 41.850000"

APPENDIX 5.2:

NOISE LEVEL MEASUREMENT WORKSHEETS

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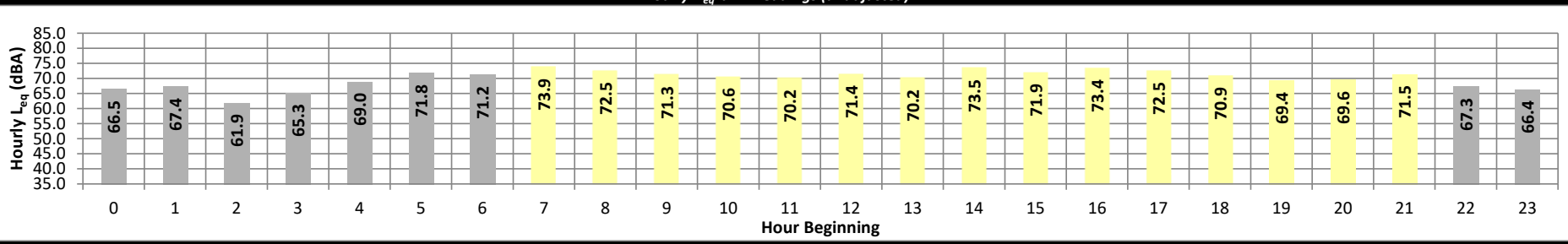
24-Hour Noise Level Measurement Summary

Date: Wednesday, January 18, 2023 *Location:* L1 - Located northeast of the Project site near the A-American *Meter:* Piccolo II *JN:* 14925

Project: Avenue L4 Warehouses *Source:* Self Storage at 141 W Avenue L. *Analyst:* B. Lawson

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	66.5	74.3	48.7	74.0	73.7	72.3	70.9	67.7	64.9	50.8	49.8	48.9	66.5	10.0	76.5
	1	67.4	76.0	55.1	75.8	75.5	74.1	72.9	67.2	62.1	57.8	56.5	55.3	67.4	10.0	77.4
	2	61.9	72.0	48.3	71.6	71.2	69.4	67.4	61.1	56.1	50.0	49.2	48.5	61.9	10.0	71.9
	3	65.3	75.2	51.8	74.8	74.3	72.5	70.7	64.8	60.0	53.9	53.0	52.2	65.3	10.0	75.3
	4	69.0	77.6	57.6	77.3	76.8	75.4	74.4	69.5	64.6	59.0	58.4	57.8	69.0	10.0	79.0
	5	71.8	78.5	63.6	78.2	77.9	76.8	75.9	72.9	70.0	65.4	64.3	63.7	71.8	10.0	81.8
	6	71.2	78.6	62.0	78.3	77.8	76.5	75.7	72.4	68.8	63.3	62.7	62.1	71.2	10.0	81.2
Day	7	73.9	82.2	64.4	81.8	81.1	79.2	78.1	74.6	71.4	65.8	65.1	64.6	73.9	0.0	73.9
	8	72.5	79.3	63.3	79.1	78.7	77.5	76.7	73.9	70.3	64.9	64.1	63.4	72.5	0.0	72.5
	9	71.3	79.2	61.9	78.9	78.5	77.1	75.8	72.0	68.9	63.5	62.7	62.0	71.3	0.0	71.3
	10	70.6	77.6	59.4	77.3	77.0	75.9	75.0	72.1	68.1	61.6	60.6	59.6	70.6	0.0	70.6
	11	70.2	77.8	57.5	77.5	77.0	75.6	74.6	71.5	67.8	61.0	59.1	57.7	70.2	0.0	70.2
	12	71.4	78.5	63.6	78.2	77.8	76.3	75.4	72.3	69.4	65.2	64.5	63.8	71.4	0.0	71.4
	13	70.2	76.8	59.0	76.5	76.2	75.3	74.6	71.8	68.2	61.8	60.3	59.2	70.2	0.0	70.2
	14	73.5	83.9	61.0	83.4	82.8	79.8	77.8	73.3	69.8	63.8	62.4	61.2	73.5	0.0	73.5
	15	71.9	78.9	61.2	78.7	78.3	76.9	75.7	73.3	70.1	63.9	62.6	61.6	71.9	0.0	71.9
	16	73.4	81.4	63.4	81.2	80.8	79.3	77.7	73.8	71.2	66.0	65.0	63.7	73.4	0.0	73.4
	17	72.5	80.2	62.5	80.0	79.8	78.3	76.8	73.3	70.4	64.6	63.8	62.8	72.5	0.0	72.5
	18	70.9	77.9	62.2	77.6	77.2	76.1	75.3	72.1	68.8	63.9	63.2	62.4	70.9	0.0	70.9
	19	69.4	77.2	59.8	76.9	76.4	74.9	73.8	70.4	66.9	61.8	60.9	60.0	69.4	5.0	74.4
	20	69.6	78.5	58.6	78.2	77.7	76.0	74.5	69.9	66.3	60.5	59.5	58.8	69.6	5.0	74.6
	21	71.5	82.1	58.0	81.7	80.9	78.5	77.2	70.1	65.5	59.7	58.8	58.2	71.5	5.0	76.5
Night	22	67.3	75.5	56.6	75.2	74.7	73.4	72.3	68.2	63.9	58.2	57.5	56.8	67.3	10.0	77.3
	23	66.4	76.4	53.1	76.0	75.3	73.2	71.5	66.3	61.1	55.0	54.1	53.3	66.4	10.0	76.4

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	69.4	76.8	57.5	76.5	76.2	74.9	73.8	69.9	65.5	59.7	58.8	57.7
	Max	73.9	83.9	64.4	83.4	82.8	79.8	78.1	74.6	71.4	66.0	65.1	64.6
Energy Average		71.7	Average:		79.1	78.7	77.1	75.9	72.3	68.9	63.2	62.2	61.3
Night	Min	61.9	72.0	48.3	71.6	71.2	69.4	67.4	61.1	56.1	50.0	49.2	48.5
	Max	71.8	78.6	63.6	78.3	77.9	76.8	75.9	72.9	70.0	65.4	64.3	63.7
Energy Average		68.3	Average:		75.7	75.2	73.7	72.4	67.8	63.5	57.1	56.2	55.4

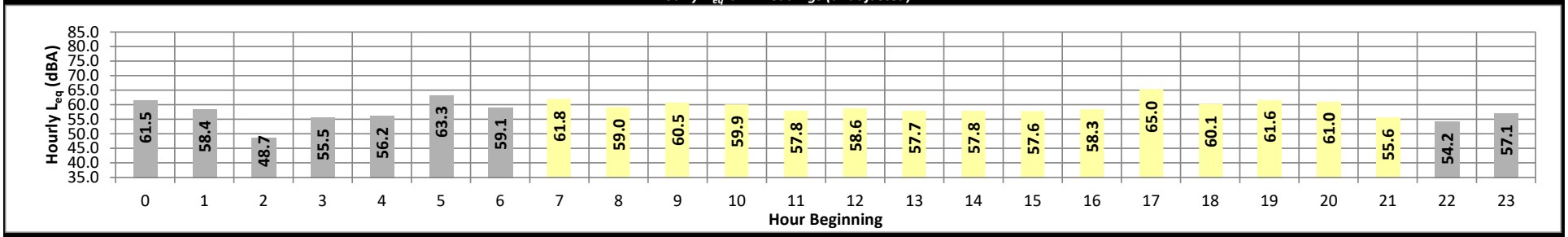
24-Hour CNEL	Leq (dBA) Daytime (7am-10pm)	Leq (dBA) Nighttime (10pm-7am)
75.7	**71.7**	**68.3**

24-Hour Noise Level Measurement Summary

Date: Wednesday, January 18, 2023 *Location:* L2 - Located east of the Project site near the existing residence *Meter:* Piccolo II *JN:* 14925

Project: Avenue L4 Warehouse *Source:* at 42616 2nd St. E *Analyst:* B. Lawson

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	61.5	67.6	53.3	67.3	67.0	65.8	65.2	63.6	59.0	55.1	54.1	53.4	61.5	10.0	71.5
	1	58.4	65.5	49.7	65.3	65.0	64.1	62.6	59.7	55.3	50.5	50.2	49.9	58.4	10.0	68.4
	2	48.7	54.5	44.3	54.2	53.9	52.8	52.2	49.2	47.4	45.3	44.9	44.4	48.7	10.0	58.7
	3	55.5	63.0	45.6	62.7	62.2	61.4	60.7	56.9	51.4	46.8	46.2	45.7	55.5	10.0	65.5
	4	56.2	61.4	51.6	61.1	60.8	59.9	59.4	56.9	55.3	52.8	52.3	51.8	56.2	10.0	66.2
	5	63.3	69.4	57.2	69.2	68.9	68.0	67.3	64.4	62.0	57.9	57.6	57.3	63.3	10.0	73.3
	6	59.1	67.1	53.6	66.7	66.3	64.9	63.5	59.0	56.5	54.3	54.1	53.7	59.1	10.0	69.1
Day	7	61.8	71.5	55.2	70.8	69.8	67.5	65.6	61.5	59.4	56.1	55.7	55.3	61.8	0.0	61.8
	8	59.0	65.1	54.8	64.8	64.5	63.2	62.3	59.8	57.8	55.3	55.1	54.9	59.0	0.0	59.0
	9	60.5	68.8	53.4	68.2	67.6	66.7	65.5	60.2	57.8	54.6	54.0	53.5	60.5	0.0	60.5
	10	59.9	69.3	52.8	68.6	67.4	65.3	63.9	60.3	57.6	54.2	53.5	53.0	59.9	0.0	59.9
	11	57.8	68.9	50.8	67.7	66.1	63.3	61.3	57.4	54.9	52.2	51.6	50.9	57.8	0.0	57.8
	12	58.6	66.9	48.9	66.2	65.7	64.3	63.4	59.4	55.6	51.1	49.7	49.1	58.6	0.0	58.6
	13	57.7	66.7	46.5	65.8	65.1	63.1	62.1	58.9	54.8	48.2	47.5	46.8	57.7	0.0	57.7
	14	57.8	68.0	49.9	67.1	66.0	63.9	62.4	57.2	54.2	51.2	50.6	50.2	57.8	0.0	57.8
	15	57.6	66.5	48.5	65.9	65.4	64.0	62.7	58.0	53.3	49.7	49.2	48.6	57.6	0.0	57.6
	16	58.3	67.3	51.3	66.5	65.5	63.8	62.4	58.5	55.8	52.6	52.2	51.7	58.3	0.0	58.3
	17	65.0	76.8	47.8	76.0	75.5	73.6	71.7	60.1	54.4	48.9	48.4	47.9	65.0	0.0	65.0
	18	60.1	70.1	49.9	69.5	68.7	66.9	65.4	60.0	54.3	51.1	50.6	50.0	60.1	0.0	60.1
	19	61.6	73.9	50.3	73.1	72.2	70.6	66.5	57.0	54.4	51.3	50.9	50.4	61.6	5.0	66.6
	20	61.0	71.6	50.4	71.2	70.9	69.8	68.6	56.3	54.2	51.6	51.1	50.5	61.0	5.0	66.0
	21	55.6	63.2	50.3	62.7	61.8	59.8	58.9	56.2	54.1	51.1	50.7	50.4	55.6	5.0	60.6
Night	22	54.2	58.4	50.3	58.2	57.9	57.2	56.7	55.1	53.7	51.3	50.9	50.4	54.2	10.0	64.2
	23	57.1	64.0	48.9	63.7	63.2	62.5	61.5	58.7	54.5	50.3	49.7	49.1	57.1	10.0	67.1

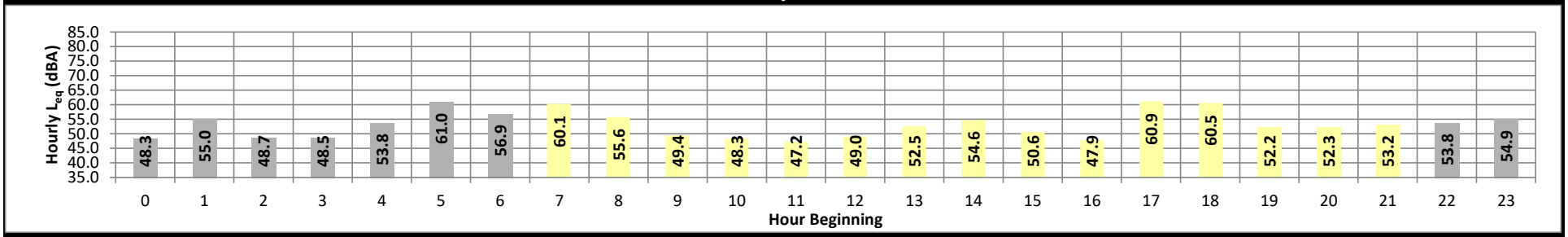
Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	55.6	63.2	46.5	62.7	61.8	59.8	58.9	56.2	53.3	48.2	47.5	46.8
	Max	65.0	76.8	55.2	76.0	75.5	73.6	71.7	61.5	59.4	56.1	55.7	55.3
Energy Average		60.1	Average:		68.3	67.5	65.7	64.2	58.7	55.5	51.9	51.4	50.9
Night	Min	48.7	54.5	44.3	54.2	53.9	52.8	52.2	49.2	47.4	45.3	44.9	44.4
	Max	63.3	69.4	57.2	69.2	68.9	68.0	67.3	64.4	62.0	57.9	57.6	57.3
Energy Average		58.7	Average:		63.1	62.8	61.8	61.0	58.1	55.0	51.6	51.1	50.6

24-Hour CNEL	Leq (dBA) Daytime (7am-10pm)	Leq (dBA) Nighttime (10pm-7am)
65.7	**60.1**	**58.7**

24-Hour Noise Level Measurement Summary

Date: Wednesday, January 18, 2023 *Location:* L3 - Located south of the Project site near the existing Score *Meter:* Piccolo II *JN:* 14925

Project: Avenue L4 Warehouse *Source:* Turf building located at 42359 Division Street. *Analyst:* B. Lawson



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	48.3	53.1	45.0	52.7	52.4	51.7	51.2	48.9	47.4	45.7	45.5	45.1	48.3	10.0	58.3
	1	55.0	62.7	47.4	62.5	62.2	61.2	60.1	54.5	52.3	48.7	48.3	47.7	55.0	10.0	65.0
	2	48.7	52.8	45.8	52.5	52.2	51.3	50.8	49.3	48.2	46.5	46.2	45.9	48.7	10.0	58.7
	3	48.5	53.4	45.3	53.1	52.8	51.7	51.0	48.9	47.7	46.1	45.8	45.4	48.5	10.0	58.5
	4	53.8	57.3	50.8	57.0	56.8	56.2	55.8	54.5	53.4	51.6	51.3	50.9	53.8	10.0	63.8
	5	61.0	65.0	55.8	64.9	64.7	64.2	63.8	62.5	60.2	56.8	56.2	55.9	61.0	10.0	71.0
	6	56.9	61.6	53.9	61.0	60.6	59.5	59.0	57.6	56.3	54.6	54.4	54.0	56.9	10.0	66.9
Day	7	60.1	64.4	57.7	63.9	63.5	62.5	62.0	60.7	59.6	58.4	58.1	57.9	60.1	0.0	60.1
	8	55.6	65.8	51.7	64.3	62.5	60.0	58.1	55.5	54.2	52.2	52.0	51.8	55.6	0.0	55.6
	9	49.4	54.9	44.9	54.5	54.2	53.2	52.7	50.4	48.2	45.7	45.4	45.0	49.4	0.0	49.4
	10	48.3	56.0	41.2	55.6	55.1	54.2	52.8	49.2	45.1	42.3	42.0	41.4	48.3	0.0	48.3
	11	47.2	55.6	41.6	54.7	53.9	52.3	51.1	47.8	44.7	42.5	42.1	41.8	47.2	0.0	47.2
	12	49.0	57.9	43.5	57.2	56.1	53.3	51.7	49.4	47.8	44.8	44.3	43.6	49.0	0.0	49.0
	13	52.5	61.2	46.0	60.4	59.4	58.0	56.8	53.3	49.5	46.6	46.4	46.1	52.5	0.0	52.5
	14	54.6	66.3	41.3	65.1	63.8	61.2	60.0	54.2	47.7	42.8	42.1	41.5	54.6	0.0	54.6
	15	50.6	60.3	41.8	59.9	59.3	57.6	55.5	50.5	46.1	43.0	42.5	42.0	50.6	0.0	50.6
	16	47.9	53.5	43.6	53.1	52.5	51.3	50.8	49.0	46.9	44.5	44.1	43.7	47.9	0.0	47.9
	17	60.9	72.3	46.9	71.9	71.3	68.8	66.8	58.0	52.1	48.0	47.5	47.0	60.9	0.0	60.9
	18	60.5	68.9	51.9	68.6	68.2	67.2	66.3	59.9	55.6	53.1	52.6	52.1	60.5	0.0	60.5
	19	52.2	56.7	49.2	56.4	56.0	54.9	54.2	52.8	51.7	50.0	49.7	49.3	52.2	5.0	57.2
	20	52.3	58.2	49.0	57.4	56.9	55.7	54.8	52.8	51.4	49.8	49.5	49.2	52.3	5.0	57.3
	21	53.2	59.6	49.0	59.0	58.6	57.4	56.7	53.7	51.4	49.7	49.4	49.1	53.2	5.0	58.2
Night	22	53.8	60.0	49.3	59.6	59.2	57.6	56.6	54.4	52.8	50.4	50.0	49.4	53.8	10.0	63.8
	23	54.9	62.3	47.6	61.8	61.3	60.4	59.7	56.0	52.0	48.8	48.3	47.8	54.9	10.0	64.9

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	47.2	53.5	41.2	53.1	52.5	51.3	50.8	47.8	44.7	42.3	42.0	41.4
	Max	60.9	72.3	57.7	71.9	71.3	68.8	66.8	60.7	59.6	58.4	58.1	57.9
Energy Average		55.4	Average:		60.1	59.4	57.8	56.7	53.1	50.1	47.6	47.2	46.8
Night	Min	48.3	52.8	45.0	52.5	52.2	51.3	50.8	48.9	47.4	45.7	45.5	45.1
	Max	61.0	65.0	55.8	64.9	64.7	64.2	63.8	62.5	60.2	56.8	56.2	55.9
Energy Average		55.3	Average:		58.3	58.0	57.1	56.4	54.1	52.3	49.9	49.5	49.1

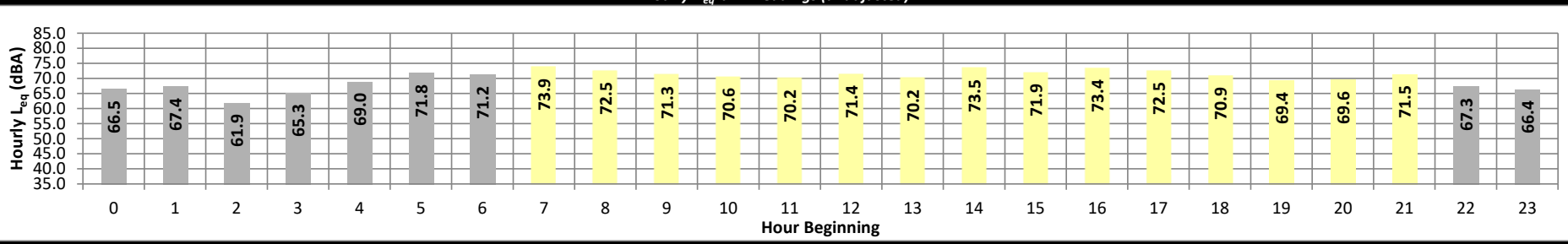
24-Hour CNEL	Leq (dBA) Daytime (7am-10pm)	Leq (dBA) Nighttime (10pm-7am)
61.9	55.4	55.3

24-Hour Noise Level Measurement Summary

Date: Wednesday, January 18, 2023 | *Location:* L4 - Located northwest of the Project site near the existing | *Meter:* Piccolo II | *JN:* 14925

Project: Avenue L4 Warehouse | *Source:* Montecito Apartments located at 835 W Ave L. | *Analyst:* B. Lawson

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	66.5	74.3	48.7	74.0	73.7	72.3	70.9	67.7	64.9	50.8	49.8	48.9	66.5	10.0	76.5
	1	67.4	76.0	55.1	75.8	75.5	74.1	72.9	67.2	62.1	57.8	56.5	55.3	67.4	10.0	77.4
	2	61.9	72.0	48.3	71.6	71.2	69.4	67.4	61.1	56.1	50.0	49.2	48.5	61.9	10.0	71.9
	3	65.3	75.2	51.8	74.8	74.3	72.5	70.7	64.8	60.0	53.9	53.0	52.2	65.3	10.0	75.3
	4	69.0	77.6	57.6	77.3	76.8	75.4	74.4	69.5	64.6	59.0	58.4	57.8	69.0	10.0	79.0
	5	71.8	78.5	63.6	78.2	77.9	76.8	75.9	72.9	70.0	65.4	64.3	63.7	71.8	10.0	81.8
	6	71.2	78.6	62.0	78.3	77.8	76.5	75.7	72.4	68.8	63.3	62.7	62.1	71.2	10.0	81.2
Day	7	73.9	82.2	64.4	81.8	81.1	79.2	78.1	74.6	71.4	65.8	65.1	64.6	73.9	0.0	73.9
	8	72.5	79.3	63.3	79.1	78.7	77.5	76.7	73.9	70.3	64.9	64.1	63.4	72.5	0.0	72.5
	9	71.3	79.2	61.9	78.9	78.5	77.1	75.8	72.0	68.9	63.5	62.7	62.0	71.3	0.0	71.3
	10	70.6	77.6	59.4	77.3	77.0	75.9	75.0	72.1	68.1	61.6	60.6	59.6	70.6	0.0	70.6
	11	70.2	77.8	57.5	77.5	77.0	75.6	74.6	71.5	67.8	61.0	59.1	57.7	70.2	0.0	70.2
	12	71.4	78.5	63.6	78.2	77.8	76.3	75.4	72.3	69.4	65.2	64.5	63.8	71.4	0.0	71.4
	13	70.2	76.8	59.0	76.5	76.2	75.3	74.6	71.8	68.2	61.8	60.3	59.2	70.2	0.0	70.2
	14	73.5	83.9	61.0	83.4	82.8	79.8	77.8	73.3	69.8	63.8	62.4	61.2	73.5	0.0	73.5
	15	71.9	78.9	61.2	78.7	78.3	76.9	75.7	73.3	70.1	63.9	62.6	61.6	71.9	0.0	71.9
	16	73.4	81.4	63.4	81.2	80.8	79.3	77.7	73.8	71.2	66.0	65.0	63.7	73.4	0.0	73.4
	17	72.5	80.2	62.5	80.0	79.8	78.3	76.8	73.3	70.4	64.6	63.8	62.8	72.5	0.0	72.5
	18	70.9	77.9	62.2	77.6	77.2	76.1	75.3	72.1	68.8	63.9	63.2	62.4	70.9	0.0	70.9
	19	69.4	77.2	59.8	76.9	76.4	74.9	73.8	70.4	66.9	61.8	60.9	60.0	69.4	5.0	74.4
	20	69.6	78.5	58.6	78.2	77.7	76.0	74.5	69.9	66.3	60.5	59.5	58.8	69.6	5.0	74.6
	21	71.5	82.1	58.0	81.7	80.9	78.5	77.2	70.1	65.5	59.7	58.8	58.2	71.5	5.0	76.5
Night	22	67.3	75.5	56.6	75.2	74.7	73.4	72.3	68.2	63.9	58.2	57.5	56.8	67.3	10.0	77.3
	23	66.4	76.4	53.1	76.0	75.3	73.2	71.5	66.3	61.1	55.0	54.1	53.3	66.4	10.0	76.4

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	69.4	76.8	57.5	76.5	76.2	74.9	73.8	69.9	65.5	59.7	58.8	57.7
	Max	73.9	83.9	64.4	83.4	82.8	79.8	78.1	74.6	71.4	66.0	65.1	64.6
Energy Average		71.7	Average:		79.1	78.7	77.1	75.9	72.3	68.9	63.2	62.2	61.3
Night	Min	61.9	72.0	48.3	71.6	71.2	69.4	67.4	61.1	56.1	50.0	49.2	48.5
	Max	71.8	78.6	63.6	78.3	77.9	76.8	75.9	72.9	70.0	65.4	64.3	63.7
Energy Average		68.3	Average:		75.7	75.2	73.7	72.4	67.8	63.5	57.1	56.2	55.4

24-Hour CNEL	*Leq (dBA) Daytime (7am-10pm)*	*Leq (dBA) Nighttime (10pm-7am)*
75.7	**71.7**	**68.3**

APPENDIX 7.1:

OFF-SITE TRAFFIC NOISE CONTOURS

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: E
Road Name: Sierra Hwy.
Road Segment: n/o Avenue L West

Project Name: L4 Avenue Warehouse
Job Number: 14925

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	21,658 vehicles
Peak Hour Percentage:	8.52%
Peak Hour Volume:	1,845 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	42.0 feet
Centerline Dist. to Observer:	42.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	10.6%	11.9%	96.58%
Medium Trucks:	82.1%	5.5%	12.5%	2.51%
Heavy Trucks:	76.8%	4.6%	18.6%	0.92%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	38.275
Medium Trucks:	38.043
Heavy Trucks:	38.066

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	-0.20	1.64	-1.20	*-4.60*	0.000	0.000
Medium Trucks:	82.40	-16.06	1.68	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	86.40	-20.42	1.67	-1.20	*-5.53*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	72.0	70.8	68.2	63.9	72.1	72.5
Medium Trucks:	66.8	65.9	60.1	58.9	67.0	67.2
Heavy Trucks:	66.4	65.2	59.0	60.3	67.6	67.8
Vehicle Noise:	74.0	72.8	69.3	66.4	74.3	74.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	81	175	377	812
CNEL:	86	185	398	857

Monday, February 27, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: E+P
Road Name: Sierra Hwy.
Road Segment: n/o Avenue L West

Project Name: L4 Avenue Warehouse
Job Number: 14925

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	21,712 vehicles
Peak Hour Percentage:	8.52%
Peak Hour Volume:	1,850 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	42.0 feet
Centerline Dist. to Observer:	42.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	10.6%	11.9%	96.50%
Medium Trucks:	82.1%	5.5%	12.5%	2.51%
Heavy Trucks:	76.8%	4.6%	18.6%	0.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	38.275
Medium Trucks:	38.043
Heavy Trucks:	38.066

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	-0.19	1.64	-1.20	*-4.60*	0.000	0.000
Medium Trucks:	82.40	-16.03	1.68	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	86.40	-20.10	1.67	-1.20	*-5.53*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	72.0	70.8	68.2	63.9	72.1	72.5
Medium Trucks:	66.8	65.9	60.2	59.0	67.0	67.2
Heavy Trucks:	66.8	65.5	59.4	60.6	67.9	68.1
Vehicle Noise:	74.1	72.9	69.3	66.5	74.4	74.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	82	177	382	822
CNEL:	87	187	403	868

Monday, February 27, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: EAC
Road Name: Sierra Hwy.
Road Segment: n/o Avenue L West

Project Name: L4 Avenue Warehouse
Job Number: 14925

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	24,293 vehicles
Peak Hour Percentage:	8.52%
Peak Hour Volume:	2,070 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	42.0 feet
Centerline Dist. to Observer:	42.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	10.6%	11.9%	96.58%
Medium Trucks:	82.1%	5.5%	12.5%	2.51%
Heavy Trucks:	76.8%	4.6%	18.6%	0.92%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	38.275
Medium Trucks:	38.043
Heavy Trucks:	38.066

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	0.30	1.64	-1.20	*-4.60*	0.000	0.000
Medium Trucks:	82.40	-15.56	1.68	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	86.40	-19.93	1.67	-1.20	*-5.53*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	72.5	71.3	68.7	64.4	72.6	73.0
Medium Trucks:	67.3	66.4	60.6	59.4	67.5	67.7
Heavy Trucks:	66.9	65.7	59.5	60.8	68.1	68.3
Vehicle Noise:	74.5	73.3	69.8	66.9	74.8	75.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	88	189	407	877
CNEL:	93	199	430	926

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: EACP
Road Name: Sierra Hwy.
Road Segment: n/o Avenue L West

Project Name: L4 Avenue Warehouse
Job Number: 14925

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	24,347 vehicles
Peak Hour Percentage:	8.52%
Peak Hour Volume:	2,074 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	42.0 feet
Centerline Dist. to Observer:	42.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	10.6%	11.9%	96.51%
Medium Trucks:	82.1%	5.5%	12.5%	2.51%
Heavy Trucks:	76.8%	4.6%	18.6%	0.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	38.275
Medium Trucks:	38.043
Heavy Trucks:	38.066

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	0.31	1.64	-1.20	*-4.60*	0.000	0.000
Medium Trucks:	82.40	-15.54	1.68	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	86.40	-19.64	1.67	-1.20	*-5.53*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	72.5	71.3	68.7	64.4	72.6	73.0
Medium Trucks:	67.3	66.4	60.6	59.4	67.5	67.7
Heavy Trucks:	67.2	66.0	59.8	61.1	68.4	68.6
Vehicle Noise:	74.6	73.4	69.8	66.9	74.9	75.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	89	191	411	886
CNEL:	94	202	434	936

Monday, February 27, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: E
Road Name: Sierra Hwy.
Road Segment: s/o Avenue L East

Project Name: L4 Avenue Warehouse
Job Number: 14925

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	24,078 vehicles
Peak Hour Percentage:	8.52%
Peak Hour Volume:	2,051 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	42.0 feet
Centerline Dist. to Observer:	42.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	10.6%	11.9%	96.58%
Medium Trucks:	82.1%	5.5%	12.5%	2.51%
Heavy Trucks:	76.8%	4.6%	18.6%	0.92%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	38.275
Medium Trucks:	38.043
Heavy Trucks:	38.066

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	0.26	1.64	-1.20	*-4.60*	0.000	0.000
Medium Trucks:	82.40	-15.60	1.68	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	86.40	-19.96	1.67	-1.20	*-5.53*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	72.5	71.3	68.7	64.4	72.5	73.0
Medium Trucks:	67.3	66.3	60.6	59.4	67.4	67.7
Heavy Trucks:	66.9	65.7	59.5	60.7	68.1	68.2
Vehicle Noise:	74.5	73.3	69.7	66.8	74.8	75.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	87	188	405	872
CNEL:	92	198	427	920

Monday, February 27, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: E+P
Road Name: Sierra Hwy.
Road Segment: s/o Avenue L East

Project Name: L4 Avenue Warehouse
Job Number: 14925

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	24,444 vehicles
Peak Hour Percentage:	8.52%
Peak Hour Volume:	2,083 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	42.0 feet
Centerline Dist. to Observer:	42.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	10.6%	11.9%	96.22%
Medium Trucks:	82.1%	5.5%	12.5%	2.54%
Heavy Trucks:	76.8%	4.6%	18.6%	1.24%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	38.275
Medium Trucks:	38.043
Heavy Trucks:	38.066

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	0.31	1.64	-1.20	*-4.60*	0.000	0.000
Medium Trucks:	82.40	-15.47	1.68	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	86.40	-18.60	1.67	-1.20	*-5.53*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	72.5	71.3	68.7	64.4	72.6	73.0
Medium Trucks:	67.4	66.5	60.7	59.5	67.6	67.8
Heavy Trucks:	68.3	67.0	60.9	62.1	69.4	69.6
Vehicle Noise:	74.8	73.6	69.9	67.2	75.1	75.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	92	199	429	924
CNEL:	97	210	452	973

Monday, February 27, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: EAC
Road Name: Sierra Hwy.
Road Segment: s/o Avenue L East

Project Name: L4 Avenue Warehouse
Job Number: 14925

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	27,879 vehicles
Peak Hour Percentage:	8.52%
Peak Hour Volume:	2,375 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	42.0 feet
Centerline Dist. to Observer:	42.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	10.6%	11.9%	96.58%
Medium Trucks:	82.1%	5.5%	12.5%	2.51%
Heavy Trucks:	76.8%	4.6%	18.6%	0.92%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	38.275
Medium Trucks:	38.043
Heavy Trucks:	38.066

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	0.90	1.64	-1.20	*-4.60*	0.000	0.000
Medium Trucks:	82.40	-14.96	1.68	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	86.40	-19.33	1.67	-1.20	*-5.53*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	73.1	71.9	69.3	65.0	73.2	73.6
Medium Trucks:	67.9	67.0	61.2	60.0	68.1	68.3
Heavy Trucks:	67.5	66.3	60.1	61.4	68.7	68.9
Vehicle Noise:	75.1	73.9	70.4	67.5	75.4	75.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	96	207	446	961
CNEL:	101	219	471	1,015

Monday, February 27, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: EACP
Road Name: Sierra Hwy.
Road Segment: s/o Avenue L East

Project Name: L4 Avenue Warehouse
Job Number: 14925

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,246 vehicles
Peak Hour Percentage:	8.52%
Peak Hour Volume:	2,407 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	42.0 feet
Centerline Dist. to Observer:	42.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	10.6%	11.9%	96.27%
Medium Trucks:	82.1%	5.5%	12.5%	2.54%
Heavy Trucks:	76.8%	4.6%	18.6%	1.19%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	38.275
Medium Trucks:	38.043
Heavy Trucks:	38.066

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	0.94	1.64	-1.20	*-4.60*	0.000	0.000
Medium Trucks:	82.40	-14.85	1.68	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	86.40	-18.13	1.67	-1.20	*-5.53*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	73.2	72.0	69.3	65.1	73.2	73.7
Medium Trucks:	68.0	67.1	61.3	60.1	68.2	68.4
Heavy Trucks:	68.7	67.5	61.3	62.6	69.9	70.1
Vehicle Noise:	75.4	74.2	70.5	67.8	75.7	76.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	101	218	469	1,011
CNEL:	107	230	495	1,065

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: E
Road Name: Sierra Hwy.
Road Segment: n/o Avenue L-4

Project Name: L4 Avenue Warehouse
Job Number: 14925

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	25,497 vehicles
Peak Hour Percentage:	8.52%
Peak Hour Volume:	2,172 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	42.0 feet
Centerline Dist. to Observer:	42.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	10.6%	11.9%	96.58%
Medium Trucks:	82.1%	5.5%	12.5%	2.51%
Heavy Trucks:	76.8%	4.6%	18.6%	0.92%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	38.275
Medium Trucks:	38.043
Heavy Trucks:	38.066

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	0.51	1.64	-1.20	*-4.60*	0.000	0.000
Medium Trucks:	82.40	-15.35	1.68	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	86.40	-19.72	1.67	-1.20	*-5.53*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	72.7	71.5	68.9	64.6	72.8	73.2
Medium Trucks:	67.5	66.6	60.8	59.6	67.7	67.9
Heavy Trucks:	67.2	65.9	59.7	61.0	68.3	68.5
Vehicle Noise:	74.7	73.5	70.0	67.1	75.0	75.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	91	195	420	906
CNEL:	96	206	444	956

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: E+P
Road Name: Sierra Hwy.
Road Segment: n/o Avenue L-4

Project Name: L4 Avenue Warehouse
Job Number: 14925

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	25,864 vehicles
Peak Hour Percentage:	8.52%
Peak Hour Volume:	2,204 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	42.0 feet
Centerline Dist. to Observer:	42.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	10.6%	11.9%	96.24%
Medium Trucks:	82.1%	5.5%	12.5%	2.54%
Heavy Trucks:	76.8%	4.6%	18.6%	1.22%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	38.275
Medium Trucks:	38.043
Heavy Trucks:	38.066

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	0.56	1.64	-1.20	*-4.60*	0.000	0.000
Medium Trucks:	82.40	-15.23	1.68	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	86.40	-18.42	1.67	-1.20	*-5.53*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	72.8	71.6	69.0	64.7	72.8	73.3
Medium Trucks:	67.6	66.7	61.0	59.8	67.8	68.0
Heavy Trucks:	68.5	67.2	61.0	62.3	69.6	69.8
Vehicle Noise:	75.0	73.9	70.2	67.5	75.4	75.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	96	206	444	957
CNEL:	101	217	468	1,008

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: EAC
Road Name: Sierra Hwy.
Road Segment: n/o Avenue L-4

Project Name: L4 Avenue Warehouse
Job Number: 14925

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	30,724 vehicles
Peak Hour Percentage:	8.52%
Peak Hour Volume:	2,618 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	42.0 feet
Centerline Dist. to Observer:	42.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	10.6%	11.9%	96.58%
Medium Trucks:	82.1%	5.5%	12.5%	2.51%
Heavy Trucks:	76.8%	4.6%	18.6%	0.92%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	38.275
Medium Trucks:	38.043
Heavy Trucks:	38.066

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	1.32	1.64	-1.20	*-4.60*	0.000	0.000
Medium Trucks:	82.40	-14.54	1.68	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	86.40	-18.91	1.67	-1.20	*-5.53*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	73.5	72.3	69.7	65.5	73.6	74.1
Medium Trucks:	68.3	67.4	61.6	60.4	68.5	68.7
Heavy Trucks:	68.0	66.7	60.6	61.8	69.1	69.3
Vehicle Noise:	75.5	74.4	70.8	67.9	75.8	76.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	103	221	476	1,025
CNEL:	108	233	502	1,083

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: EACP
Road Name: Sierra Hwy.
Road Segment: n/o Avenue L-4

Project Name: L4 Avenue Warehouse
Job Number: 14925

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	31,090 vehicles
Peak Hour Percentage:	8.52%
Peak Hour Volume:	2,649 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	42.0 feet
Centerline Dist. to Observer:	42.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	10.6%	11.9%	96.30%
Medium Trucks:	82.1%	5.5%	12.5%	2.53%
Heavy Trucks:	76.8%	4.6%	18.6%	1.17%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	38.275
Medium Trucks:	38.043
Heavy Trucks:	38.066

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	1.36	1.64	-1.20	*-4.60*	0.000	0.000
Medium Trucks:	82.40	-14.44	1.68	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	86.40	-17.80	1.67	-1.20	*-5.53*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	73.6	72.4	69.8	65.5	73.6	74.1
Medium Trucks:	68.4	67.5	61.7	60.5	68.6	68.8
Heavy Trucks:	69.1	67.8	61.7	62.9	70.2	70.4
Vehicle Noise:	75.8	74.6	70.9	68.2	76.1	76.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	107	231	498	1,074
CNEL:	113	244	525	1,132

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: E
Road Name: Sierra Hwy.
Road Segment: s/o Avenue L-4

Project Name: L4 Avenue Warehouse
Job Number: 14925

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	11,843 vehicles
Peak Hour Percentage:	8.52%
Peak Hour Volume:	1,009 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	42.0 feet
Centerline Dist. to Observer:	42.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	10.6%	11.9%	96.58%
Medium Trucks:	82.1%	5.5%	12.5%	2.51%
Heavy Trucks:	76.8%	4.6%	18.6%	0.92%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	38.275
Medium Trucks:	38.043
Heavy Trucks:	38.066

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	-2.82	1.64	-1.20	*-4.60*	0.000	0.000
Medium Trucks:	82.40	-18.68	1.68	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	86.40	-23.05	1.67	-1.20	*-5.53*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.4	68.2	65.6	61.3	69.5	69.9
Medium Trucks:	64.2	63.2	57.5	56.3	64.4	64.6
Heavy Trucks:	63.8	62.6	56.4	57.7	65.0	65.1
Vehicle Noise:	71.4	70.2	66.6	63.7	71.7	72.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	54	117	252	543
CNEL:	57	124	266	573

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: E+P
Road Name: Sierra Hwy.
Road Segment: s/o Avenue L-4

Project Name: L4 Avenue Warehouse
Job Number: 14925

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	11,957 vehicles
Peak Hour Percentage:	8.52%
Peak Hour Volume:	1,019 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	42.0 feet
Centerline Dist. to Observer:	42.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	10.6%	11.9%	96.40%
Medium Trucks:	82.1%	5.5%	12.5%	2.52%
Heavy Trucks:	76.8%	4.6%	18.6%	1.08%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	38.275
Medium Trucks:	38.043
Heavy Trucks:	38.066

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	-2.79	1.64	-1.20	*-4.60*	0.000	0.000
Medium Trucks:	82.40	-18.62	1.68	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	86.40	-22.30	1.67	-1.20	*-5.53*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.4	68.2	65.6	61.4	69.5	69.9
Medium Trucks:	64.3	63.3	57.6	56.4	64.4	64.7
Heavy Trucks:	64.6	63.3	57.2	58.4	65.7	65.9
Vehicle Noise:	71.6	70.4	66.8	64.0	71.9	72.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	56	121	260	560
CNEL:	59	127	274	591

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: EAC
Road Name: Sierra Hwy.
Road Segment: s/o Avenue L-4

Project Name: L4 Avenue Warehouse
Job Number: 14925

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,797 vehicles
Peak Hour Percentage:	8.52%
Peak Hour Volume:	1,431 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	42.0 feet
Centerline Dist. to Observer:	42.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	10.6%	11.9%	96.58%
Medium Trucks:	82.1%	5.5%	12.5%	2.51%
Heavy Trucks:	76.8%	4.6%	18.6%	0.92%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	38.275
Medium Trucks:	38.043
Heavy Trucks:	38.066

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	-1.30	1.64	-1.20	*-4.60*	0.000	0.000
Medium Trucks:	82.40	-17.16	1.68	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	86.40	-21.53	1.67	-1.20	*-5.53*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	70.9	69.7	67.1	62.8	71.0	71.4
Medium Trucks:	65.7	64.8	59.0	57.8	65.9	66.1
Heavy Trucks:	65.3	64.1	57.9	59.2	66.5	66.7
Vehicle Noise:	72.9	71.7	68.2	65.3	73.2	73.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	69	148	318	686
CNEL:	72	156	336	724

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: EACP
Road Name: Sierra Hwy.
Road Segment: s/o Avenue L-4

Project Name: L4 Avenue Warehouse
Job Number: 14925

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,911 vehicles
Peak Hour Percentage:	8.52%
Peak Hour Volume:	1,441 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	42.0 feet
Centerline Dist. to Observer:	42.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	10.6%	11.9%	96.45%
Medium Trucks:	82.1%	5.5%	12.5%	2.51%
Heavy Trucks:	76.8%	4.6%	18.6%	1.03%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	38.275
Medium Trucks:	38.043
Heavy Trucks:	38.066

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	-1.28	1.64	-1.20	*-4.60*	0.000	0.000
Medium Trucks:	82.40	-17.12	1.68	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	86.40	-20.99	1.67	-1.20	*-5.53*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	70.9	69.7	67.1	62.9	71.0	71.5
Medium Trucks:	65.8	64.8	59.1	57.9	65.9	66.2
Heavy Trucks:	65.9	64.6	58.5	59.7	67.0	67.2
Vehicle Noise:	73.0	71.9	68.2	65.4	73.3	73.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	70	151	325	701
CNEL:	74	159	343	739

Monday, February 27, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: E
Road Name: Avenue L West
Road Segment: w/o Sierra Hwy.

Project Name: L4 Avenue Warehouse
Job Number: 14925

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,340 vehicles
Peak Hour Percentage:	8.52%
Peak Hour Volume:	455 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	32.0 feet
Centerline Dist. to Observer:	32.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	10.6%	11.9%	96.58%
Medium Trucks:	82.1%	5.5%	12.5%	2.51%
Heavy Trucks:	76.8%	4.6%	18.6%	0.92%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	31.828
Medium Trucks:	31.548
Heavy Trucks:	31.576

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	58.73	-2.86	2.84	-1.20	*-4.51*	0.000	0.000
Medium Trucks:	70.80	-18.72	2.90	-1.20	*-4.86*	0.000	0.000
Heavy Trucks:	77.97	-23.08	2.89	-1.20	*-5.72*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	57.5	56.3	53.7	49.4	57.6	58.0
Medium Trucks:	53.8	52.8	47.1	45.9	53.9	54.2
Heavy Trucks:	56.6	55.3	49.2	50.4	57.7	57.9
Vehicle Noise:	61.0	59.8	55.7	53.7	61.5	61.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	9	19	40	87
CNEL:	9	20	42	91

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: E+P
Road Name: Avenue L West
Road Segment: w/o Sierra Hwy.

Project Name: L4 Avenue Warehouse
Job Number: 14925

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,634 vehicles
Peak Hour Percentage:	8.52%
Peak Hour Volume:	480 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	32.0 feet
Centerline Dist. to Observer:	32.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	10.6%	11.9%	95.33%
Medium Trucks:	82.1%	5.5%	12.5%	2.63%
Heavy Trucks:	76.8%	4.6%	18.6%	2.04%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	31.828
Medium Trucks:	31.548
Heavy Trucks:	31.576

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	58.73	-2.68	2.84	-1.20	*-4.51*	0.000	0.000
Medium Trucks:	70.80	-18.27	2.90	-1.20	*-4.86*	0.000	0.000
Heavy Trucks:	77.97	-19.37	2.89	-1.20	*-5.72*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	57.7	56.5	53.9	49.6	57.8	58.2
Medium Trucks:	54.2	53.3	47.5	46.3	54.4	54.6
Heavy Trucks:	60.3	59.1	52.9	54.1	61.5	61.6
Vehicle Noise:	62.8	61.6	56.9	55.9	63.6	63.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	12	26	55	119
CNEL:	12	27	57	124

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: EAC
Road Name: Avenue L West
Road Segment: w/o Sierra Hwy.

Project Name: L4 Avenue Warehouse
Job Number: 14925

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	6,565 vehicles
Peak Hour Percentage:	8.52%
Peak Hour Volume:	559 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	32.0 feet
Centerline Dist. to Observer:	32.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	10.6%	11.9%	96.58%
Medium Trucks:	82.1%	5.5%	12.5%	2.51%
Heavy Trucks:	76.8%	4.6%	18.6%	0.92%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	31.828
Medium Trucks:	31.548
Heavy Trucks:	31.576

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	58.73	-1.96	2.84	-1.20	*-4.51*	0.000	0.000
Medium Trucks:	70.80	-17.82	2.90	-1.20	*-4.86*	0.000	0.000
Heavy Trucks:	77.97	-22.18	2.89	-1.20	*-5.72*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	58.4	57.2	54.6	50.3	58.5	58.9
Medium Trucks:	54.7	53.7	48.0	46.8	54.8	55.1
Heavy Trucks:	57.5	56.2	50.1	51.3	58.6	58.8
Vehicle Noise:	61.9	60.7	56.6	54.6	62.4	62.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	10	21	46	100
CNEL:	10	22	48	104

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: EACP
Road Name: Avenue L West
Road Segment: w/o Sierra Hwy.

Project Name: L4 Avenue Warehouse
Job Number: 14925

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	6,859 vehicles
Peak Hour Percentage:	8.52%
Peak Hour Volume:	584 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	32.0 feet
Centerline Dist. to Observer:	32.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	10.6%	11.9%	95.55%
Medium Trucks:	82.1%	5.5%	12.5%	2.61%
Heavy Trucks:	76.8%	4.6%	18.6%	1.84%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	31.828
Medium Trucks:	31.548
Heavy Trucks:	31.576

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	58.73	-1.82	2.84	-1.20	*-4.51*	0.000	0.000
Medium Trucks:	70.80	-17.45	2.90	-1.20	*-4.86*	0.000	0.000
Heavy Trucks:	77.97	-18.97	2.89	-1.20	*-5.72*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	58.6	57.4	54.7	50.5	58.6	59.1
Medium Trucks:	55.0	54.1	48.3	47.1	55.2	55.4
Heavy Trucks:	60.7	59.5	53.3	54.5	61.9	62.0
Vehicle Noise:	63.4	62.3	57.6	56.5	64.1	64.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	13	28	60	130
CNEL:	14	29	63	135

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: E
Road Name: Avenue L East
Road Segment: w/o Sierra Hwy.

Project Name: L4 Avenue Warehouse
Job Number: 14925

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	3,826 vehicles
Peak Hour Percentage:	8.52%
Peak Hour Volume:	326 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	32.0 feet
Centerline Dist. to Observer:	32.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	10.6%	11.9%	96.58%
Medium Trucks:	82.1%	5.5%	12.5%	2.51%
Heavy Trucks:	76.8%	4.6%	18.6%	0.92%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	31.828
Medium Trucks:	31.548
Heavy Trucks:	31.576

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	58.73	-4.30	2.84	-1.20	*-4.51*	0.000	0.000
Medium Trucks:	70.80	-20.16	2.90	-1.20	*-4.86*	0.000	0.000
Heavy Trucks:	77.97	-24.53	2.89	-1.20	*-5.72*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	56.1	54.9	52.3	48.0	56.1	56.6
Medium Trucks:	52.3	51.4	45.6	44.4	52.5	52.7
Heavy Trucks:	55.1	53.9	47.7	49.0	56.3	56.5
Vehicle Noise:	59.6	58.4	54.2	52.3	60.1	60.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	7	15	32	70
CNEL:	7	16	34	73

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: E+P
Road Name: Avenue L East
Road Segment: w/o Sierra Hwy.

Project Name: L4 Avenue Warehouse
Job Number: 14925

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	3,844 vehicles
Peak Hour Percentage:	8.52%
Peak Hour Volume:	327 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	32.0 feet
Centerline Dist. to Observer:	32.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	10.6%	11.9%	96.59%
Medium Trucks:	82.1%	5.5%	12.5%	2.49%
Heavy Trucks:	76.8%	4.6%	18.6%	0.91%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	31.828
Medium Trucks:	31.548
Heavy Trucks:	31.576

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	58.73	-4.28	2.84	-1.20	*-4.51*	0.000	0.000
Medium Trucks:	70.80	-20.16	2.90	-1.20	*-4.86*	0.000	0.000
Heavy Trucks:	77.97	-24.53	2.89	-1.20	*-5.72*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	56.1	54.9	52.3	48.0	56.2	56.6
Medium Trucks:	52.3	51.4	45.6	44.4	52.5	52.7
Heavy Trucks:	55.1	53.9	47.7	49.0	56.3	56.5
Vehicle Noise:	59.6	58.4	54.2	52.3	60.1	60.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	7	15	32	70
CNEL:	7	16	34	73

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: EAC
Road Name: Avenue L East
Road Segment: w/o Sierra Hwy.

Project Name: L4 Avenue Warehouse
Job Number: 14925

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,085 vehicles
Peak Hour Percentage:	8.52%
Peak Hour Volume:	433 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	32.0 feet
Centerline Dist. to Observer:	32.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	10.6%	11.9%	96.58%
Medium Trucks:	82.1%	5.5%	12.5%	2.51%
Heavy Trucks:	76.8%	4.6%	18.6%	0.92%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	31.828
Medium Trucks:	31.548
Heavy Trucks:	31.576

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	58.73	-3.07	2.84	-1.20	*-4.51*	0.000	0.000
Medium Trucks:	70.80	-18.93	2.90	-1.20	*-4.86*	0.000	0.000
Heavy Trucks:	77.97	-23.29	2.89	-1.20	*-5.72*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	57.3	56.1	53.5	49.2	57.4	57.8
Medium Trucks:	53.6	52.6	46.9	45.7	53.7	54.0
Heavy Trucks:	56.4	55.1	49.0	50.2	57.5	57.7
Vehicle Noise:	60.8	59.6	55.4	53.5	61.3	61.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	8	18	39	84
CNEL:	9	19	41	88

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: EACP
Road Name: Avenue L East
Road Segment: w/o Sierra Hwy.

Project Name: L4 Avenue Warehouse
Job Number: 14925

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,103 vehicles
Peak Hour Percentage:	8.52%
Peak Hour Volume:	435 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	32.0 feet
Centerline Dist. to Observer:	32.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	10.6%	11.9%	96.59%
Medium Trucks:	82.1%	5.5%	12.5%	2.50%
Heavy Trucks:	76.8%	4.6%	18.6%	0.91%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	31.828
Medium Trucks:	31.548
Heavy Trucks:	31.576

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	58.73	-3.05	2.84	-1.20	*-4.51*	0.000	0.000
Medium Trucks:	70.80	-18.93	2.90	-1.20	*-4.86*	0.000	0.000
Heavy Trucks:	77.97	-23.29	2.89	-1.20	*-5.72*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	57.3	56.1	53.5	49.2	57.4	57.8
Medium Trucks:	53.6	52.6	46.9	45.7	53.7	54.0
Heavy Trucks:	56.4	55.1	49.0	50.2	57.5	57.7
Vehicle Noise:	60.8	59.6	55.5	53.5	61.3	61.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	8	18	39	84
CNEL:	9	19	41	88

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: E
Road Name: Avenue L-4
Road Segment: w/o Sierra Hwy.

Project Name: L4 Avenue Warehouse
Job Number: 14925

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	297 vehicles
Peak Hour Percentage:	8.52%
Peak Hour Volume:	25 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	32.0 feet
Centerline Dist. to Observer:	32.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	10.6%	11.9%	96.58%
Medium Trucks:	82.1%	5.5%	12.5%	2.51%
Heavy Trucks:	76.8%	4.6%	18.6%	0.92%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	31.828
Medium Trucks:	31.548
Heavy Trucks:	31.576

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	58.73	-15.40	2.84	-1.20	*-4.51*	0.000	0.000
Medium Trucks:	70.80	-31.26	2.90	-1.20	*-4.86*	0.000	0.000
Heavy Trucks:	77.97	-35.62	2.89	-1.20	*-5.72*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	45.0	43.8	41.2	36.9	45.0	45.5
Medium Trucks:	41.2	40.3	34.5	33.3	41.4	41.6
Heavy Trucks:	44.0	42.8	36.6	37.9	45.2	45.4
Vehicle Noise:	48.5	47.3	43.1	41.2	49.0	49.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	1	3	6	13
CNEL:	1	3	6	13

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: E+P
Road Name: Avenue L-4
Road Segment: w/o Sierra Hwy.

Project Name: L4 Avenue Warehouse
Job Number: 14925

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	777 vehicles
Peak Hour Percentage:	8.52%
Peak Hour Volume:	66 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	32.0 feet
Centerline Dist. to Observer:	32.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	10.6%	11.9%	82.74%
Medium Trucks:	82.1%	5.5%	12.5%	3.83%
Heavy Trucks:	76.8%	4.6%	18.6%	13.43%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	31.828
Medium Trucks:	31.548
Heavy Trucks:	31.576

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	58.73	-11.90	2.84	-1.20	*-4.51*	0.000	0.000
Medium Trucks:	70.80	-25.24	2.90	-1.20	*-4.86*	0.000	0.000
Heavy Trucks:	77.97	-19.79	2.89	-1.20	*-5.72*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	48.5	47.3	44.7	40.4	48.5	49.0
Medium Trucks:	47.2	46.3	40.6	39.4	47.4	47.6
Heavy Trucks:	59.9	58.6	52.5	53.7	61.0	61.2
Vehicle Noise:	60.4	59.2	53.4	54.1	61.4	61.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	9	19	40	86
CNEL:	9	19	41	88

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: EAC
Road Name: Avenue L-4
Road Segment: w/o Sierra Hwy.

Project Name: L4 Avenue Warehouse
Job Number: 14925

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	303 vehicles
Peak Hour Percentage:	8.52%
Peak Hour Volume:	26 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	32.0 feet
Centerline Dist. to Observer:	32.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	10.6%	11.9%	96.58%
Medium Trucks:	82.1%	5.5%	12.5%	2.51%
Heavy Trucks:	76.8%	4.6%	18.6%	0.92%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	31.828
Medium Trucks:	31.548
Heavy Trucks:	31.576

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	58.73	-15.31	2.84	-1.20	*-4.51*	0.000	0.000
Medium Trucks:	70.80	-31.17	2.90	-1.20	*-4.86*	0.000	0.000
Heavy Trucks:	77.97	-35.54	2.89	-1.20	*-5.72*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	45.1	43.9	41.2	37.0	45.1	45.6
Medium Trucks:	41.3	40.4	34.6	33.4	41.5	41.7
Heavy Trucks:	44.1	42.9	36.7	38.0	45.3	45.4
Vehicle Noise:	48.5	47.4	43.2	41.3	49.1	49.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	1	3	6	13
CNEL:	1	3	6	13

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: EACP
Road Name: Avenue L-4
Road Segment: w/o Sierra Hwy.

Project Name: L4 Avenue Warehouse
Job Number: 14925

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	783 vehicles
Peak Hour Percentage:	8.52%
Peak Hour Volume:	67 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	32.0 feet
Centerline Dist. to Observer:	32.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	10.6%	11.9%	82.85%
Medium Trucks:	82.1%	5.5%	12.5%	3.82%
Heavy Trucks:	76.8%	4.6%	18.6%	13.33%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	31.828
Medium Trucks:	31.548
Heavy Trucks:	31.576

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	58.73	-11.86	2.84	-1.20	*-4.51*	0.000	0.000
Medium Trucks:	70.80	-25.22	2.90	-1.20	*-4.86*	0.000	0.000
Heavy Trucks:	77.97	-19.79	2.89	-1.20	*-5.72*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	48.5	47.3	44.7	40.4	48.6	49.0
Medium Trucks:	47.3	46.3	40.6	39.4	47.4	47.7
Heavy Trucks:	59.9	58.6	52.5	53.7	61.0	61.2
Vehicle Noise:	60.4	59.2	53.4	54.1	61.4	61.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	9	19	40	86
CNEL:	9	19	41	88

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APPENDIX 9.1:

CADNAA OPERATIONAL NOISE MODEL INPUTS

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14925 - Avenue L4

CadnaA Noise Prediction Model: 14925-02.cna
Date: 02.03.23
Analyst: B. Lawson

Calculation Configuration

Configuration	
Parameter	**Value**
General	
Max. Error (dB)	**0.00**
Max. Search Radius (#(Unit,LEN))	**2000.01**
Min. Dist Src to Rcvr	**0.00**
Partition	
Raster Factor	**0.50**
Max. Length of Section (#(Unit,LEN))	**999.99**
Min. Length of Section (#(Unit,LEN))	**1.01**
Min. Length of Section (%)	**0.00**
Proj. Line Sources	**On**
Proj. Area Sources	**On**
Ref. Time	
Reference Time Day (min)	**960.00**
Reference Time Night (min)	**480.00**
Daytime Penalty (dB)	**0.00**
Recr. Time Penalty (dB)	**5.00**
Night-time Penalty (dB)	**10.00**
DTM	
Standard Height (m)	**0.00**
Model of Terrain	**Triangulation**
Reflection	
max. Order of Reflection	**2**
Search Radius Src	**100.00**
Search Radius Rcvr	**100.00**
Max. Distance Source - Rcvr	**1000.00 1000.00**
Min. Distance Rvcr - Reflector	**1.00 1.00**
Min. Distance Source - Reflector	**0.10**
Industrial (ISO 9613)	
Lateral Diffraction	**some Obj**
Obst. within Area Src do not shield	**On**
Screening	**Incl. Ground Att. over Barrier**
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	**3.0 20.0 0.0**
Temperature (#(Unit,TEMP))	**10**
rel. Humidity (%)	**70**
Ground Absorption G	**0.50**
Wind Speed for Dir. (#(Unit,SPEED))	**3.0**
Roads (TNM)	
Railways (FTA/FRA)	
Aircraft (???)	
Strictly acc. to AzB	

Receiver Noise Levels

Name	M.	ID	Level Lr			Limit. Value			Land Use			Height		Coordinates		
			Day	Night	CNEL	Day	Night	CNEL	Type	Auto	Noise Type			X	Y	Z
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)				(ft)		(ft)	(ft)	(ft)
RECEIVERS		R1	43.3	43.2	49.9	50.0	45.0	0.0				5.00	a	5996720.21	2552569.77	5.00
RECEIVERS		R2	42.5	42.5	49.2	50.0	45.0	0.0				5.00	a	5996935.88	2551680.04	5.00
RECEIVERS		R3	45.3	45.3	51.9	50.0	45.0	0.0				5.00	a	5994862.82	2550316.53	5.00
RECEIVERS		R4	39.3	39.3	46.0	50.0	45.0	0.0				5.00	a	5991668.06	2553182.20	5.00

Point Source(s)

Name	M.	ID	Result. PWL			Lw / Li			Operating Time			Height		Coordinates		
			Day	Evening	Night	Type	Value	norm.	Day	Special	Night			X	Y	Z
			(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	(ft)		(ft)	(ft)	(ft)
POINTSOURCE		AC01	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	5994985.53	2551687.87	50.00
POINTSOURCE		TRASH01	89.0	89.0	89.0	Lw	89		900.00	0.00	270.00	5.00	a	5994430.03	2551776.51	5.00
POINTSOURCE		CAR01	81.1	81.1	81.1	Lw	81.1					5.00	a	5994584.62	2552256.76	5.00
POINTSOURCE		CAR02	81.1	81.1	81.1	Lw	81.1					5.00	a	5994619.66	2552256.76	5.00
POINTSOURCE		CAR03	81.1	81.1	81.1	Lw	81.1					5.00	a	5994658.83	2552254.70	5.00
POINTSOURCE		CAR04	81.1	81.1	81.1	Lw	81.1					5.00	a	5994688.71	2552253.67	5.00
POINTSOURCE		CAR05	81.1	81.1	81.1	Lw	81.1					5.00	a	5994723.76	2552254.70	5.00
POINTSOURCE		CAR06	81.1	81.1	81.1	Lw	81.1					5.00	a	5994757.76	2552252.64	5.00
POINTSOURCE		CAR07	81.1	81.1	81.1	Lw	81.1					5.00	a	5994788.68	2552252.64	5.00
POINTSOURCE		CAR08	81.1	81.1	81.1	Lw	81.1					5.00	a	5994824.75	2552253.67	5.00
POINTSOURCE		CAR09	81.1	81.1	81.1	Lw	81.1					5.00	a	5994870.10	2552251.61	5.00
POINTSOURCE		CAR10	81.1	81.1	81.1	Lw	81.1					5.00	a	5994896.90	2552250.58	5.00
POINTSOURCE		CAR11	81.1	81.1	81.1	Lw	81.1					5.00	a	5994929.87	2552251.61	5.00
POINTSOURCE		CAR12	81.1	81.1	81.1	Lw	81.1					5.00	a	5994960.79	2552249.55	5.00

Name	M.	ID	Result. PWL			Lw / Li			Operating Time			Height		Coordinates		
			Day	Evening	Night	Type	Value	norm.	Day	Special	Night			X	Y	Z
			(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	(ft)		(ft)	(ft)	(ft)
POINTSOURCE		CAR13	81.1	81.1	81.1	Lw	81.1					5.00	a	5994992.74	2552247.49	5.00
POINTSOURCE		CAR14	81.1	81.1	81.1	Lw	81.1					5.00	a	5995041.18	2552152.67	5.00
POINTSOURCE		CAR15	81.1	81.1	81.1	Lw	81.1					5.00	a	5995042.21	2552094.96	5.00
POINTSOURCE		CAR16	81.1	81.1	81.1	Lw	81.1					5.00	a	5995041.18	2552065.07	5.00
POINTSOURCE		CAR17	81.1	81.1	81.1	Lw	81.1					5.00	a	5995041.18	2552039.31	5.00
POINTSOURCE		CAR18	81.1	81.1	81.1	Lw	81.1					5.00	a	5995040.15	2551999.11	5.00
POINTSOURCE		CAR19	81.1	81.1	81.1	Lw	81.1					5.00	a	5995041.18	2551966.14	5.00
POINTSOURCE		CAR20	81.1	81.1	81.1	Lw	81.1					5.00	a	5995040.15	2551938.31	5.00
POINTSOURCE		CAR21	81.1	81.1	81.1	Lw	81.1					5.00	a	5995038.09	2551899.15	5.00
POINTSOURCE		CAR22	81.1	81.1	81.1	Lw	81.1					5.00	a	5995039.12	2551868.23	5.00
POINTSOURCE		CAR23	81.1	81.1	81.1	Lw	81.1					5.00	a	5995039.12	2551845.56	5.00
POINTSOURCE		CAR24	81.1	81.1	81.1	Lw	81.1					5.00	a	5995033.97	2551776.51	5.00
POINTSOURCE		CAR25	81.1	81.1	81.1	Lw	81.1					5.00	a	5995031.90	2551739.40	5.00
POINTSOURCE		CAR26	81.1	81.1	81.1	Lw	81.1					5.00	a	5995029.84	2551709.52	5.00
POINTSOURCE		CAR27	81.1	81.1	81.1	Lw	81.1					5.00	a	5995082.40	2551683.75	5.00
POINTSOURCE		CAR28	81.1	81.1	81.1	Lw	81.1					5.00	a	5995081.37	2551712.61	5.00
POINTSOURCE		CAR29	81.1	81.1	81.1	Lw	81.1					5.00	a	5995081.37	2551742.50	5.00
POINTSOURCE		CAR30	81.1	81.1	81.1	Lw	81.1					5.00	a	5995082.40	2551773.41	5.00
POINTSOURCE		CAR31	81.1	81.1	81.1	Lw	81.1					5.00	a	5995083.43	2551805.36	5.00
POINTSOURCE		CAR32	81.1	81.1	81.1	Lw	81.1					5.00	a	5995083.43	2551854.83	5.00
POINTSOURCE		CAR33	81.1	81.1	81.1	Lw	81.1					5.00	a	5995084.46	2551885.75	5.00
POINTSOURCE		CAR34	81.1	81.1	81.1	Lw	81.1					5.00	a	5995085.50	2551929.03	5.00
POINTSOURCE		CAR35	81.1	81.1	81.1	Lw	81.1					5.00	a	5995083.43	2551956.86	5.00
POINTSOURCE		CAR36	81.1	81.1	81.1	Lw	81.1					5.00	a	5994514.54	2551738.37	5.00
POINTSOURCE		CAR37	81.1	81.1	81.1	Lw	81.1					5.00	a	5994514.54	2551708.49	5.00

Line Source(s)

Name	M.	ID	Result. PWL			Result. PWL'			Lw / Li			Operating Time			Moving Pt. Src				Height	
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Special	Night	Number			Speed		
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	Day	Evening	Night	(mph)	(ft)	
LINESOURCE		TRUCK01	93.2	93.2	93.2	78.0	78.0	78.0	Lw	93.2									8	a

Name	ID	Height				Coordinates			
		Begin		End		x	y	z	Ground
		(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
LINESOURCE	TRUCK01	8.00	a			5994486.70	2551759.11	8.00	0.00
						5994484.60	2551651.14	8.00	0.00

Area Source(s)

Name	M.	ID	Result. PWL			Result. PWL''			Lw / Li			Operating Time			Height	
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Special	Night	(ft)	
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)		
AREASOURCE		DOCK01	111.5	111.5	111.5	72.2	72.2	72.2	Lw	111.5					8	a

Name	ID	Height				Coordinates			
		Begin		End		x	y	z	Ground
		(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
AREASOURCE	DOCK01	8.00	a			5994614.51	2552233.06	8.00	0.00
						5994605.24	2551760.02	8.00	0.00
						5994544.43	2551760.02	8.00	0.00
						5994412.51	2551757.95	8.00	0.00
						5994424.88	2552237.18	8.00	0.00

Barrier(s)

Name	Sel.	M.	ID	Absorption		Z-Ext.	Cantilever		Height		Coordinates			
				left	right		horz.	vert.	Begin	End	x	y	z	Ground
						(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)

Building(s)

Name	Sel.	M.	ID	RB	Residents	Absorption	Height		Coordinates			
							Begin		x	y	z	Ground
							(ft)		(ft)	(ft)	(ft)	(ft)
BUILDING			BUILDING00001	x	0		45.00	a	5994614.51	2552233.06	45.00	0.00
									5995025.72	2552225.85	45.00	0.00
									5995009.23	2551663.14	45.00	0.00
									5994540.31	2551673.45	45.00	0.00
									5994544.43	2551760.02	45.00	0.00
									5994605.24	2551760.02	45.00	0.00

APPENDIX 10.1:

CADNAA CONSTRUCTION NOISE MODEL INPUTS

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14925 - Avenue L4

CadnaA Noise Prediction Model: 14925-02_Construction.cna
Date: 02.03.23
Analyst: B. Lawson

Calculation Configuration

Configuration	
Parameter	**Value**
General	
Max. Error (dB)	**0.00**
Max. Search Radius (#(Unit,LEN))	**2000.01**
Min. Dist Src to Rcvr	**0.00**
Partition	
Raster Factor	**0.50**
Max. Length of Section (#(Unit,LEN))	**999.99**
Min. Length of Section (#(Unit,LEN))	**1.01**
Min. Length of Section (%)	**0.00**
Proj. Line Sources	**On**
Proj. Area Sources	**On**
Ref. Time	
Reference Time Day (min)	**960.00**
Reference Time Night (min)	**480.00**
Daytime Penalty (dB)	**0.00**
Recr. Time Penalty (dB)	**5.00**
Night-time Penalty (dB)	**10.00**
DTM	
Standard Height (m)	**0.00**
Model of Terrain	**Triangulation**
Reflection	
max. Order of Reflection	**2**
Search Radius Src	**100.00**
Search Radius Rcvr	**100.00**
Max. Distance Source - Rcvr	**1000.00 1000.00**
Min. Distance Rvcr - Reflector	**1.00 1.00**
Min. Distance Source - Reflector	**0.10**
Industrial (ISO 9613)	
Lateral Diffraction	**some Obj**
Obst. within Area Src do not shield	**On**
Screening	**Incl. Ground Att. over Barrier**
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	**3.0 20.0 0.0**
Temperature (#(Unit,TEMP))	**10**
rel. Humidity (%)	**70**
Ground Absorption G	**0.50**
Wind Speed for Dir. (#(Unit,SPEED))	**3.0**
Roads (TNM)	
Railways (FTA/FRA)	
Aircraft (???)	
Strictly acc. to AzB	

Receiver Noise Levels

Name	M.	ID	Level Lr			Limit. Value			Land Use			Height		Coordinates		
			Day	Night	CNEL	Day	Night	CNEL	Type	Auto	Noise Type			X	Y	Z
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)				(ft)		(ft)	(ft)	(ft)
RECEIVERS		R1	52.7	52.7	59.3	50.0	45.0	0.0				5.00	a	5996720.21	2552569.77	5.00
RECEIVERS		R2	52.0	52.0	58.6	50.0	45.0	0.0				5.00	a	5996935.88	2551680.04	5.00
RECEIVERS		R3	54.4	54.4	61.1	50.0	45.0	0.0				5.00	a	5994862.82	2550316.53	5.00
RECEIVERS		R4	47.4	47.4	54.1	50.0	45.0	0.0				5.00	a	5991668.06	2553182.20	5.00

Point Source(s)

Name	M.	ID	Result. PWL			Lw / Li			Operating Time			Height		Coordinates		
			Day	Evening	Night	Type	Value	norm.	Day	Special	Night			X	Y	Z
			(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	(ft)		(ft)	(ft)	(ft)
		CONSTRUCTION01	115.0	115.0	115.0	Lw	115					5.00	a	5995040.89	2552268.04	5.00
		CONSTRUCTION02	115.0	115.0	115.0	Lw	115					5.00	a	5995095.31	2551810.24	5.00
		CONSTRUCTION03	115.0	115.0	115.0	Lw	115					5.00	a	5994813.59	2551659.78	5.00
		CONSTRUCTION04	115.0	115.0	115.0	Lw	115					5.00	a	5994391.00	2552284.05	5.00

Area Source(s)

Name	M.	ID	Result. PWL			Result. PWL''			Lw / Li			Operating Time			Height	
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Special	Night	(ft)	
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)		
SITEBOUNDARY		CONSTRUCTION	115.0	115.0	115.0	68.6	68.6	68.6	Lw	115					8	a

Name	ID	Height				Coordinates			
		Begin		End		x	y	z	Ground
		(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
SITEBOUNDARY	CONSTRUCTION	8.00	a			5994376.49	2552301.97	8.00	0.00
						5995062.17	2552290.22	8.00	0.00
						5995134.35	2551638.55	8.00	0.00
						5995059.36	2551640.04	8.00	0.00
						5994369.84	2551653.36	8.00	0.00

APPENDIX 10.2:

CADNAA NIGHTTIME CONCRETE POUR CONSTRUCTION NOISE MODEL INPUTS

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14925 - Avenue L4

CadnaA Noise Prediction Model: 14925-02_Concrete.cna
Date: 02.03.23
Analyst: B. Lawson

Calculation Configuration

Configuration	
Parameter	**Value**
General	
Max. Error (dB)	**0.00**
Max. Search Radius (#(Unit,LEN))	**2000.01**
Min. Dist Src to Rcvr	**0.00**
Partition	
Raster Factor	**0.50**
Max. Length of Section (#(Unit,LEN))	**999.99**
Min. Length of Section (#(Unit,LEN))	**1.01**
Min. Length of Section (%)	**0.00**
Proj. Line Sources	**On**
Proj. Area Sources	**On**
Ref. Time	
Reference Time Day (min)	**960.00**
Reference Time Night (min)	**480.00**
Daytime Penalty (dB)	**0.00**
Recr. Time Penalty (dB)	**5.00**
Night-time Penalty (dB)	**10.00**
DTM	
Standard Height (m)	**0.00**
Model of Terrain	**Triangulation**
Reflection	
max. Order of Reflection	**2**
Search Radius Src	**100.00**
Search Radius Rcvr	**100.00**
Max. Distance Source - Rcvr	**1000.00 1000.00**
Min. Distance Rvcr - Reflector	**1.00 1.00**
Min. Distance Source - Reflector	**0.10**
Industrial (ISO 9613)	
Lateral Diffraction	**some Obj**
Obst. within Area Src do not shield	**On**
Screening	**Incl. Ground Att. over Barrier**
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	**3.0 20.0 0.0**
Temperature (#(Unit,TEMP))	**10**
rel. Humidity (%)	**70**
Ground Absorption G	**0.50**
Wind Speed for Dir. (#(Unit,SPEED))	**3.0**
Roads (TNM)	
Railways (FTA/FRA)	
Aircraft (???)	
Strictly acc. to AzB	

Receiver Noise Levels

Name	M.	ID	Level Lr			Limit. Value			Land Use			Height		Coordinates		
			Day	Night	CNEL	Day	Night	CNEL	Type	Auto	Noise Type			X	Y	Z
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)				(ft)		(ft)	(ft)	(ft)
RECEIVERS		R1	38.0	38.0	44.6	50.0	45.0	0.0				5.00	a	5996720.21	2552569.77	5.00
RECEIVERS		R2	37.3	37.3	43.9	50.0	45.0	0.0				5.00	a	5996935.88	2551680.04	5.00
RECEIVERS		R3	39.7	39.7	46.4	50.0	45.0	0.0				5.00	a	5994862.82	2550316.53	5.00
RECEIVERS		R4	32.7	32.7	39.4	50.0	45.0	0.0				5.00	a	5991668.06	2553182.20	5.00

Point Source(s)

Name	M.	ID	Result. PWL			Lw / Li			Operating Time			Height		Coordinates		
			Day	Evening	Night	Type	Value	norm.	Day	Special	Night			X	Y	Z
			(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	(ft)		(ft)	(ft)	(ft)
		CONSTRUCTION01	100.3	100.3	100.3	Lw	100.3					5.00	a	5995040.89	2552268.04	5.00
		CONSTRUCTION02	100.3	100.3	100.3	Lw	100.3					5.00	a	5995095.31	2551810.24	5.00
		CONSTRUCTION03	100.3	100.3	100.3	Lw	100.3					5.00	a	5994813.59	2551659.78	5.00
		CONSTRUCTION04	100.3	100.3	100.3	Lw	100.3					5.00	a	5994391.00	2552284.05	5.00

Area Source(s)

Name	M.	ID	Result. PWL			Result. PWL''			Lw / Li			Operating Time			Height	
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Special	Night	(ft)	
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)		
SITEBOUNDARY		CONSTRUCTION	100.3	100.3	100.3	53.9	53.9	53.9	Lw	100.3					8	a

Name	ID	Height			Coordinates			
		Begin		End	x	y	z	Ground
		(ft)		(ft)	(ft)	(ft)	(ft)	(ft)
SITEBOUNDARY	CONSTRUCTION	8.00	a		5994376.49	2552301.97	8.00	0.00
					5995062.17	2552290.22	8.00	0.00
					5995134.35	2551638.55	8.00	0.00
					5995059.36	2551640.04	8.00	0.00
					5994369.84	2551653.36	8.00	0.00