7400 Slauson Avenue

NOISE AND VIBRATION ANALYSIS

CITY OF COMMERCE

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LIST OF ABBREVIATED TERMS

(1)	Reference
ANSI	American National Standards Institute
CEQA	California Environmental Quality Act
CNEL	Community Noise Equivalent Level
dBA	A-weighted decibels
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
INCE	Institute of Noise Control Engineering
L_{eq}	Equivalent continuous (average) sound level
PPV	Peak Particle Velocity
Project	7400 Slauson Avenue
RMS	Root-mean-square
VdB	Vibration Decibels

EXECUTIVE SUMMARY

Urban Crossroads, Inc. has prepared this noise study to determine the noise exposure and the necessary noise mitigation measures, if any, for the proposed 7400 Slauson Avenue development ("Project") in the City of Commerce. The proposed Project is to consist of a 296,166 square foot building with warehousing use. This study has been prepared consistent with applicable City of Commerce noise standards, and significance criteria based on guidance provided by Appendix G of the California Environmental Quality Act (CEQA) Guidelines. (1)

The results of this 7400 Slauson Avenue Noise Impact Analysis are summarized below based on the significance criteria in Section 4 of this report consistent with Appendix G of the California Environmental Quality Act (CEQA) Guidelines. (1). 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 described below.

TABLE ES-1: SUMMARY OF CEQA SIGNIFICANCE FINDINGS

Analysis	Report Section	Significance Findings	
		Unmitigated	Mitigated
Operational Noise	7	*Less Than Significant*	-
Construction Noise	8	*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 7400 Slauson Avenue ("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 noise and vibration analysis, and evaluates the future exterior noise environment.

1.1 SITE LOCATION

The proposed 7400 Slauson Avenue Project is in the City of Commerce, as shown on Exhibit 1-A. The Interstate 5 (I-5) highway is located approximately 0.19 miles northeast of the Project site boundary. The Project is located adjacent to existing commercial uses to the north and west with the nearest noise sensitive residential uses located to the east and south. The Site is currently occupied by Gehr Industries and includes a combination of heavy truck and load docking noise source activities.

1.2 PROJECT DESCRIPTION

The proposed Project is to consist of a 296,166 square foot building with warehousing use as shown on Exhibit 1-B. The on-site Project-related noise sources are expected to include: loading dock activity, tractor trailer parking, roof-top air conditioning units, trash enclosure activity, parking lot vehicle movements, and truck movements. This noise analysis is intended to describe the noise level impacts associated with the expected typical operational activities at the Project site.

EXHIBIT 1-A: LOCATION MAP

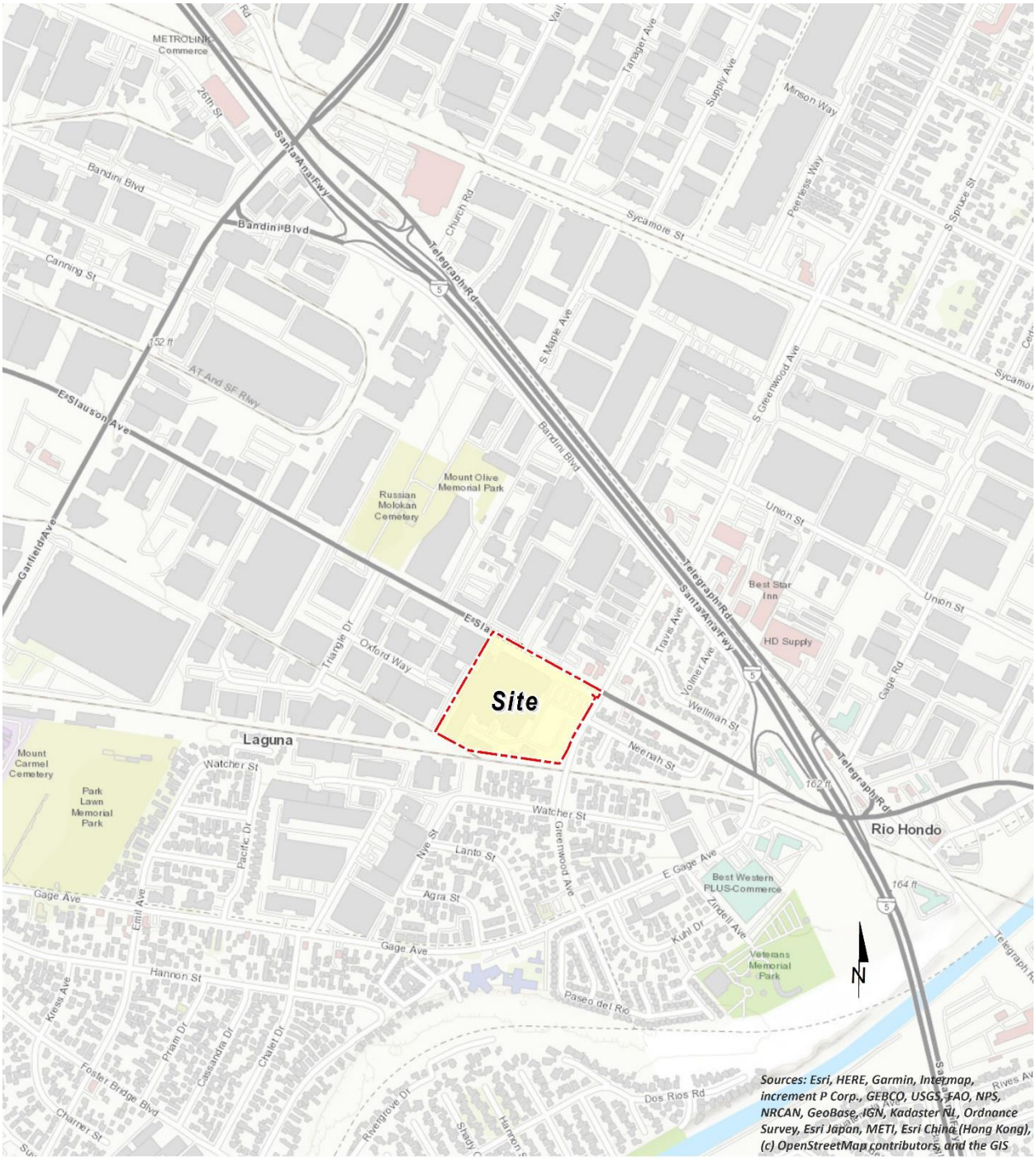
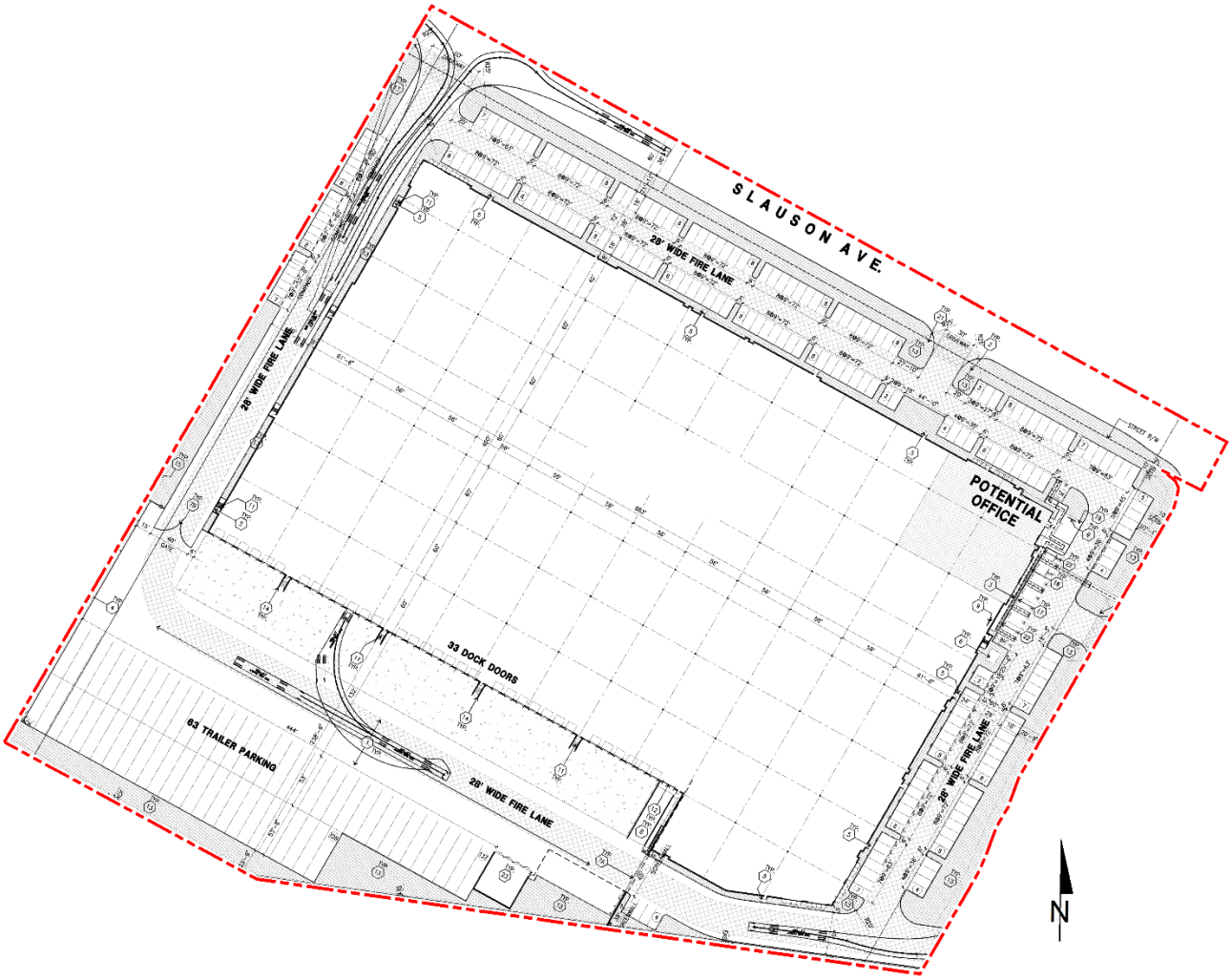


EXHIBIT 1-B: SITE PLAN



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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 100 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 commonly used figure 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 (typically one hour) 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 sound appears louder. CNEL does not represent the actual sound level heard at any time, but rather represents the total sound exposure. The City of Commerce 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 in height, 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. (4)

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 up to 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 be high enough and long enough to block the path of the noise source. (4)

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. (5)

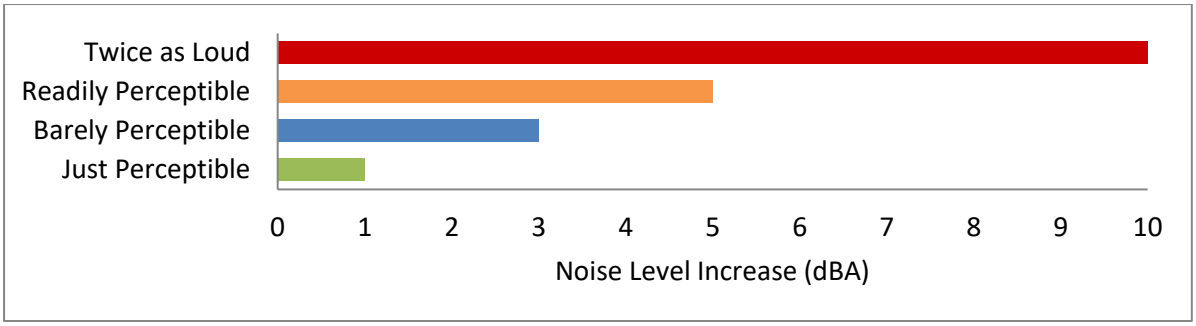
2.7 COMMUNITY RESPONSE TO NOISE

Community responses to noise may range from registering a complaint by telephone or letter, to initiating court action, depending upon everyone's susceptibility to noise and personal attitudes about noise. Several factors are related to the level of community annoyance including:

- Fear associated with noise producing activities;
- Socio-economic status and educational level;
- Perception that those affected are being unfairly treated;
- Attitudes regarding the usefulness of the noise-producing activity;
- Belief that the noise source can be controlled.

Approximately ten 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 will occur. Twenty-five percent of the population will not complain even in very severe noise environments. Thus, a variety of reactions can be expected from people exposed to any given noise environment. (6) Surveys have shown that about ten percent of the people exposed to traffic noise of 60 dBA will report being highly annoyed with the noise, and each increase of one dBA is associated with approximately two percent more people being highly annoyed. When traffic noise exceeds 60 dBA or aircraft noise exceeds 55 dBA, people may begin to complain. (6) 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



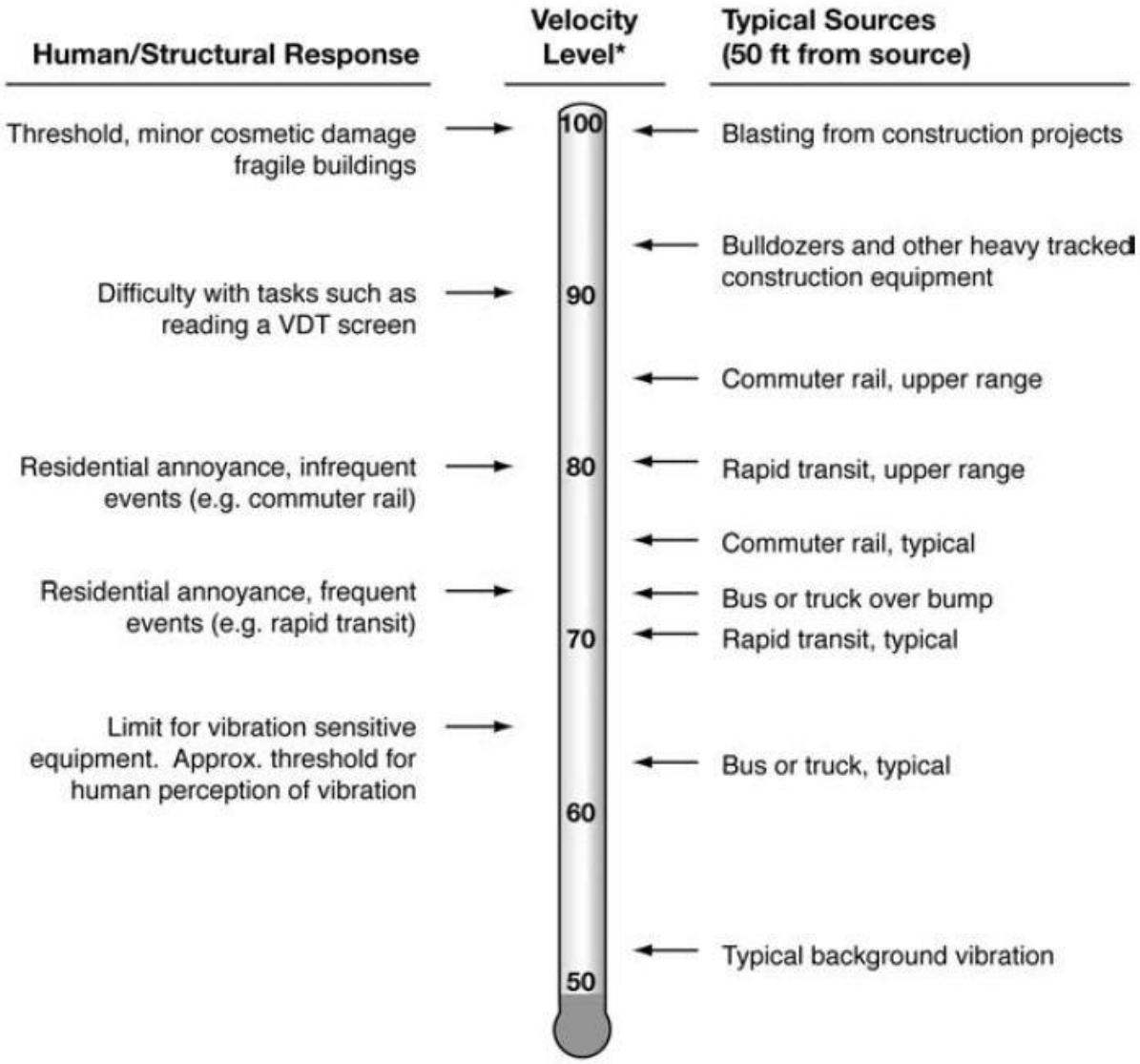
2.8 VIBRATION

Per the Federal Transit Administration (FTA) *Transit Noise and Vibration Impact Assessment Manual* (7), 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). (8) The purpose of the Noise 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 COMMERCE GENERAL PLAN NOISE ELEMENT

The City of Commerce has adopted a Safety Element of the General Plan in January 2008 to control and abate environmental noise, and to protect the citizens from excessive exposure to noise. (9) The Safety Element includes those issues mandated by the State for consideration in noise elements. and specifies the maximum allowable exterior noise levels for new developments impacted by transportation noise sources such as arterial roads, freeways, airports, and railroads. In addition, the Safety Element identifies several polices to minimize the impacts of excessive noise levels throughout the community and establishes noise level requirements for all land uses. To protect City of Commerce residents from excessive noise, the Safety Element contains the following policies related to the Project:

- Safety Policy 6.1. *The city of Commerce will ensure that residents are protected from harmful and irritating noise sources to the greatest extent possible.*
- Safety Policy 6.3. *The city of Commerce will continue to enforce the existing city's noise control ordinance.*
- Safety Policy 6.4. *The city of Commerce will incorporate noise considerations into land use planning decisions.*
- Safety Policy 6.5. *The city of Commerce will prohibit noise-intensive land uses adjacent to or near residential areas, schools, convalescent homes, and other noise-sensitive receptors.*

- Safety Policy 6.7. *The city of Commerce will require additional landscaping in industrial and commercial projects to help reduce noise impacts through increased setbacks.*
- Safety Policy 6.8. *The city of Commerce will evaluate and implement measures to control stationary non-transportation noise impacts.*

To ensure noise-sensitive land uses are protected from high levels of noise the City of Commerce has developed its own land use compatibility standards, based on recommended parameters from the Governor's Office of Planning and Research (OPR) (8). Table 7-1 of the Safety Element identifies standards to evaluate noise and land use compatibility. The City's Land Use Compatibility standards use the CNEL noise descriptor and are intended to be applicable for land use designations exposed to noise levels generated by transportation related sources. These guidelines indicate the compatibility of noise-sensitive land uses in areas subject to noise levels of 55 to 80 dB CNEL. Residential uses are *normally unacceptable* in areas exceeding 70 dB CNEL; and *conditionally acceptable* between 55-70 dB CNEL for low-density single-family dwelling units, duplexes, and mobile homes, and between 60-70 dB CNEL for multiple-family units. Schools, libraries, hospitals, and nursing homes are treated as noise-sensitive land uses, requiring acoustical studies within areas exceeding 60 dB CNEL. Commercial/professional office buildings and industrial land uses are *normally unacceptable* in areas exceeding 75 dB CNEL and are *conditionally acceptable* within 67 to 78 dB CNEL (for commercial/professional offices only).

To control stationary noise sources from Industrial, commercial, and manufacturing facilities that may affect sensitive land uses, Safety Policy 6.3 requires that City continue to enforce the noise control ordinance. The City's Noise Control Ordinance, together with the General Plan, establishes exterior noise standards for a wide range of land uses in the city.

3.3 CITY OF COMMERCE MUNICIPAL CODE STANDARDS

To analyze noise impacts originating from a designated fixed location or private property such as the 7400 Slauson Avenue Project, stationary-source (operational) noise levels and noise from construction activities are typically evaluated against standards established under the City's Municipal Code.

3.3.1 OPERATIONAL NOISE STANDARDS

Section 19.19.060 of the City of Commerce Municipal Code contains the exterior noise level standards for residential, commercial, and industrial land uses as shown on Table 3-1.

TABLE 3-1: OPERATIONAL NOISE STANDARDS

City	Land Use	Exterior Noise Level Standards (dBA Leq)[3]		
		Daytime	Evening	Nighttime
Commerce[1]	Residential	55	50	45
	Commercial	65	65	55
	Industrial	70	70	70

[1] City of Commerce Municipal Code, Section 19.19.060 Noise (Appendix 3.1).
[2] Leq represents a steady state sound level containing the same total energy as a time varying signal over a given period.
"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.

For the noise sensitive residential land uses, the Municipal Code identifies a noise level standard of 55 dBA L_{eq}, during the daytime hours of 7:00 a.m. to 7:00 p.m., 50 dBA L_{eq} during the evening hours of 7:00 p.m. to 10:00 p.m. and 45 dBA L_{eq} during the nighttime hours of 10:00 p.m. to 7:00 a.m. (10) For commercial uses the municipal codes identifies a daytime (7:00 a.m. to 10:00 p.m.) noise level limit of 65 dBA L_{eq} and a nighttime noise level limit of 55 dBA L_{eq}. For industrial uses the municipal codes identifies a noise level limit of 70 dBA L_{eq} anytime. Further, Section 19.19.160[E] indicates that if the existing ambient noise level already exceeds any of the exterior noise level limit categories, then the standard shall be adjusted to reflect the ambient conditions. The City of Commerce Development Code Performance Standards for noise are included in Appendix 3.1.

3.3.2 CONSTRUCTION NOISE STANDARDS

To control noise impacts associated with the construction of the proposed Project, the City of Commerce Municipal Code has established limits to the hours of operation. Section 19.19.160[K][3] indicates that no person or organization within 500 feet of a residential zone *shall operate equipment or perform any outside construction or repair work on buildings, structures, or projects, or operate any pile driver, steam shovel, pneumatic hammer, derrick, steam, electric hoist, or other construction type device between the hours of ten p.m. and seven a.m., unless a permit has been obtained from the city.* Neither the General Plan nor 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 periodic noise increase*. 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} as a reasonable threshold for noise sensitive residential land use. (7 p. 179)

3.4 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. (7)

To analyze vibration impacts originating from the operation and construction of the 7400 Slauson Avenue, vibration-generating activities are appropriately evaluated against standards established under a City's Municipal Code, if such standards exist. However, the City of Commerce does not identify specific vibration level limits. Therefore, for analysis purposes, the Caltrans *Transportation and Construction Vibration Guidance Manual*, (11 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 adjacent to the Project site can best be described as "older residential structures" with a maximum acceptable continuous vibration threshold of 0.3 PPV (in/sec).

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?

While the City of Commerce General Plan Guidelines provide direction on noise compatibility and establish noise standards by land use type that are sufficient to assess the significance of noise impacts, they do not define the levels at which increases are considered substantial for use under Guideline A. CEQA Appendix G Guideline C applies to nearby public and private airports, if any, and the Project's land use compatibility.

4.1 CEQA GUIDELINES NOT FURTHER ANALYZED

The Project site is not located within two miles of a public airport or within an airport land use plan. The closest airport is the San Gabriel Valley Airport located approximately 8.81 miles northeast of the Project site. As such, the Project site would not be exposed to excessive noise levels from airport operations, and therefore, impacts are considered *less than significant,* and no further noise analysis is conducted in relation to Guideline C.

4.2 INCREMENTAL NOISE LEVEL INCREASES

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 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 the noise impact significant.* (12) 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 exceeds the previously existing ambient noise level, the less acceptable the new noise will typically be judged. The Federal Interagency Committee on Noise (FICON) (13) 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}). The FICON guidance provides an established source of criteria to assess the impacts of substantial temporary or permanent increase in 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 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 (14 p. 2_48).

4.3 SIGNIFICANCE CRITERIA

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.

TABLE 4-1: SIGNIFICANCE CRITERIA SUMMARY

Analysis	Condition(s)	Significance Criteria	
		Daytime	Nighttime
Operational	Exterior Noise Level Standards	See Table 3-1	
	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	Restricted between 10:00 p.m. to 7:00 a.m.[2]		
	Noise Level Threshold[3]	80 dBA L_{eq}	
	Vibration Level Threshold[4]	0.3 PPV (in/sec)	

[1] FICON, 1992.
[2] City of Commerce Municipal Code, Section 19.19.060 Noise (Appendix 3.1).
[3] Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual.
[4] Caltrans Transportation and Construction Vibration 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.

5 EXISTING NOISE LEVEL MEASUREMENTS

To assess the existing noise level environment, 24-hour noise level measurements were taken at five 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 Tuesday, June 15th, 2021. 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. (15)

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*. (7)

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. (7) 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 7:00 p.m.), evening (7:00 p.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.

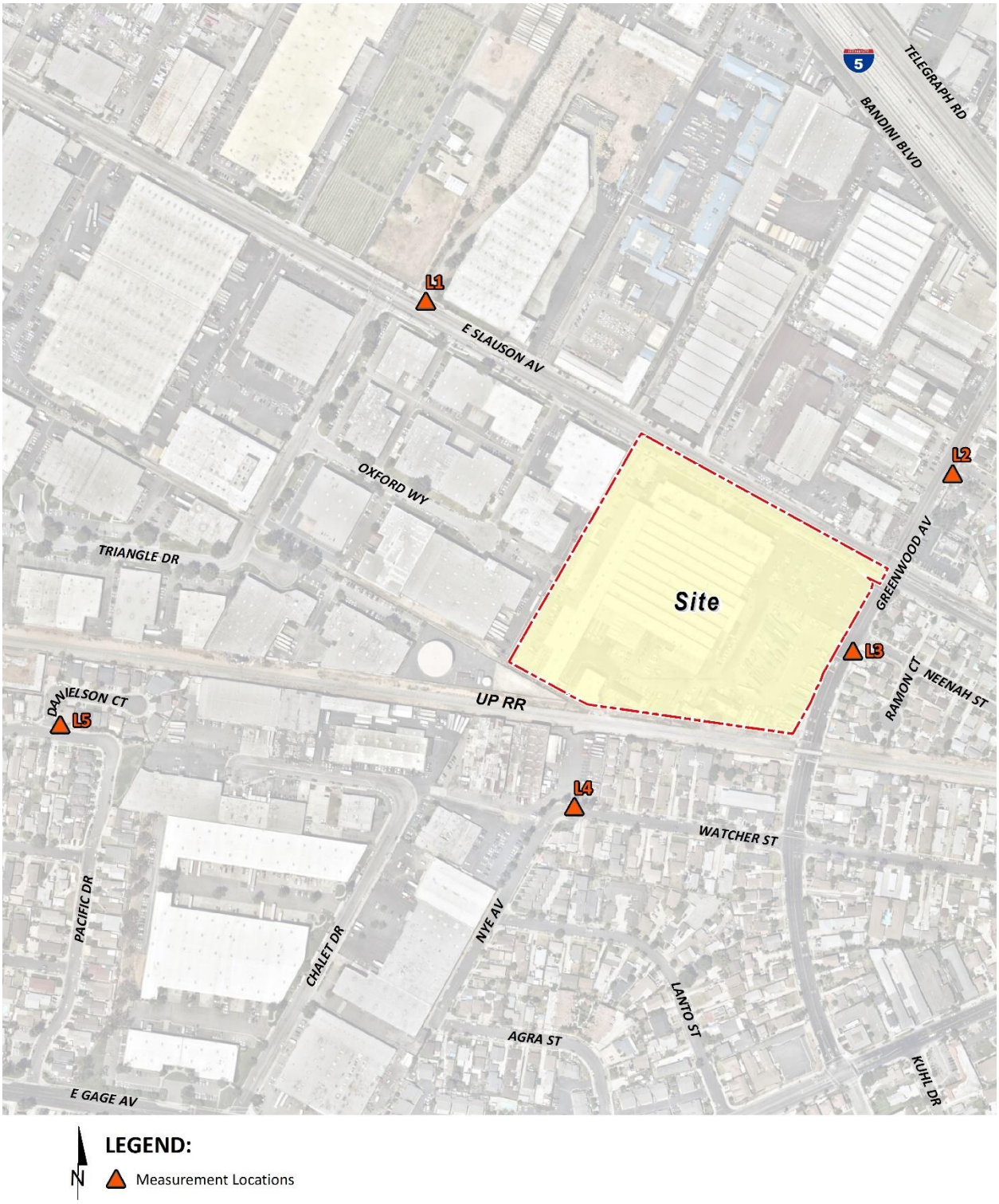
TABLE 5-1: 24-HOUR AMBIENT NOISE LEVEL MEASUREMENTS

Location[1]	Description	Energy Average Noise Level (dBA L_{eq})[2]		
		Daytime	Evening	Nighttime
L1	North of the Project site on East Slauson Avenue near Mount Olive Memorial Park Jewish Cemetery located at 7231 Slauson Avenue.	72.2	69.4	69.5
L2	Northeast of the Project site on Greenwood Avenue near a single-family residence located at 7508 Wellman Street.	67.1	62.8	62.8
L3	East of the Project site on Greenwood Avenue near a single-family residence located at 5829 Ramon Court.	65.5	63.8	63.5
L4	South of the Project site on Watcher Street near a single-family residence located at 6936 Watcher Street.	57.3	56.9	54.4
L5	Southwest of the Project site on Danielson Court near a single-family residence located at 6730 Danielson Court.	55.5	55.9	51.6

[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 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 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 RECEIVER LOCATIONS

To assess the potential for long-term operational and short-term construction noise impacts, the following receiver locations, as shown on Exhibit 6-A, were identified as representative locations for analysis. 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, five receiver locations in the vicinity of the Project site were identified. All distances are measured from the Project site boundary to the outdoor living areas (e.g., private backyards) or at the building façade, whichever is closer to the Project site. 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. 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 noise sensitive Mount Olive Memorial Park Jewish Cemetery at 7231 Slauson Ave, approximately 813 feet northwest of the Project site. Receiver R1 is placed at the cemetery. A 24-hour noise measurement was taken near this location, L1, to describe the existing ambient noise environment.

R2: Location R2 represents the existing noise sensitive residence at 7532 Wellman Street approximately 291 feet east of the Project site. Receiver R2 is placed at the private outdoor living area (backyard). A 24-hour noise measurement was taken near this location, L2, to describe the existing ambient noise environment.

R3: Location R3 represents the existing noise sensitive residence at 5831 Ramon Court, approximately 79 feet east of the Project site. Receiver R3 is placed at the private outdoor living area (backyard). A 24-hour noise measurement was taken, L3, to describe the existing ambient noise environment.

R4: Location R4 represents the existing noise sensitive residence 5905 Greenwood Ave, approximately 91 feet south of the Project site. Receiver R4 is placed at the private outdoor living area (backyard). A 24-hour noise measurement was taken, L4, to describe the existing ambient noise environment.

R5: Location R5 represents the existing noise sensitive residence 6785 Danielson Court, approximately 1,002 feet southwest of the Project site. Receiver R5 is placed at the

private outdoor living area (backyard). A 24-hour noise measurement was taken, L5, to describe the existing ambient noise environment.

EXHIBIT 6-A: RECEIVER LOCATIONS

7 OPERATIONAL NOISE ANALYSIS

This section analyzes the potential stationary-source operational noise impacts at the nearest receiver locations, identified in Section 6, resulting from the operation of the proposed 7400 Slauson Avenue Project. Exhibit 7-A identifies the noise source locations used to assess the operational noise levels.

7.1 OPERATIONAL NOISE SOURCES

This operational noise analysis is intended to describe noise level impacts associated with the expected typical of daytime and nighttime activities at the Project site. To present the potential worst-case noise conditions, this analysis assumes the Project would be operational 24 hours per day, seven days per week. Consistent with similar warehouse uses, the Project business operations would primarily be conducted within the enclosed buildings, except for traffic movement, parking, as well as loading and unloading of trucks at designated loading bays. The on-site Project-related noise sources are expected to include: loading dock activity, tractor trailer parking, roof-top air conditioning units, trash enclosure activity, parking lot vehicle movements, and truck movements.

7.2 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 7-1 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, tractor trailer parking, roof-top air conditioning units, trash enclosure activity, parking lot vehicle movements, and truck movements all operating continuously. These sources of noise activity will likely vary throughout the day.

7.2.1 MEASUREMENT PROCEDURES

The reference noise level measurements presented in this section were collected using a Larson Davis LxT Type 1 precisions sound level meter (serial number 01146). The LxT sound level meter was calibrated using a Larson-Davis calibrator, Model CAL 200, was programmed in "slow" mode to record noise levels in "A" weighted form and was located at approximately five feet above the ground elevation for each measurement. 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. (15)

EXHIBIT 7-A: OPERATIONAL NOISE SOURCE LOCATIONS

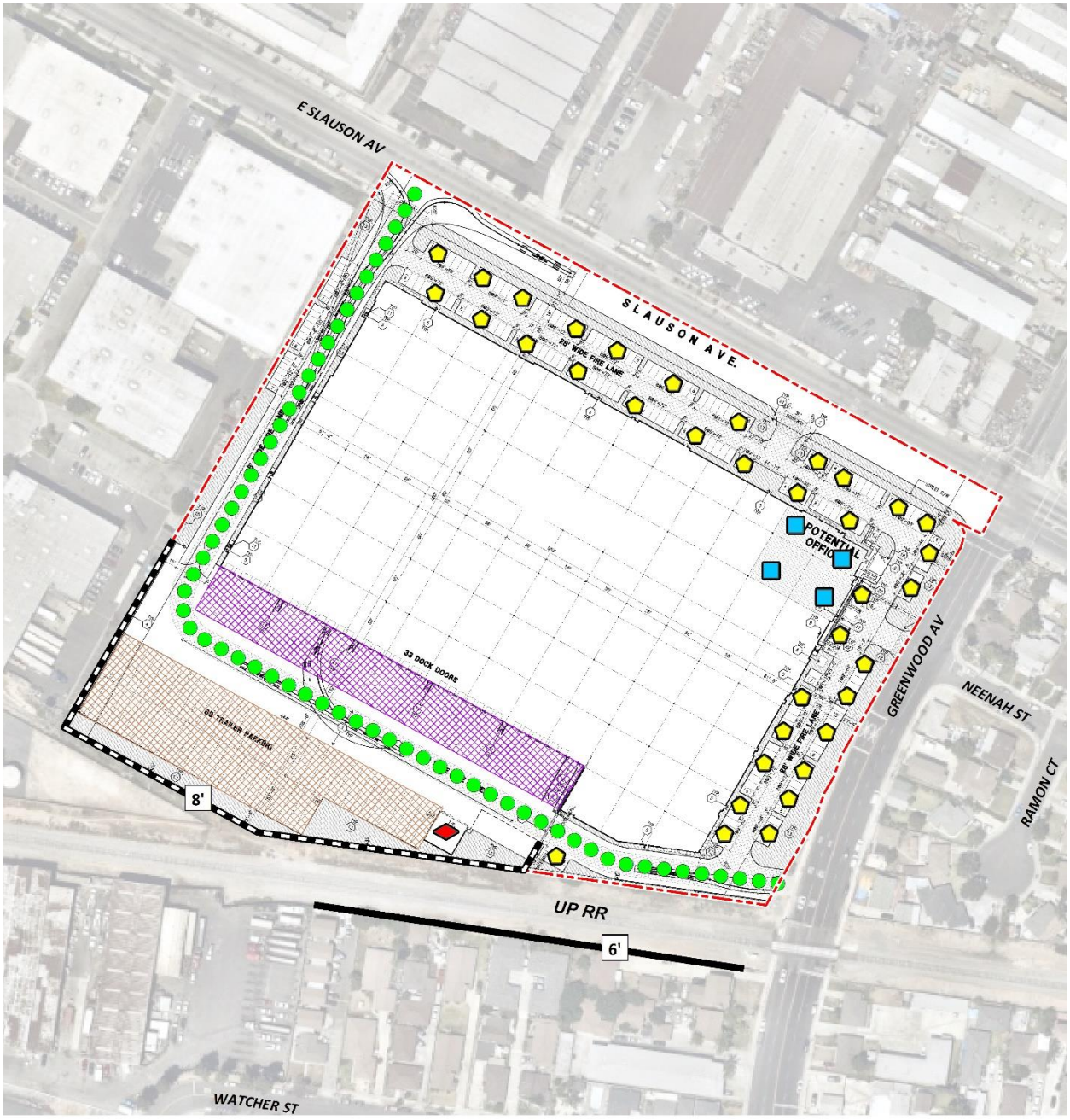

TABLE 7-1: REFERENCE NOISE LEVEL MEASUREMENTS

Noise Source[1]	Noise Source Height (Feet)	Min./Hour[2]			Reference Noise Level (dBA L_{eq}) @ 50 Feet	Sound Power Level (dBA)[3]
		Day	Evening	Night		
Loading Dock Activity	8'	60	60	60	62.8	103.4
Tractor Trailer Parking	8'	60	60	60	62.8	103.4
Roof-Top Air Conditioning Units	5'	39	39	28	57.2	88.9
Trash Enclosure Activity	5'	60	60	30	57.3	89.0
Parking Lot Vehicle Movements	5'	60	60	60	56.1	79.0
Truck Movements	8'	60	60	60	58.0	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.; "Evening" = 7:00 p.m. to 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.

7.2.2 LOADING DOCK ACTIVITY

A short-term reference noise level measurement was collected on by Urban Crossroads, Inc. at the Motivational Fulfillment & Logistics Services distribution facility located at 6810 Bickmore Avenue in the City of Chino. The noise level measurement represents the typical weekday dry goods logistics warehouse operation in a single building, of roughly 285,000 square feet, with a loading dock area on the western side of the building façade. Up to ten active trucks were observed in the loading dock area including a combination of track trailer semi-trucks, two-axle delivery trucks, and background forklift operations. The unloading/docking activity noise level measurement was taken over a fifteen-minute period and represents multiple noise sources taken from the center of loading dock activities generating a reference noise level of reference noise level of 62.8 dBA L_{eq} at a uniform reference distance of 50 feet.

The reference noise level measurement includes employees unloading a docked truck container included the squeaking of the truck's shocks when weight was removed from the truck, employees playing music over a radio, as well as a forklift horn and backup alarm. In addition, during the noise level measurement a truck entered the loading dock area and proceeded to reverse and dock in a nearby loading bay, adding truck engine, idling, air brakes noise, in addition to on-going idling of an already docked truck. Loading dock activity is estimated during all the daytime, evening, and nighttime hours.

7.2.3 TRACTOR TRAILER PARKING

The tractor trailer parking activity noise levels are consistent with the noise source activities at the loading dock. At a uniform reference distance of 50 feet, Urban Crossroads collected a reference noise level of 62.8 dBA L_{eq}. Noise associated with tractor trailer parking activity is expected during all the daytime, evening, and nighttime hours.

7.2.4 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 buildings.

7.2.5 TRASH ENCLOSURE ACTIVITY

To describe the noise levels associated with a trash enclosure activity, Urban Crossroads 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. Typical trash enclosure activities are estimated to occur for 10 minutes per hour.

7.2.6 PARKING LOT VEHICLE MOVEMENTS

To describe the on-site parking lot activity a reference noise level of 56.1 dBA L_{eq} at 50 feet is used. 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 sales staff talking to customers.

7.2.7 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.

7.3 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 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 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 noise analysis to account for mixed ground representing a combination of hard and soft surfaces. Appendix 7.1 includes the detailed noise model inputs used to estimate the Project operational noise levels presented in this section including the existing and proposed noise barriers.

7.4 PROJECT OPERATIONAL NOISE LEVELS

Using the reference noise levels to represent the proposed Project operations that include loading dock activity, tractor trailer parking, roof-top air conditioning units, trash enclosure activity, parking lot vehicle movements, and truck movements, Urban Crossroads, Inc. calculated the unmitigated 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. The operational noise level presented below do not include the planned 8-foot loading dock screenwall shown. Table 7-2 shows the unmitigated Project operational noise levels during the daytime hours of 7:00 a.m. to 7:00 p.m. The daytime hourly noise levels at the off-site receiver locations are expected to range from 37.9 to 48.5 dBA L_{eq}.

TABLE 7-2: UNMITIGATED DAYTIME PROJECT OPERATIONAL NOISE LEVELS

Noise Source[1]	Operational Noise Levels by Receiver Location (dBA Leq)				
	R1	R2	R3	R4	R5
Loading Dock Activity	30.8	17.9	23.8	45.4	38.7
Tractor Trailer Parking	39.0	21.6	24.4	44.0	40.0
Roof-Top Air Conditioning Units	23.3	33.1	36.4	22.7	20.3
Trash Enclosure Activity	8.2	5.7	15.5	34.2	22.0
Parking Lot Vehicle Movements	27.0	35.5	44.4	32.2	14.9
Truck Movements	29.1	25.2	36.1	38.2	28.4
Total (All Noise Sources)	**40.3**	**37.9**	**45.6**	**48.5**	**42.6**

[1] See Exhibit 7-A for the noise source locations. CadnaA noise model calculations are included in Appendix 7.1.

Tables 7-3 shows the unmitigated Project operational noise levels during the evening hours of 7:00 p.m. to 10:00 p.m. The evening hourly noise levels at the off-site receiver locations are expected to range from 37.9 to 48.5 dBA L_{eq}.

TABLE 7-3: UNMITIGATED EVENING PROJECT OPERATIONAL NOISE LEVELS

Noise Source[1]	Operational Noise Levels by Receiver Location (dBA Leq)				
	R1	R2	R3	R4	R5
Loading Dock Activity	30.8	17.9	23.8	45.4	38.7
Tractor Trailer Parking	39.0	21.6	24.4	44.0	40.0
Roof-Top Air Conditioning Units	23.3	33.1	36.4	22.7	20.3
Trash Enclosure Activity	8.2	5.7	15.5	34.2	22.0
Parking Lot Vehicle Movements	27.0	35.5	44.4	32.2	14.9
Truck Movements	29.1	25.2	36.1	38.2	28.4
Total (All Noise Sources)	**40.3**	**37.9**	**45.6**	**48.5**	**42.6**

[1] See Exhibit 7-A for the noise source locations. CadnaA noise model calculations are included in Appendix 7.1.

Tables 7-4 shows the unmitigated 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 37.5 to 48.4 dBA L_{eq}. The differences between the daytime, evening and nighttime noise levels are largely related to the estimated duration of noise activity as outlined in Table 7-1 and Appendix 7.1.

TABLE 9-3: UNMITIGATED NIGHTTIME PROJECT OPERATIONAL NOISE LEVELS

Noise Source[1]	Operational Noise Levels by Receiver Location (dBA Leq)				
	R1	R2	R3	R4	R5
Loading Dock Activity	30.8	17.9	23.8	45.4	38.7
Tractor Trailer Parking	39.0	21.6	24.4	44.0	40.0
Roof-Top Air Conditioning Units	21.8	31.7	35.0	21.2	18.9
Trash Enclosure Activity	5.2	2.7	12.4	31.2	19.0
Parking Lot Vehicle Movements	27.0	35.5	44.4	32.2	14.9
Truck Movements	29.1	25.2	36.1	38.2	28.4
Total (All Noise Sources)	**40.3**	**37.5**	**45.5**	**48.4**	**42.6**

[1] See Exhibit 7-A for the noise source locations. CadnaA noise model calculations are included in Appendix 7.1.

7.5 UNMITIGATED PROJECT OPERATIONAL NOISE LEVEL COMPLIANCE

To demonstrate compliance with local noise regulations, the unmitigated Project-only operational noise levels are evaluated against exterior noise level thresholds and the adjusted standards to reflect the ambient noise levels based on the City of Commerce exterior noise level standards at nearby noise-sensitive receiver locations. Table 7-5 shows the unmitigated operational noise levels associated with the 7400 Slauson Avenue Project will not exceed the City of Commerce daytime, evening, and nighttime exterior noise level standards adjusted to reflect the ambient noise conditions. The project will also benefit from the planned 8-foot high screenwall that is not included as part of the unmitigated Project operational noise analysis. Therefore, the operational noise impacts are considered *less than significant* at the nearby noise-sensitive receiver locations.

TABLE 7-5: OPERATIONAL NOISE LEVEL COMPLIANCE

Receiver Location[1]	Measurement Location	Project Operational Noise Levels (dBA Leq)[2]			Noise Level Standards (dBA Leq)[3]			Noise Level Standards Exceeded?[4]		
		Daytime	Evening	Nighttime	Daytime	Evening	Nighttime	Daytime	Evening	Nighttime
R1	L1	40.3	40.3	40.3	72	69	70	No	No	No
R2	L2	37.9	37.9	37.5	67	63	63	No	No	No
R3	L3	45.6	45.6	45.5	66	64	64	No	No	No
R4	L4	48.5	48.5	48.4	57	57	54	No	No	No
R5	L5	42.6	42.6	42.6	56	56	52	No	No	No

[1] See Exhibit 6-A for the receiver locations.
[2] Proposed Project operational noise levels as shown on Tables 7-2 to 7-4.
[3] Exterior noise level standards adjusted to reflect the ambient noise levels (see Table 5-1) per the City of Commerce Municipal Code, Chapter 19.19.160 (E). (Appendix 3.1)
[4] Do the estimated Project operational noise source activities exceed the noise level standards?
"Daytime" = 7:00 a.m. - 7:00 p.m.; "Evening" = 7:00 p.m. - 10:00 p.m.; "Nighttime" = 10:00 p.m. - 7:00 a.m.

7.6 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 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, evening, and nighttime ambient conditions are presented on Tables 7-6 to 7-8, respectively. As indicated on Tables 7-6 to 7-8, the unmitigated Project operational activities will generate a daytime, evening and nighttime noise level increases ranging from 0.0 to 1.0 dBA L_{eq} at the nearest receiver locations. Project-related operational noise level increases will not exceed the noise level increase significance criteria presented in Table 4-1, the increases at the sensitive receiver locations will be *less than significant.*

TABLE 7-6: 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	40.3	L1	72.2	72.2	0.0	1.5	No
R2	37.9	L2	67.1	67.1	0.0	1.5	No
R3	45.6	L3	65.5	65.5	0.0	1.5	No
R4	48.5	L4	57.3	57.8	0.5	5.0	No
R5	42.6	L5	55.5	55.7	0.2	5.0	No

[1] See Exhibit 6-A for the receiver locations.
[2] Total Project daytime operational noise levels as shown on Table 7-2.
[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 7-7: EVENING 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	40.3	L1	69.4	69.4	0.0	1.5	No
R2	37.9	L2	62.8	62.8	0.0	5.0	No
R3	45.6	L3	63.8	63.9	0.1	5.0	No
R4	48.5	L4	56.9	57.5	0.6	5.0	No
R5	42.6	L5	55.9	56.1	0.2	5.0	No

[1] See Exhibit 6-A for the receiver locations.
[2] Total Project evening operational noise levels as shown on Table 7-3.
[3] Reference noise level measurement locations as shown on Exhibit 5-A.
[4] Observed evening 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 7-8: 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	40.3	L1	69.5	69.5	0.0	1.5	No
R2	37.5	L2	62.8	62.8	0.0	5.0	No
R3	45.5	L3	63.5	63.6	0.1	5.0	No
R4	48.4	L4	54.4	55.4	1.0	5.0	No
R5	42.6	L5	51.6	52.1	0.5	5.0	No

[1] See Exhibit 6-A for the receiver locations.
[2] Total Project nighttime operational noise levels as shown on Table 7-4.
[3] Reference noise level measurement locations as shown on Exhibit 5-A.
[4] Observed nighttime 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.

8 CONSTRUCTION ANALYSIS

This section analyzes potential impacts resulting from the short-term construction activities associated with the development of the Project. Exhibit 8-A shows the construction noise source locations in relation to the nearby sensitive receiver locations previously described in Section 6.

According to the City of Commerce Municipal Code Section 19.19.160[K][3], construction activities are restricted between the hours of 10:00 p.m. to 7:00 a.m. unless a permit has been obtained from the City. In addition, neither the City of Commerce General Plan or Municipal Code establish numeric maximum acceptable construction source noise levels at potentially affected receivers for CEQA analysis purposes. 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. The FTA considers a daytime exterior construction noise level of 80 dBA L_{eq} as a reasonable threshold for noise sensitive residential land use (7 p. 179).

8.1 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

8.2 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. (16) 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 8-A: CONSTRUCTION NOISE SOURCE LOCATIONS

8.3 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 8-1 presents the combined construction reference noise levels for the loudest construction equipment, assuming they operate at the same time. The construction noise analysis presented below does not include the planned 8-foot-high loading dock screenwall. As shown on Table 8-2, the construction noise levels are expected to range from 53.5 to 74.7 dBA L_{eq} at the nearby receiver locations. Appendix 8.1 includes the detailed CadnaA construction noise model inputs.

TABLE 8-1: 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 8-2: 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	58.4	61.4	59.4	61.4	55.4	61.4
R2	63.2	66.2	64.2	66.2	60.2	66.2
R3	71.7	74.7	72.7	74.7	68.7	74.7
R4	66.6	69.6	67.6	69.6	63.6	69.6
R5	56.5	59.5	57.5	59.5	53.5	59.5

[1] Construction noise source and receiver locations are shown on Exhibit 8-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 8.1.

8.4 CONSTRUCTION NOISE LEVEL COMPLIANCE

To evaluate whether the Project will generate potentially significant short-term noise levels at 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 8-3. Therefore, the noise impacts due to Project construction noise are considered *less than significant* at all receiver locations.

TABLE 8-3: CONSTRUCTION NOISE LEVEL COMPLIANCE

Receiver Location[1]	Construction Noise Levels (dBA L_{eq})		
	Highest Construction Noise Levels[2]	Threshold[3]	Threshold Exceeded?[4]
R1	61.4	80	No
R2	66.2	80	No
R3	74.7	80	No
R4	69.6	80	No
R5	59.5	80	No

[1] Construction noise source and receiver locations are shown on Exhibit 8-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 8-2.
[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?

8.5 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 8-4. 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 8-4: 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

Table 8-5 presents the expected Project related vibration levels at the nearby receiver locations. At distances ranging from 79 to 1,002 feet from Project construction activities, construction vibration velocity levels are estimated to range from 0.001 to 0.037 in/sec PPV. 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 8-5: 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	813'	0.000	0.000	0.000	0.000	0.001	0.001	0.3	No
R2	291'	0.000	0.001	0.002	0.002	0.005	0.005	0.3	No
R3	79'	0.001	0.006	0.014	0.016	0.037	0.037	0.3	No
R4	91'	0.000	0.005	0.011	0.013	0.030	0.030	0.3	No
R5	1,002'	0.000	0.000	0.000	0.000	0.001	0.001	0.3	No

[1] Construction noise source and receiver locations are shown on Exhibit 8-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 8-5).
[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

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9 REFERENCES

1. **State of California.** *California Environmental Quality Act, Environmental Checklist Form Appendix G.* 2019.
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 Traffic Noise in the United States, Problem and Response.* April 2000. p. 3.
6. **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.
7. **U.S. Department of Transportation, Federal Transit Administration.** *Transit Noise and Vibration Impact Assessment Manual.* September 2018.
8. **Office of Planning and Research.** *State of California General Plan Guidlines.* 2018.
9. **City of Commerce.** *General Plan Safety Element.* January 2008.
10. —. *Municipal Code Section 19.19.060.*
11. **California Department of Transportation.** *Transportation and Construction Vibration Guidance Manual.* April 2020.
12. **California Court of Appeal.** *Gray v. County of Madera, F053661.* 167 Cal.App.4th 1099; - Cal.Rptr.3d, October 2008.
13. **Federal Interagency Committee on Noise.** *Federal Agency Review of Selected Airport Noise Analysis Issues.* August 1992.
14. **California Department of Transportation.** *Technical Noise Supplement.* November 2009.
15. **American National Standards Institute (ANSI).** *Specification for Sound Level Meters ANSI S1.4-2014/IEC 61672-1:2013.*
16. **U.S. Department of Transportation, Federal Highway Administration, Office of Environment and Planning.** *FHWA Roadway Construction Noise Model.* January, 2006.
17. **FHWA.** *Roadway Construction Noise Model.* January 2006.

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10 CERTIFICATIONS

The contents of this noise study report represent an accurate depiction of the noise environment and impacts associated with the proposed 7400 Slauson Avenue 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.

Bill Lawson, P.E., INCE
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(949) 581-3148
blawson@urbanxroads.com

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 COMMERCE MUNICIPAL CODE

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19.19.160 - Noise.

A. It is the policy of the city to prohibit unnecessary, excessive, and annoying noises from all sources subject to its police power, as certain noise levels are detrimental to the health and welfare of individuals. Therefore, any individual or organization that creates, maintains, causes, or allows to be created, caused, or maintained, any noise or vibration in a manner prohibited by or not in conformity with the provisions of this subsection, shall be considered to be creating a public nuisance and shall be punishable as such.

B. Any sound level measurement made pursuant to the provisions of this subsection shall be measured with a sound level meter using the "A" weighting scale at slow response or at a fast response for impulsive sounds.

C. Precise noise measurements shall be taken throughout the city at specified locations. These measurements shall be established as the ambient levels for the areas in which the measurements are taken. The ambient levels established by the precise measurements shall be published periodically and utilized for determinations of violations of this subsection.

D. The location selected for measuring exterior noise levels shall be at any point on the receptor property, and at least four feet above the ground and five feet from the nearest structure or wall. Interior noise measurements shall be made within the receptor dwelling unit, at a point at least four feet from the wall, ceiling, or floor nearest the noise source with windows and doors closed.

E. No person shall, at any location within the city, create nor allow the creation of noise on property owned, leased, occupied, or otherwise controlled by such person, that causes the noise level when measured on any property to exceed the ambient noise level or the noise standards set forth in Table 19.19.160A, whichever is greater.

F. Increases in permitted noise levels prescribed in Table 19.19.160A may be permitted in accordance with the standards outline in Table 19.19.160B.

Table 19.19.160A

Noise Standards

Zone	Time	Allowable Noise Level - dbA
Residential	7 a.m. - 7 p.m. (day)	55
Residential	7 p.m. - 10 p.m. (evening)	50
Residential	10 p.m. - 7 a.m. (night)	45
Commercial	7 a.m. - 10 p.m. (day/evening)	65
Commercial	10 p.m. - 7 a.m. (night)	55
Industrial	Anytime	70

Table 19.19.160B
Permitted Increases in Noise Levels

Permitted Increase (dbA)	Duration of Increase (cumulative minutes/hour)
5	15
10	5
15	1
20	Less than one minute

G. If the receptor property of a noise is located on the boundary between two different noise zones, the lower noise level standard applicable to the quieter zone shall apply.

H. If a noise source is continuous and cannot be reasonably discontinued for sufficient time in which to determine the ambient noise level, the measured noise level obtained while the source is in operation shall be compared directly to the noise level standards in Table 19.19.160B.

I. No person shall, at any location within the city, create any noise, nor shall any person allow the creation of any noise on property owned, leased, occupied, or otherwise controlled by such person that causes the noise level when measured within any receptor dwelling unit to exceed the noise standards outlined in Table 19.19.160C.

Table 19.19.160C
Permitted Increases in Interior Noise Levels

Allowable (dbA)	Time (cumulative minutes per hour)
45	Anytime
+5	1 minute
10	Less than one minute

J. In the event the ambient noise level exceeds the noise standards set forth in Table 19.19.160C, the levels

in the allowable column shall be increased to reflect the actual ambient noise level.

K. The following acts, or the causing thereof, are declared to be in violation of this subsection:

1. No person shall, within any residential zone in the city, use or operate any radio receiving set, musical instrument, phonograph, tape player, compact disk player, television set, or other machine or device that produces, reproduces, or amplifies sound, between the hours of ten p.m. and seven a.m. such that it exceeds the exterior noise standards set forth in subsection L of this section.
2. No person shall create any noise on any street, sidewalk, or public place adjacent to any school, institution of learning, or church while the same is in use or adjacent to any hospital, that exceeds the interior noise standards set forth in subsection L of this section.
3. No person or organization within any residential zone, or within a radius of five hundred feet of a residential zone, shall operate equipment or perform any outside construction or repair work on buildings, structures, or projects, or operate any pile driver, steam shovel, pneumatic hammer, derrick, steam, electric hoist, or other construction type device between the hours of ten p.m. and seven a.m., unless a permit has been obtained from the city.
4. No person within any residential zone shall repair, rebuild, or test any motor vehicle between the hours of ten p.m. and seven a.m. in a manner that exceeds the noise levels set forth in subsection L of this section.
5. No person or organization shall use or operate for any noncommercial purpose any loudspeaker, public address system, or similar device between the hours of ten p.m. and seven a.m. in a manner that exceeds the noise levels set forth in subsection L of this section.
6. No person or organization shall use or operate for any commercial purpose any loudspeaker, public address system, or similar device in a manner that creates noise in any residential zone in excess of the noise levels set forth in subsection L of this section.
7. Loading, unloading, opening, closing, or other handling of boxes, crates, containers, building materials, garbage cans, or similar objects between the hours of ten p.m. and seven a.m. in such a manner as to cause noise in excess of the noise standards in any residential zone is unlawful.

L. The city shall order an immediate halt to any sound that exposes any person to continuous sound levels in excess of those shown in Table 19.19.160D or Table 19.19.160E. Within ten working days following issuance of such an order, the community development director or his designee may apply to the appropriate court for an injunction to replace the order. No order shall be issued if the only persons exposed to sound levels in excess of those listed in Table 19.19.160D and Table 19.19.160E are exposed as a result of trespass; invitation upon private property by the person causing or permitting the sound; or employment by the person or a contractor of the person causing or permitting the sound.

Table 19.19.160D

Continuous Sound Levels

(Measured at 50 feet)

Sound Level Limit (dbA)	Duration

90	8 hours
95	4 hours
100	2 hours
105	1 hour
110	30 minutes

Table 19.19.160E

Impulsive Sound Levels

(Measured at 50 feet)

Sound Level Limit (dbA)	Number of Repetitions (per 24-hour period)
145	1
135	10
125	100

M. Any person subject to an order pursuant to this section shall comply with such order until the sound is brought into compliance with the order, as determined by the noise control officer; or a judicial order has superseded the noise control officer order.

(Ord. 544 § 1(part), 2000).

APPENDIX 5.1:

STUDY AREA PHOTOS

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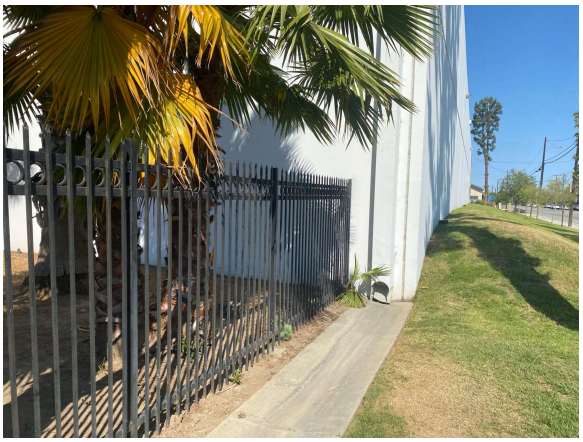
JN: 13961 Study Area Photos



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L1-N
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L1-S
33, 58' 46.170000"118, 8' 5.790000"

L1-W
33, 58' 46.170000"118, 8' 5.790000"

L2-E
33, 58' 41.350000"118, 7' 46.810000"

L2-N
33, 58' 41.340000"118, 7' 46.810000"

JN: 13961 Study Area Photos

L2-S
33, 58' 41.320000"118, 7' 46.860000"

L2-W
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L3-E
33, 58' 36.010000"118, 7' 50.320000"

L3-N
33, 58' 36.000000"118, 7' 50.270000"

L3-S
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L3-W
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JN: 13961 Study Area Photos

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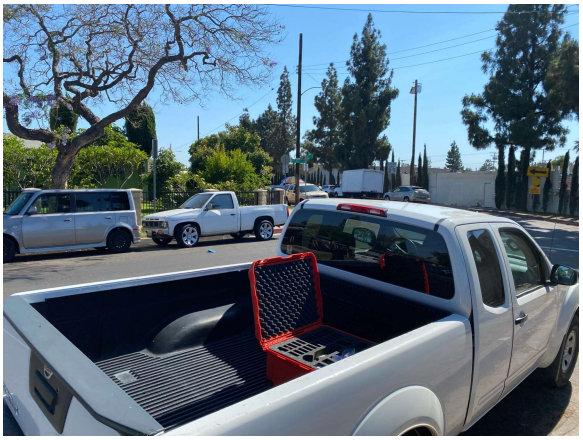

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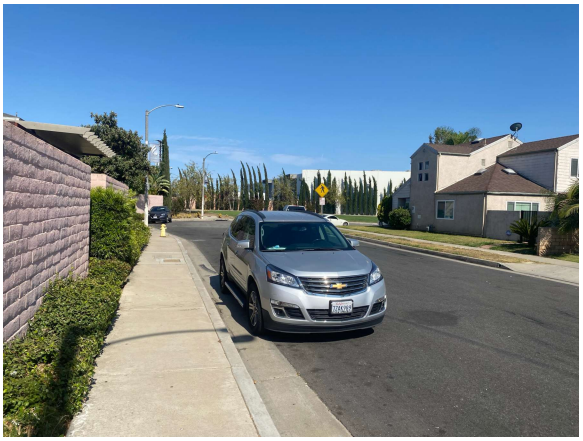

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JN: 13961 Study Area Photos

L5-S
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L5-W
33, 58' 33.290000"118, 8' 18.670000"

APPENDIX 5.2:

NOISE LEVEL MEASUREMENT WORKSHEETS

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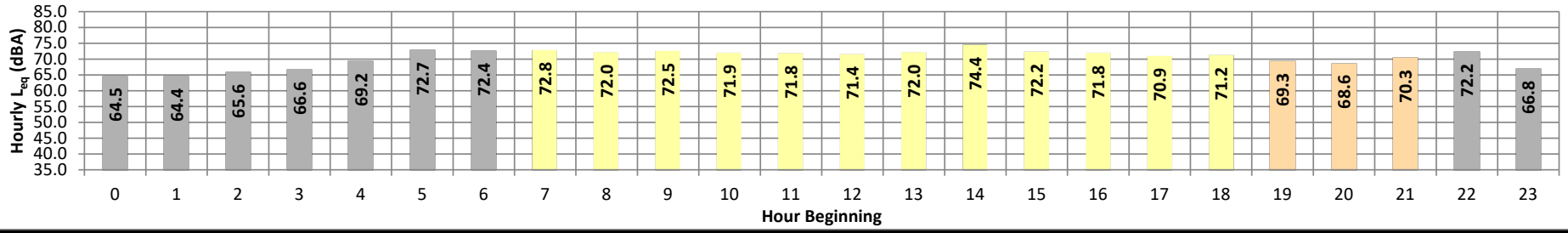
24-Hour Noise Level Measurement Summary

Date: Tuesday, June 15, 2021 | *Location:* L1 - North of the Project site on East Slauson Avenue near Mount Olive Memorial Park Jewish Cemetery located at 7231 Sluason Avenue. | *Meter:* Piccolo II | *JN:* 13961

Project: 7400 Slauson Ave | *Analyst:* A. Khan

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	64.5	75.2	52.2	74.9	74.3	71.8	69.8	63.8	57.5	52.8	52.5	52.3	64.5	10.0	74.5
	1	64.4	74.7	51.8	74.3	73.6	71.3	69.6	63.8	58.6	52.7	52.1	52.0	64.4	10.0	74.4
	2	65.6	77.6	52.4	77.0	76.2	73.4	70.1	63.7	57.9	53.2	52.8	52.5	65.6	10.0	75.6
	3	66.6	76.5	53.2	76.2	75.6	73.4	71.6	66.5	61.4	54.5	53.8	53.3	66.6	10.0	76.6
	4	69.2	78.1	56.8	77.8	77.1	75.3	74.0	69.9	65.4	58.3	57.6	57.0	69.2	10.0	79.2
	5	72.7	82.5	60.0	82.0	81.3	78.6	76.6	73.1	69.8	63.1	61.6	60.2	72.7	10.0	82.7
	6	72.4	80.0	61.5	79.7	79.1	77.6	76.7	73.6	70.4	64.0	62.8	61.7	72.4	10.0	82.4
Day	7	72.8	80.5	62.1	80.1	79.6	78.0	76.9	73.7	71.0	64.6	63.3	62.3	72.8	0.0	72.8
	8	72.0	79.6	61.1	79.2	78.6	77.0	76.1	73.1	70.3	63.7	62.4	61.3	72.0	0.0	72.0
	9	72.5	81.3	60.7	80.9	80.3	78.2	76.7	73.4	69.8	62.8	61.6	60.8	72.5	0.0	72.5
	10	71.9	80.2	61.0	79.9	79.4	77.7	76.3	72.5	69.5	63.2	62.0	61.1	71.9	0.0	71.9
	11	71.8	81.0	58.3	80.6	80.0	77.9	76.3	72.5	68.4	61.2	59.7	58.5	71.8	0.0	71.8
	12	71.4	80.1	59.2	79.8	79.3	77.3	75.7	72.2	68.8	61.8	60.5	59.5	71.4	0.0	71.4
	13	72.0	80.3	60.8	79.9	79.4	77.6	76.4	72.9	69.5	62.9	61.9	61.1	72.0	0.0	72.0
	14	74.4	86.4	61.3	85.9	84.9	81.0	77.7	73.1	70.4	64.3	62.9	61.6	74.4	0.0	74.4
	15	72.2	80.8	61.2	80.4	79.9	77.9	76.1	72.9	69.9	63.8	62.5	61.4	72.2	0.0	72.2
	16	71.8	80.2	60.7	79.8	79.3	77.3	75.8	72.7	69.5	62.7	61.7	60.8	71.8	0.0	71.8
	17	70.9	79.6	59.7	79.0	78.3	76.5	75.3	71.9	68.3	61.5	60.6	59.9	70.9	0.0	70.9
	18	71.2	81.4	57.8	80.9	80.0	77.6	75.4	71.4	67.9	59.8	58.6	57.9	71.2	0.0	71.2
Evening	19	69.3	77.8	56.9	77.5	76.9	74.9	73.6	70.3	66.4	58.9	57.9	57.0	69.3	5.0	74.3
	20	68.6	77.4	55.8	77.1	76.5	74.6	73.3	69.5	65.3	57.9	56.7	55.9	68.6	5.0	73.6
	21	70.3	83.1	54.7	82.1	80.7	76.7	74.3	69.1	64.2	56.1	55.4	54.8	70.3	5.0	75.3
Night	22	72.2	83.2	55.7	82.5	81.1	78.6	77.4	72.8	65.5	56.8	56.3	55.9	72.2	10.0	82.2
	23	66.8	77.5	54.0	77.0	76.3	74.0	72.1	66.1	60.6	54.8	54.4	54.1	66.8	10.0	76.8

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day (7am-7pm)	Min	70.9	79.6	57.8	79.0	78.3	76.5	75.3	71.4	67.9	59.8	58.6	57.9
	Max	74.4	86.4	62.1	85.9	84.9	81.0	77.7	73.7	71.0	64.6	63.3	62.3
Energy Average		72.2	Average:		80.5	79.9	77.8	76.2	72.7	69.4	62.7	61.5	60.5
Evening (7pm-10pm)	Min	68.6	77.4	54.7	77.1	76.5	74.6	73.3	69.1	64.2	56.1	55.4	54.8
	Max	70.3	83.1	56.9	82.1	80.7	76.7	74.3	70.3	66.4	58.9	57.9	57.0
Energy Average		69.4	Average:		78.9	78.0	75.4	73.7	69.6	65.3	57.6	56.7	55.9
Night (10pm-7am)	Min	64.4	74.7	51.8	74.3	73.6	71.3	69.6	63.7	57.5	52.7	52.1	52.0
	Max	72.7	83.2	61.5	82.5	81.3	78.6	77.4	73.6	70.4	64.0	62.8	61.7
Energy Average		69.5	Average:		77.9	77.2	74.9	73.1	68.1	63.0	56.7	56.0	55.4

L_{eq} (dBA)		
24-Hour	Daytime (7am-10pm)	Nighttime (10pm-7am)
71.0	71.7	69.5

24-Hour CNEL (dBA)

76.5

24-Hour Noise Level Measurement Summary

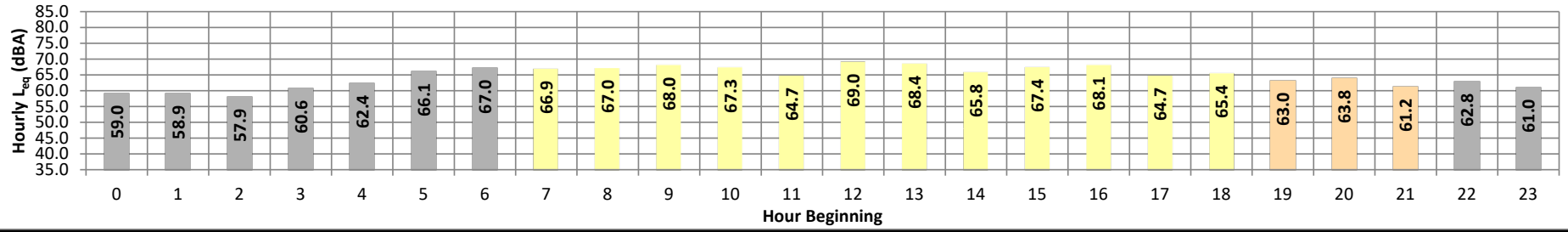
Date: Tuesday, June 15, 2021
Project: 7400 Slauson Ave

Location: L2 - Northeast of the Project site on Greenwood Avenue near a single-family residence located at 7508 Wellman Street

Meter: Piccolo II

JN: 13961
Analyst: A. Khan

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	59.0	70.2	51.3	69.9	69.3	66.2	63.0	56.8	53.5	51.8	51.6	51.4	59.0	10.0	69.0
	1	58.9	69.3	51.8	68.9	68.2	65.8	63.6	57.5	54.6	52.5	52.2	51.9	58.9	10.0	68.9
	2	57.9	69.4	49.0	68.9	68.2	66.0	63.1	55.1	51.5	49.6	49.4	49.1	57.9	10.0	67.9
	3	60.6	71.8	52.2	71.5	70.7	68.1	65.8	57.5	54.7	52.8	52.6	52.3	60.6	10.0	70.6
	4	62.4	72.6	54.8	72.2	71.4	68.9	67.1	61.4	58.0	55.6	55.3	54.9	62.4	10.0	72.4
	5	66.1	76.0	57.3	75.7	75.0	73.3	71.3	65.2	61.7	58.4	57.8	57.5	66.1	10.0	76.1
	6	67.0	77.6	58.8	77.2	76.3	73.5	71.4	66.4	62.5	59.4	59.1	58.9	67.0	10.0	77.0
Day	7	66.9	76.9	56.1	76.4	75.6	73.4	71.8	66.9	62.3	57.3	56.8	56.2	66.9	0.0	66.9
	8	67.0	78.4	55.0	77.7	76.6	73.5	71.4	66.6	62.2	56.7	56.0	55.3	67.0	0.0	67.0
	9	68.0	79.2	55.3	78.7	78.0	75.6	73.2	66.7	61.4	56.9	56.4	55.5	68.0	0.0	68.0
	10	67.3	78.3	54.4	77.9	77.1	74.7	72.4	65.5	60.8	55.9	55.2	54.5	67.3	0.0	67.3
	11	64.7	75.2	53.8	74.7	73.8	71.5	69.8	64.0	59.8	55.3	54.7	54.0	64.7	0.0	64.7
	12	69.0	79.6	60.4	79.2	78.6	76.4	74.0	67.7	63.8	61.1	60.8	60.5	69.0	0.0	69.0
	13	68.4	76.8	64.9	76.2	75.4	73.2	71.6	68.2	66.7	65.4	65.3	65.0	68.4	0.0	68.4
	14	65.8	76.1	53.6	75.7	74.9	72.6	70.9	65.3	60.9	55.1	54.4	53.7	65.8	0.0	65.8
	15	67.4	77.9	54.9	77.5	76.9	74.8	72.9	66.2	61.5	56.5	55.8	55.1	67.4	0.0	67.4
	16	68.1	79.3	54.9	78.7	77.9	75.7	73.6	65.8	61.8	56.4	55.7	55.0	68.1	0.0	68.1
	17	64.7	75.1	55.0	74.5	73.7	71.2	69.4	64.4	60.4	56.0	55.5	55.1	64.7	0.0	64.7
	18	65.4	76.5	52.9	75.9	75.1	72.7	70.4	64.2	59.7	54.3	53.6	53.0	65.4	0.0	65.4
Evening	19	63.0	73.6	52.9	73.2	72.5	69.9	68.2	62.1	57.6	53.8	53.4	53.0	63.0	5.0	68.0
	20	63.8	75.3	54.4	74.5	73.6	70.7	68.5	62.7	58.5	55.1	54.8	54.5	63.8	5.0	68.8
	21	61.2	73.1	52.7	72.1	70.9	67.9	65.5	59.4	56.3	53.5	53.2	52.8	61.2	5.0	66.2
Night	22	62.8	72.2	57.8	71.8	71.1	68.5	66.7	61.9	60.0	58.4	58.2	57.9	62.8	10.0	72.8
	23	61.0	72.3	56.5	71.1	69.9	66.3	63.8	59.7	58.4	57.1	56.9	56.6	61.0	10.0	71.0

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day (7am-7pm)	Min	64.7	75.1	52.9	74.5	73.7	71.2	69.4	64.0	59.7	54.3	53.6	53.0
	Max	69.0	79.6	64.9	79.2	78.6	76.4	74.0	68.2	66.7	65.4	65.3	65.0
Energy Average		67.1	Average:		76.9	76.1	73.8	71.8	66.0	61.8	57.2	56.7	56.1
Evening (7pm-10pm)	Min	61.2	73.1	52.7	72.1	70.9	67.9	65.5	59.4	56.3	53.5	53.2	52.8
	Max	63.8	75.3	54.4	74.5	73.6	70.7	68.5	62.7	58.5	55.1	54.8	54.5
Energy Average		62.8	Average:		73.3	72.3	69.5	67.4	61.4	57.5	54.2	53.8	53.5
Night (10pm-7am)	Min	57.9	69.3	49.0	68.9	68.2	65.8	63.0	55.1	51.5	49.6	49.4	49.1
	Max	67.0	77.6	58.8	77.2	76.3	73.5	71.4	66.4	62.5	59.4	59.1	58.9
Energy Average		62.8	Average:		71.9	71.1	68.5	66.2	60.2	57.2	55.1	54.8	54.5

L_{eq} (dBA)		
24-Hour	Daytime (7am-10pm)	Nighttime (10pm-7am)
65.5	66.5	62.8

24-Hour CNEL (dBA)

70.2

24-Hour Noise Level Measurement Summary

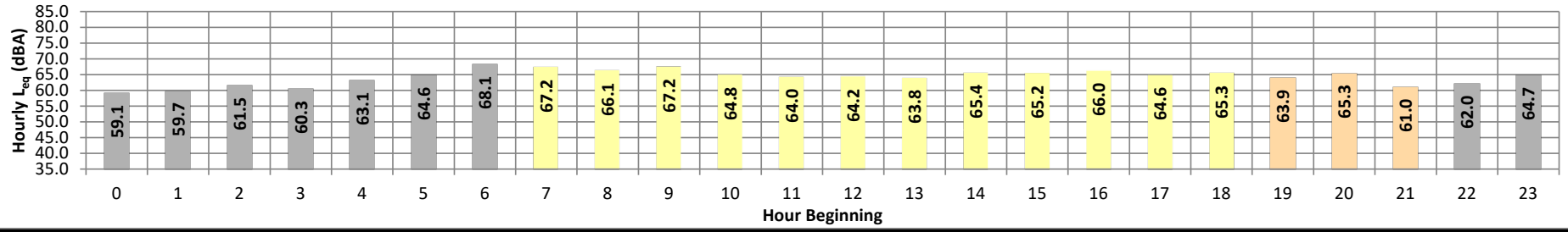
Date: Tuesday, June 15, 2021
Project: 7400 Slauson Ave

Location: L3 - East of the Project site on Greenwood Avenue near a single-family residence located at 5829 Ramon Court.

Meter: Piccolo II

JN: 13961
Analyst: A. Khan

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	59.1	64.1	56.6	63.8	63.5	62.6	61.6	59.2	58.3	57.3	57.0	56.8	59.1	10.0	69.1
	1	59.7	70.4	54.2	69.9	68.9	65.8	63.3	58.3	56.6	55.2	54.9	54.4	59.7	10.0	69.7
	2	61.5	68.0	58.2	67.7	67.5	66.2	64.3	61.5	60.0	59.2	59.0	58.5	61.5	10.0	71.5
	3	60.3	66.7	56.6	66.4	66.0	64.5	63.4	60.9	58.8	57.4	57.2	56.8	60.3	10.0	70.3
	4	63.1	72.1	56.6	71.5	70.7	68.5	67.5	63.3	59.8	57.4	57.0	56.7	63.1	10.0	73.1
	5	64.6	74.8	56.8	74.3	73.6	71.0	69.2	63.8	61.1	57.8	57.3	56.9	64.6	10.0	74.6
	6	68.1	80.7	60.7	78.3	76.7	73.4	71.7	67.6	64.8	61.5	61.2	60.8	68.1	10.0	78.1
Day	7	67.2	77.8	57.6	77.2	76.4	74.1	72.1	66.2	62.8	58.9	58.3	57.8	67.2	0.0	67.2
	8	66.1	77.4	55.1	76.7	75.6	72.8	71.4	64.8	61.0	56.5	55.9	55.3	66.1	0.0	66.1
	9	67.2	75.5	62.2	75.1	74.6	73.2	71.8	66.8	64.7	62.9	62.7	62.3	67.2	0.0	67.2
	10	64.8	73.4	59.3	73.0	72.4	70.1	68.7	64.7	62.3	60.0	59.7	59.4	64.8	0.0	64.8
	11	64.0	73.2	56.6	72.6	71.9	69.9	68.3	64.2	61.1	57.6	57.1	56.7	64.0	0.0	64.0
	12	64.2	74.0	55.8	73.4	72.6	70.5	68.8	64.2	60.4	56.8	56.4	56.0	64.2	0.0	64.2
	13	63.8	74.1	51.6	73.6	72.8	70.5	68.9	63.5	59.1	53.4	52.5	51.8	63.8	0.0	63.8
	14	65.4	75.9	53.6	75.4	74.6	71.8	70.2	64.6	61.0	55.6	54.7	53.9	65.4	0.0	65.4
	15	65.2	75.7	55.5	75.1	74.2	71.8	70.2	65.0	60.8	56.4	56.0	55.6	65.2	0.0	65.2
	16	66.0	76.0	56.4	75.4	74.7	72.2	70.4	65.6	62.6	58.1	57.4	56.6	66.0	0.0	66.0
	17	64.6	74.2	55.6	73.7	73.0	70.7	69.1	64.7	61.4	56.7	56.2	55.7	64.6	0.0	64.6
	18	65.3	74.7	59.8	74.0	73.1	70.9	69.4	65.2	62.7	60.4	60.1	59.9	65.3	0.0	65.3
Evening	19	63.9	74.8	55.9	74.2	73.3	70.1	68.0	62.9	60.0	56.9	56.5	56.0	63.9	5.0	68.9
	20	65.3	77.7	55.3	76.7	75.3	72.1	69.9	63.4	60.3	56.6	56.1	55.5	65.3	5.0	70.3
	21	61.0	70.1	53.9	69.6	69.1	67.6	65.5	60.6	58.0	54.8	54.4	54.1	61.0	5.0	66.0
Night	22	62.0	72.1	55.5	71.6	71.1	68.4	65.8	61.2	58.5	56.4	56.1	55.7	62.0	10.0	72.0
	23	64.7	70.5	62.2	70.1	69.5	67.7	66.6	64.7	64.2	63.2	63.0	62.5	64.7	10.0	74.7

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	63.8	73.2	51.6	72.6	71.9	69.9	68.3	63.5	59.1	53.4	52.5	51.8
(7am-7pm)	Max	67.2	77.8	62.2	77.2	76.4	74.1	72.1	66.8	64.7	62.9	62.7	62.3
Energy Average		65.5	Average:		74.6	73.8	71.5	69.9	65.0	61.7	57.8	57.2	56.8
Evening	Min	61.0	70.1	53.9	69.6	69.1	67.6	65.5	60.6	58.0	54.8	54.4	54.1
(7pm-10pm)	Max	65.3	77.7	55.9	76.7	75.3	72.1	69.9	63.4	60.3	56.9	56.5	56.0
Energy Average		63.8	Average:		73.5	72.6	69.9	67.8	62.3	59.4	56.1	55.7	55.2
Night	Min	59.1	64.1	54.2	63.8	63.5	62.6	61.6	58.3	56.6	55.2	54.9	54.4
(10pm-7am)	Max	68.1	80.7	62.2	78.3	76.7	73.4	71.7	67.6	64.8	63.2	63.0	62.5
Energy Average		63.5	Average:		70.4	69.7	67.6	65.9	62.3	60.2	58.4	58.1	57.7

L_{eq} (dBA)		
24-Hour	Daytime (7am-10pm)	Nighttime (10pm-7am)
64.6	65.2	63.5

24-Hour CNEL (dBA)

70.5

24-Hour Noise Level Measurement Summary

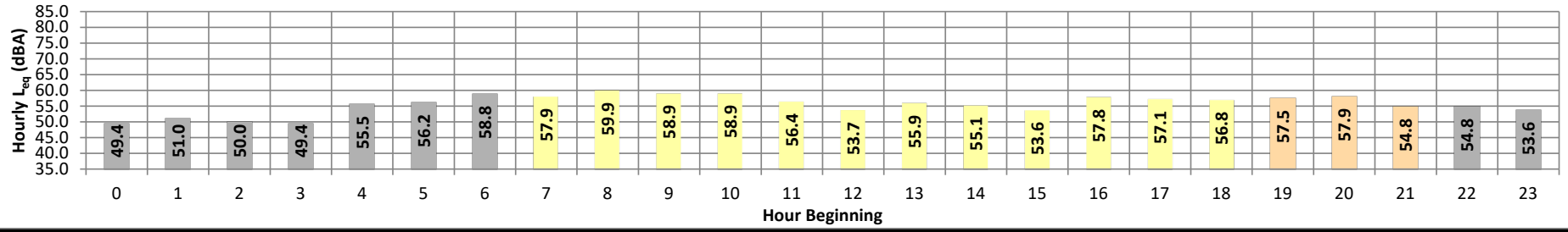
Date: Tuesday, June 15, 2021
Project: 7400 Slauson Ave

Location: L4 - South of the Project site on Watcher Street near a single-family residence located at 6936 Watcher Street.

Meter: Piccolo II

JN: 13961
Analyst: A. Khan

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	49.4	54.3	47.4	54.0	53.6	52.6	51.5	49.5	48.7	47.9	47.7	47.5	49.4	10.0	59.4
	1	51.0	60.5	45.9	60.1	59.5	58.3	56.4	48.6	47.0	46.3	46.2	46.0	51.0	10.0	61.0
	2	50.0	54.2	45.6	54.1	53.9	53.7	53.5	51.7	48.3	46.1	45.9	45.7	50.0	10.0	60.0
	3	49.4	55.9	47.1	55.4	54.8	53.3	51.9	49.2	48.4	47.6	47.5	47.2	49.4	10.0	59.4
	4	55.5	59.5	53.5	59.2	58.8	58.2	57.5	55.9	55.0	53.8	53.7	53.6	55.5	10.0	65.5
	5	56.2	60.5	54.1	60.3	60.0	59.4	58.8	56.5	55.3	54.4	54.3	54.2	56.2	10.0	66.2
	6	58.8	66.8	54.0	66.5	66.2	65.0	62.8	58.0	56.4	55.2	55.1	54.2	58.8	10.0	68.8
Day	7	57.9	66.7	50.7	66.0	65.4	64.3	62.9	57.5	54.9	51.6	51.2	50.8	57.9	0.0	57.9
	8	59.9	70.6	50.3	70.1	69.6	68.0	66.0	57.4	54.6	51.3	50.9	50.5	59.9	0.0	59.9
	9	58.9	76.4	49.1	75.7	74.7	71.8	69.4	61.4	56.2	50.8	50.0	49.3	58.9	0.0	58.9
	10	58.9	68.9	50.3	67.8	66.5	64.4	62.9	59.4	56.4	51.8	51.0	50.4	58.9	0.0	58.9
	11	56.4	67.5	48.5	66.9	65.4	61.6	59.6	56.1	53.3	49.7	49.2	48.6	56.4	0.0	56.4
	12	53.7	61.2	46.6	60.7	60.1	58.8	58.0	54.7	51.5	47.7	47.2	46.8	53.7	0.0	53.7
	13	55.9	64.8	49.0	64.0	62.8	60.9	60.0	56.7	53.6	50.0	49.5	49.2	55.9	0.0	55.9
	14	55.1	62.3	50.0	61.8	61.1	59.8	58.8	55.8	53.4	50.7	50.4	50.1	55.1	0.0	55.1
	15	53.6	62.3	49.0	61.7	61.0	59.0	57.6	53.6	51.3	49.5	49.3	49.1	53.6	0.0	53.6
	16	57.8	66.3	51.3	66.0	65.6	63.9	61.7	57.9	55.1	52.2	51.8	51.4	57.8	0.0	57.8
	17	57.1	65.9	51.0	64.9	63.8	62.1	61.2	57.7	54.4	51.9	51.5	51.1	57.1	0.0	57.1
	18	56.8	66.4	50.3	65.9	65.4	63.4	61.8	55.9	53.2	51.0	50.7	50.4	56.8	0.0	56.8
Evening	19	57.5	72.1	50.1	71.6	71.1	69.7	69.3	61.1	55.6	50.9	50.6	50.2	57.5	5.0	62.5
	20	57.9	79.7	55.8	78.8	78.1	76.3	74.5	68.9	64.4	57.7	57.1	56.1	57.9	5.0	62.9
	21	54.8	63.5	49.5	63.1	62.7	61.2	59.3	54.0	52.0	50.1	49.8	49.6	54.8	5.0	59.8
Night	22	54.8	60.4	51.4	60.1	59.6	58.4	57.7	55.4	53.7	52.0	51.7	51.5	54.8	10.0	64.8
	23	53.6	58.5	50.8	58.2	57.9	57.0	56.2	54.2	52.7	51.3	51.1	50.9	53.6	10.0	63.6

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day (7am-7pm)	Min	53.6	61.2	46.6	60.7	60.1	58.8	57.6	53.6	51.3	47.7	47.2	46.8
	Max	59.9	76.4	51.3	75.7	74.7	71.8	69.4	61.4	56.4	52.2	51.8	51.4
Energy Average		57.3	Average:		66.0	65.1	63.2	61.6	57.0	54.0	50.7	50.2	49.8
Evening (7pm-10pm)	Min	54.8	63.5	49.5	63.1	62.7	61.2	59.3	54.0	52.0	50.1	49.8	49.6
	Max	57.9	79.7	55.8	78.8	78.1	76.3	74.5	68.9	64.4	57.7	57.1	56.1
Energy Average		56.9	Average:		71.2	70.6	69.1	67.7	61.3	57.4	52.9	52.5	52.0
Night (10pm-7am)	Min	49.4	54.2	45.6	54.0	53.6	52.6	51.5	48.6	47.0	46.1	45.9	45.7
	Max	58.8	66.8	54.1	66.5	66.2	65.0	62.8	58.0	56.4	55.2	55.1	54.2
Energy Average		54.4	Average:		58.6	58.3	57.3	56.2	53.2	51.7	50.5	50.3	50.1

L_{eq} (dBA)		
24-Hour	Daytime (7am-10pm)	Nighttime (10pm-7am)
56.3	57.2	54.4

24-Hour CNEL (dBA)

61.7

24-Hour Noise Level Measurement Summary

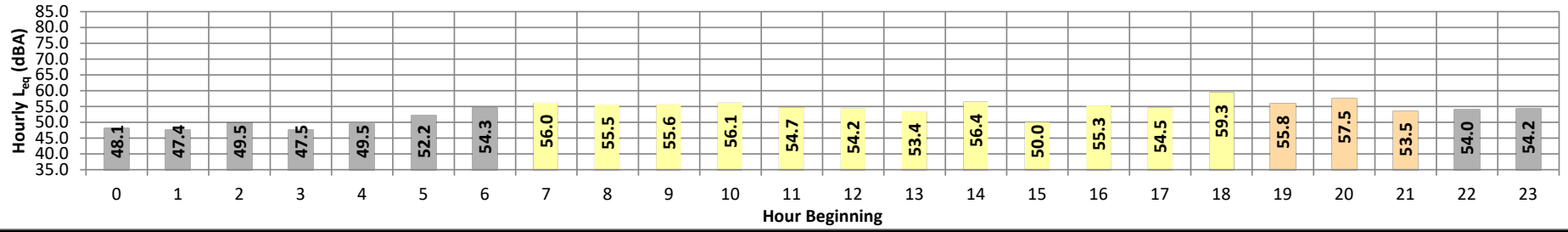
Date: Tuesday, June 15, 2021
Project: 7400 Slauson Ave

Location: L5 - Southwest of the Project site on Danielson Court near a single-family residence located at 6730 Danielson Court.

Meter: Piccolo II

JN: 13961
Analyst: A. Khan

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	48.1	50.9	46.8	50.5	50.2	49.7	49.2	48.4	47.9	47.3	47.1	47.0	48.1	10.0	58.1
	1	47.4	52.9	45.9	52.0	51.1	49.1	48.5	47.5	47.0	46.3	46.2	46.0	47.4	10.0	57.4
	2	49.5	54.9	45.8	54.5	54.1	53.1	52.5	50.8	47.7	46.2	46.1	45.9	49.5	10.0	59.5
	3	47.5	50.3	46.3	50.1	49.9	49.4	48.8	47.7	47.2	46.7	46.5	46.4	47.5	10.0	57.5
	4	49.5	53.7	48.0	53.5	53.1	52.0	51.0	49.5	49.0	48.4	48.3	48.1	49.5	10.0	59.5
	5	52.2	56.5	50.1	56.1	55.8	55.1	54.3	52.6	51.6	50.5	50.4	50.2	52.2	10.0	62.2
	6	54.3	60.0	51.3	59.3	58.9	57.8	56.9	55.0	53.2	51.9	51.7	51.5	54.3	10.0	64.3
Day	7	56.0	63.5	51.8	62.9	62.2	60.1	58.7	56.4	54.8	52.6	52.4	52.0	56.0	0.0	56.0
	8	55.5	60.8	51.5	60.4	60.0	59.1	58.4	56.3	54.4	52.3	52.0	51.7	55.5	0.0	55.5
	9	55.6	73.7	49.8	73.5	73.0	71.8	69.8	61.0	56.4	50.7	50.4	50.0	55.6	0.0	55.6
	10	56.1	64.8	47.8	64.2	63.6	62.2	61.2	56.5	52.8	48.7	48.4	48.0	56.1	0.0	56.1
	11	54.7	64.8	46.6	64.2	63.5	61.3	59.6	54.3	50.9	47.7	47.2	46.8	54.7	0.0	54.7
	12	54.2	63.0	47.5	62.5	62.0	60.1	58.0	54.5	51.7	48.4	48.0	47.7	54.2	0.0	54.2
	13	53.4	61.5	47.0	61.1	60.7	59.1	57.4	53.7	51.4	48.0	47.5	47.2	53.4	0.0	53.4
	14	56.4	65.8	47.3	65.5	65.1	62.9	62.0	55.2	52.1	48.6	48.0	47.5	56.4	0.0	56.4
	15	50.0	55.7	47.0	55.1	54.6	53.5	52.8	50.4	49.1	47.7	47.5	47.2	50.0	0.0	50.0
	16	55.3	62.8	50.5	62.5	62.2	60.2	58.4	55.7	53.4	51.4	51.1	50.7	55.3	0.0	55.3
	17	54.5	62.0	50.7	61.5	61.2	58.9	57.3	54.5	53.1	51.4	51.1	50.9	54.5	0.0	54.5
	18	59.3	71.0	50.2	70.6	69.9	67.7	63.6	56.3	53.3	51.1	50.9	50.5	59.3	0.0	59.3
Evening	19	55.8	65.9	50.5	65.0	63.6	60.9	59.6	55.7	53.3	51.2	50.9	50.6	55.8	5.0	60.8
	20	57.5	68.2	50.6	67.4	66.5	64.5	62.2	55.9	53.7	51.6	51.2	50.8	57.5	5.0	62.5
	21	53.5	60.3	50.0	59.6	58.8	57.2	56.0	54.2	52.5	50.6	50.4	50.1	53.5	5.0	58.5
Night	22	54.0	60.2	49.9	59.7	59.2	58.0	57.1	54.7	52.6	50.6	50.4	50.1	54.0	10.0	64.0
	23	54.2	61.5	49.6	60.9	60.3	59.3	58.9	54.4	51.8	50.3	50.1	49.8	54.2	10.0	64.2

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day (7am-7pm)	Min	50.0	55.7	46.6	55.1	54.6	53.5	52.8	50.4	49.1	47.7	47.2	46.8
	Max	59.3	73.7	51.8	73.5	73.0	71.8	69.8	61.0	56.4	52.6	52.4	52.0
Energy Average		55.5	Average:		63.7	63.2	61.4	59.8	55.4	52.8	49.9	49.5	49.2
Evening (7pm-10pm)	Min	53.5	60.3	50.0	59.6	58.8	57.2	56.0	54.2	52.5	50.6	50.4	50.1
	Max	57.5	68.2	50.6	67.4	66.5	64.5	62.2	55.9	53.7	51.6	51.2	50.8
Energy Average		55.9	Average:		64.0	63.0	60.8	59.3	55.3	53.2	51.1	50.8	50.5
Night (10pm-7am)	Min	47.4	50.3	45.8	50.1	49.9	49.1	48.5	47.5	47.0	46.2	46.1	45.9
	Max	54.3	61.5	51.3	60.9	60.3	59.3	58.9	55.0	53.2	51.9	51.7	51.5
Energy Average		51.6	Average:		55.2	54.7	53.7	53.0	51.2	49.8	48.7	48.5	48.3

L_{eq} (dBA)		
24-Hour	Daytime (7am-10pm)	Nighttime (10pm-7am)
54.5	55.6	51.6

24-Hour CNEL (dBA)

59.4

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APPENDIX 7.1:

CADNAA OPERATIONAL NOISE MODEL INPUTS

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13961 - 7400 Slauson

CadnaA Noise Prediction Model: 13961-05.cna
Date: 26.01.23
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	Eve	Night	Day	Eve	Night	Type	Auto	Noise Type			X	Y	Z
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)				(ft)		(ft)	(ft)	(ft)
RECEIVERS		R1	0.0	0.0	0.0	72.0	69.0	70.0				5.00	a	5990192.83	2305259.38	5.00
RECEIVERS		R2	0.0	0.0	0.0	67.0	63.0	63.0				5.00	a	5991907.00	2304446.71	5.00
RECEIVERS		R3	0.0	0.0	0.0	66.0	64.0	64.0				5.00	a	5991476.31	2304019.75	5.00
RECEIVERS		R4	0.0	0.0	0.0	57.0	57.0	54.0				5.00	a	5991104.77	2303850.37	5.00
RECEIVERS		R5	0.0	0.0	0.0	56.0	56.0	52.0				5.00	a	5989474.23	2304075.03	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		AC04	88.9	88.9	88.9	Lw	88.9		468.00	117.00	252.00	5.00	g	5991424.04	2304332.03	53.00
POINTSOURCE		AC03	88.9	88.9	88.9	Lw	88.9		468.00	117.00	252.00	5.00	g	5991337.23	2304317.93	53.00
POINTSOURCE		AC02	88.9	88.9	88.9	Lw	88.9		468.00	117.00	252.00	5.00	g	5991367.62	2304373.27	53.00
POINTSOURCE		AC01	88.9	88.9	88.9	Lw	88.9		468.00	117.00	252.00	5.00	g	5991402.34	2304285.37	53.00
POINTSOURCE		TRASH01	89.0	89.0	89.0	Lw	89		720.00	180.00	270.00	5.00	g	5990940.10	2303998.92	5.00
POINTSOURCE		CAR01	79.0	79.0	79.0	Lw	79					5.00	a	5990930.77	2304705.30	5.00
POINTSOURCE		CAR02	79.0	79.0	79.0	Lw	79					5.00	a	5990927.30	2304657.12	5.00
POINTSOURCE		CAR03	79.0	79.0	79.0	Lw	79					5.00	a	5990985.46	2304675.35	5.00
POINTSOURCE		CAR04	79.0	79.0	79.0	Lw	79					5.00	a	5990983.72	2304625.44	5.00
POINTSOURCE		CAR05	79.0	79.0	79.0	Lw	79					5.00	a	5991034.07	2304651.04	5.00
POINTSOURCE		CAR06	79.0	79.0	79.0	Lw	79					5.00	a	5991038.84	2304595.05	5.00
POINTSOURCE		CAR07	79.0	79.0	79.0	Lw	79					5.00	a	5991099.60	2304613.28	5.00
POINTSOURCE		CAR08	79.0	79.0	79.0	Lw	79					5.00	a	5991101.77	2304561.63	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		CAR09	79.0	79.0	79.0	Lw	79					5.00	a	5991149.52	2304586.81	5.00
POINTSOURCE		CAR10	79.0	79.0	79.0	Lw	79					5.00	a	5991171.22	2304519.97	5.00
POINTSOURCE		CAR11	79.0	79.0	79.0	Lw	79					5.00	a	5991218.09	2304546.44	5.00
POINTSOURCE		CAR12	79.0	79.0	79.0	Lw	79					5.00	a	5991245.44	2304483.07	5.00
POINTSOURCE		CAR13	79.0	79.0	79.0	Lw	79					5.00	a	5991297.96	2304499.57	5.00
POINTSOURCE		CAR14	79.0	79.0	79.0	Lw	79					5.00	a	5991304.47	2304448.35	5.00
POINTSOURCE		CAR15	79.0	79.0	79.0	Lw	79					5.00	a	5991369.57	2304413.20	5.00
POINTSOURCE		CAR16	79.0	79.0	79.0	Lw	79					5.00	a	5991394.74	2304451.82	5.00
POINTSOURCE		CAR17	79.0	79.0	79.0	Lw	79					5.00	a	5991425.99	2304431.43	5.00
POINTSOURCE		CAR18	79.0	79.0	79.0	Lw	79					5.00	a	5991433.37	2304379.34	5.00
POINTSOURCE		CAR19	79.0	79.0	79.0	Lw	79					5.00	a	5991492.83	2304395.40	5.00
POINTSOURCE		CAR20	79.0	79.0	79.0	Lw	79					5.00	a	5991527.56	2304376.30	5.00
POINTSOURCE		CAR21	79.0	79.0	79.0	Lw	79					5.00	a	5991530.59	2304339.85	5.00
POINTSOURCE		CAR22	79.0	79.0	79.0	Lw	79					5.00	a	5991508.46	2304297.31	5.00
POINTSOURCE		CAR23	79.0	79.0	79.0	Lw	79					5.00	a	5991448.13	2304289.06	5.00
POINTSOURCE		CAR24	79.0	79.0	79.0	Lw	79					5.00	a	5991421.65	2304240.02	5.00
POINTSOURCE		CAR25	79.0	79.0	79.0	Lw	79					5.00	a	5991451.60	2304204.43	5.00
POINTSOURCE		CAR26	79.0	79.0	79.0	Lw	79					5.00	a	5991430.33	2304165.37	5.00
POINTSOURCE		CAR27	79.0	79.0	79.0	Lw	79					5.00	a	5991374.78	2304163.63	5.00
POINTSOURCE		CAR28	79.0	79.0	79.0	Lw	79					5.00	a	5991405.16	2304121.10	5.00
POINTSOURCE		CAR29	79.0	79.0	79.0	Lw	79					5.00	a	5991352.64	2304122.40	5.00
POINTSOURCE		CAR30	79.0	79.0	79.0	Lw	79					5.00	a	5991377.38	2304074.22	5.00
POINTSOURCE		CAR31	79.0	79.0	79.0	Lw	79					5.00	a	5991329.21	2304083.33	5.00
POINTSOURCE		CAR32	79.0	79.0	79.0	Lw	79					5.00	a	5991359.15	2304039.93	5.00
POINTSOURCE		CAR33	79.0	79.0	79.0	Lw	79					5.00	a	5991299.69	2304031.69	5.00
POINTSOURCE		CAR34	79.0	79.0	79.0	Lw	79					5.00	a	5991335.28	2303997.40	5.00
POINTSOURCE		CAR35	79.0	79.0	79.0	Lw	79					5.00	a	5991280.59	2303996.96	5.00
POINTSOURCE		CAR36	79.0	79.0	79.0	Lw	79					5.00	a	5991075.30	2303969.62	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	66.8	66.8	66.8	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			5991346.42	2303936.02	8.00	0.00
						5991147.21	2303961.02	8.00	0.00
						5991033.04	2304024.04	8.00	0.00
						5990633.93	2304239.58	8.00	0.00
						5990628.12	2304246.97	8.00	0.00
						5990623.65	2304255.25	8.00	0.00
						5990620.67	2304264.17	8.00	0.00
						5990619.25	2304273.47	8.00	0.00
						5990619.44	2304282.87	8.00	0.00
						5990621.23	2304292.10	8.00	0.00
						5990624.57	2304300.89	8.00	0.00
						5990629.36	2304308.99	8.00	0.00
						5990911.12	2304793.29	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	103.4	103.4	103.4	68.8	68.8	68.8	Lw	103.4					8	a
AREASOURCE		TRAILER01	103.4	103.4	103.4	67.4	67.4	67.4	Lw	103.4					8	a

Name	ID	Height				Coordinates			
		Begin		End		x	y	z	Ground
		(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
AREASOURCE	DOCK01	8.00	a			5990664.98	2304323.60	8.00	0.00
						5991108.85	2304079.75	8.00	0.00
						5991077.79	2304026.78	8.00	0.00
						5990634.11	2304270.18	8.00	0.00
AREASOURCE	TRAILER01	8.00	a			5990547.95	2304240.87	8.00	0.00
						5990936.75	2304028.14	8.00	0.00
						5990905.45	2303977.27	8.00	0.00
						5990790.52	2304041.83	8.00	0.00
						5990764.11	2303995.86	8.00	0.00
						5990491.22	2304144.04	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)
BARRIEREXISTING			0						6.00	a			5991304.33	2303831.78	6.00	0.00
													5990779.24	2303909.61	6.00	0.00
BARRIERTEMP			0						0.00	a			5991055.10	2303986.57	0.00	0.00
													5991035.75	2303951.88	0.00	0.00
													5990710.34	2303998.47	0.00	0.00
													5990474.45	2304126.59	0.00	0.00
													5990607.34	2304355.68	0.00	0.00

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		48.00	a	5990866.82	2304670.65	48.00	0.00
									5991456.82	2304342.78	48.00	0.00
									5991248.58	2303974.72	48.00	0.00
									5991150.86	2303986.59	48.00	0.00
									5991077.79	2304026.78	48.00	0.00
									5991108.85	2304079.75	48.00	0.00
									5990664.98	2304323.60	48.00	0.00

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APPENDIX 8.1:

CADNAA CONSTRUCTION NOISE MODEL INPUTS

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13961 - 7400 Slauson

CadnaA Noise Prediction Model: 13961-05_Construction.cna
Date: 26.01.23
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	Eve	Night	Day	Eve	Night	Type	Auto	Noise Type			X	Y	Z
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)				(ft)		(ft)	(ft)	(ft)
RECEIVERS		R1	61.4	58.4	58.4	72.0	69.0	70.0				5.00	a	5990192.83	2305259.38	5.00
RECEIVERS		R2	66.2	63.9	63.9	67.0	63.0	63.0				5.00	a	5991907.00	2304446.71	5.00
RECEIVERS		R3	74.7	73.3	73.3	66.0	64.0	64.0				5.00	a	5991476.31	2304019.75	5.00
RECEIVERS		R4	69.6	68.2	68.2	57.0	57.0	54.0				5.00	a	5991104.77	2303850.37	5.00
RECEIVERS		R5	59.5	56.6	56.6	56.0	56.0	52.0				5.00	a	5989474.23	2304075.03	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	122.0	15.0	15.0	74.5	-32.5	-32.5	PWL-Pt	115					8	a

Name	ID	Height				Coordinates			
		Begin		End		x	y	z	Ground
		(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
SITEBOUNDARY	CONSTRUCTION	8.00	a			5990474.45	2304126.59	8.00	0.00
						5990874.31	2304815.90	8.00	0.00
						5991618.29	2304407.46	8.00	0.00
						5991594.70	2304362.43	8.00	0.00
						5991558.25	2304380.66	8.00	0.00
						5991570.05	2304371.01	8.00	0.00
						5991573.26	2304364.58	8.00	0.00
						5991571.12	2304353.86	8.00	0.00

Name	ID	Height			Coordinates			
		Begin	End		x	y	z	Ground
		(ft)	(ft)		(ft)	(ft)	(ft)	(ft)
					5991568.97	2304346.35	8.00	0.00
					5991423.18	2304092.28	8.00	0.00
					5991413.81	2304065.83	8.00	0.00
					5991402.70	2304047.08	8.00	0.00
					5991394.36	2304024.16	8.00	0.00
					5991386.03	2304004.72	8.00	0.00
					5991331.17	2303909.58	8.00	0.00
					5990710.34	2303998.47	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)
BARRIEREXISTING			0						6.00	a		5991304.33	2303831.78	6.00	0.00
												5990779.24	2303909.61	6.00	0.00