Sequoia Commerce Center

NOISE AND VIBRATION ANALYSIS

CITY OF TORRANCE

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AUGUST 30, 2024

15795-02 NA

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LIST OF ABBREVIATED TERMS

(1)	Reference
ADT	Average Daily Traffic
ANSI	American National Standards Institute
CEQA	California Environmental Quality Act
CNEL	Community Noise Equivalent Level
dBA	A-weighted decibels
EPA	Environmental Protection Agency
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
Hz	Hertz
INCE	Institute of Noise Control Engineering
L_{eq}	Equivalent continuous (average) sound level
L_{max}	Maximum level measured over the time interval
L_{min}	Minimum level measured over the time interval
OPR	Office of Planning and Research
PPV	Peak particle velocity
Project	Sequoia Commerce Center
RMS	Root-mean-square
VdB	Vibration Decibels

EXECUTIVE SUMMARY

Urban Crossroads, Inc. has prepared this Noise and Vibration Analysis to determine the potential noise and vibration impacts and the necessary mitigation measures, if any, for the proposed Sequoia Commerce Center development ("Project"). The Project site is currently developed with 13 buildings totaling approximately 275,000 square feet of business park use. The proposed Project plans to develop two (2) new proposed industrial buildings: an approximately 120,466 square foot (SF) industrial building (Building 1) and an approximately 155,834 SF industrial building (Building 2). This noise and vibration analysis has been prepared to satisfy applicable City of Torrance standards and thresholds of significance based on guidance provided by Appendix G of the Guidelines for Implementation of the California Environmental Quality Act (State CEQA Guidelines). (1)

The results of this Noise and Vibration 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.

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*	-
Nighttime Concrete Pour Noise		*Less Than Significant*	-
Construction Vibration		*Less Than Significant*	-

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1 INTRODUCTION

This Noise and Vibration Analysis has been completed to determine the noise impacts associated with the development of the proposed Sequoia Commerce Center ("Project"). This noise and vibration analysis briefly describes the Project, provides information regarding noise fundamentals, sets out the local regulatory setting, and evaluates the future exterior noise environment. In addition, this study includes an analysis of the potential Project-related long-term stationary-source operational noise and short-term construction noise and vibration impacts.

1.1 SITE LOCATION

The proposed Project is located southeast corner of Van Ness Avenue and 190th Street at 19250/19320 Van Ness Avenue within the City of Torrance (Assessor's Parcel Numbers or APNs 7352-016-001, 7352-016-002, and 7352-016-003) as shown in Exhibit 1-A.

1.2 PROJECT DESCRIPTION

The Project site is currently developed with 13 buildings totaling approximately 275,000 square feet of business park use. The proposed Project plans to develop two (2) new proposed industrial buildings: an approximately 120,466 square foot (SF) industrial building (Building 1) with 208 parking stalls and an approximately 155,834 SF industrial building (Building 2) with 236 parking stalls on an approximate 14.02-acre site. The preliminary site plan for the proposed Project is shown in Exhibit 1-B. The on-site Project-related noise sources are expected to include: loading dock activity, roof-top air conditioning units, trash enclosure activity, parking lot vehicle movements, and truck movements. This noise analysis is intended to describe noise level impacts associated with the expected typical operational activities at the Project site. To present a conservative approach, this report assumes the Project would operate 24-hours daily for seven days per week.

EXHIBIT 1-A: LOCATION MAP

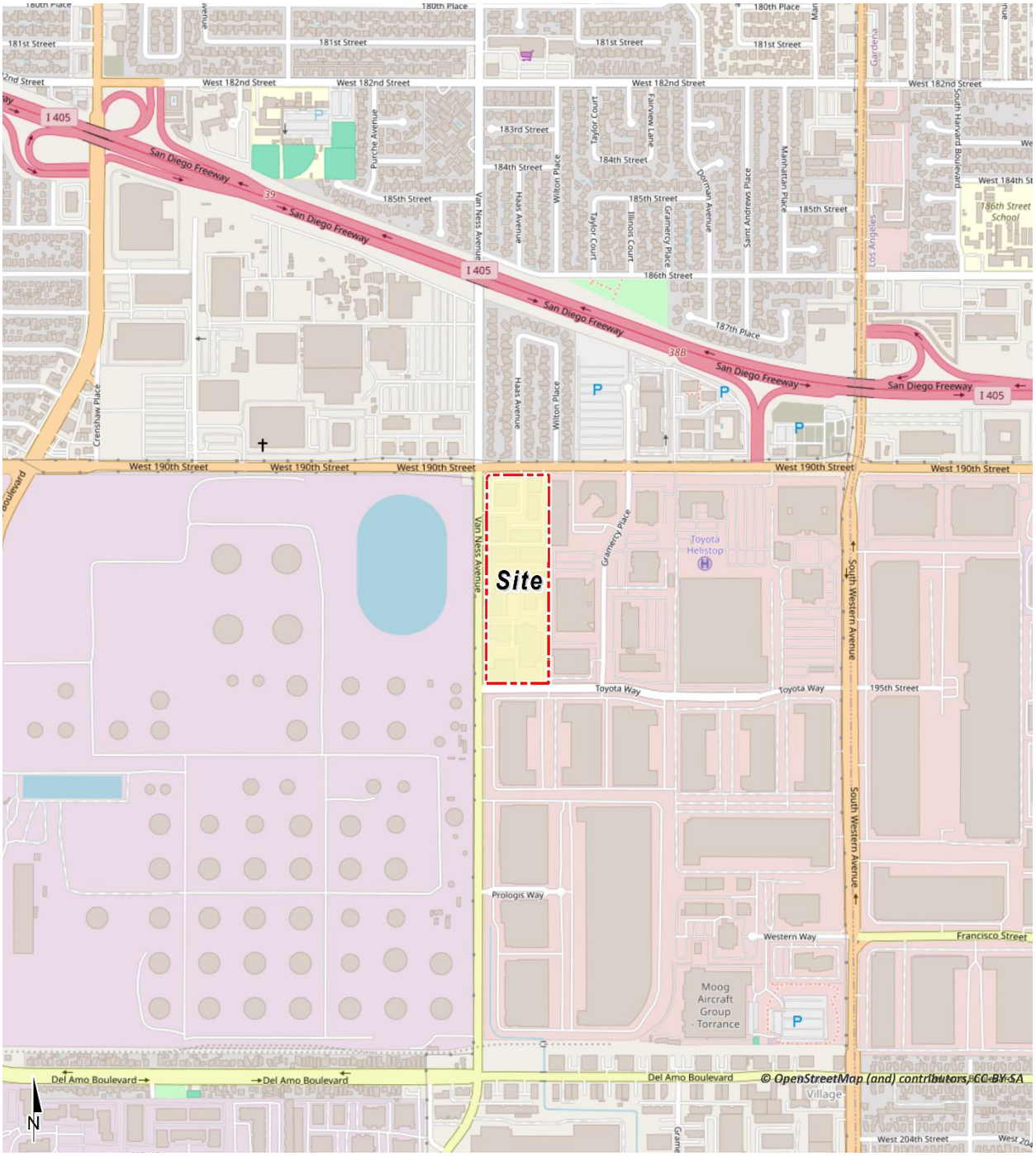
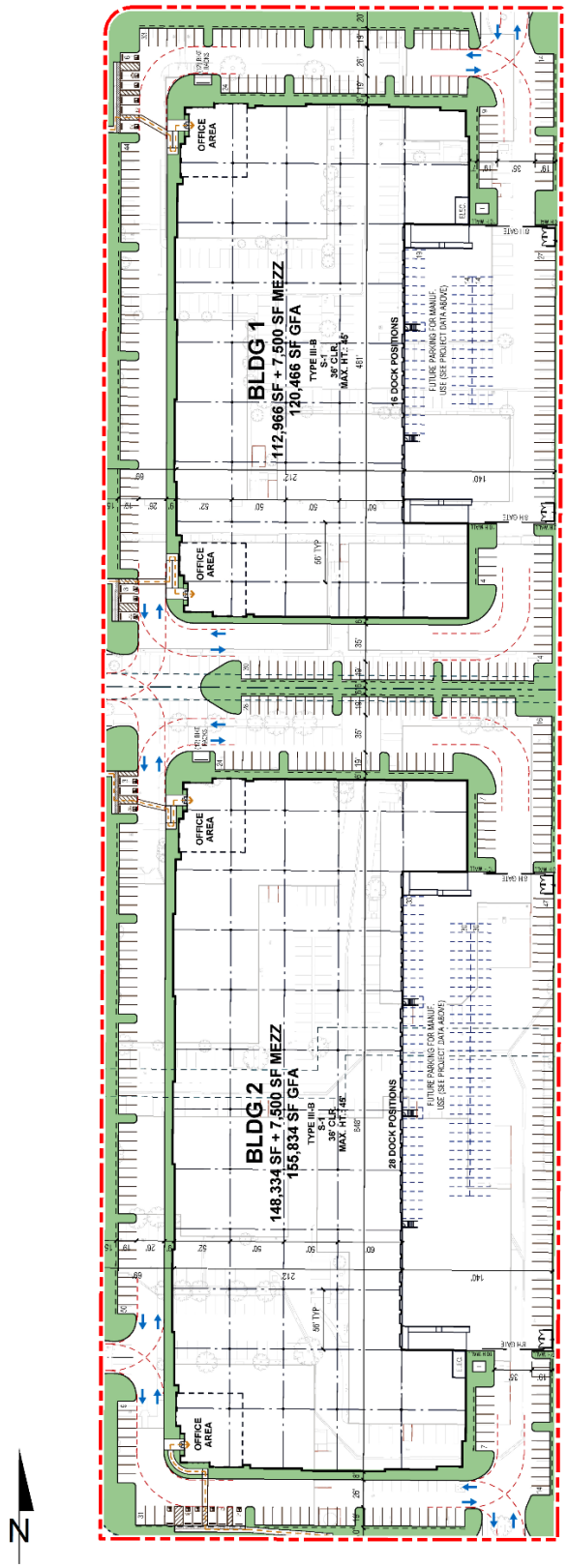


EXHIBIT 1-B: SITE PLAN



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

2.2 NOISE DESCRIPTORS

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

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

2.4 NOISE CONTROL

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

2.5 NOISE BARRIER ATTENUATION

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

2.6 LAND USE COMPATIBILITY WITH NOISE

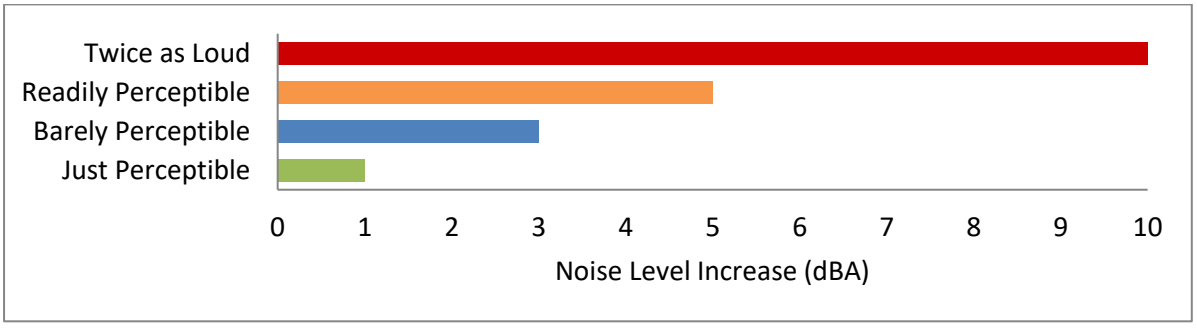
Some land uses are more tolerant of noise than others. For example, schools, hospitals, churches, and residences are more sensitive to noise intrusion than are commercial or industrial developments and related activities. As ambient noise levels affect the perceived amenity or livability of a development,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

2.7 COMMUNITY RESPONSE TO NOISE

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

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

EXHIBIT 2-B: NOISE LEVEL INCREASE PERCEPTION



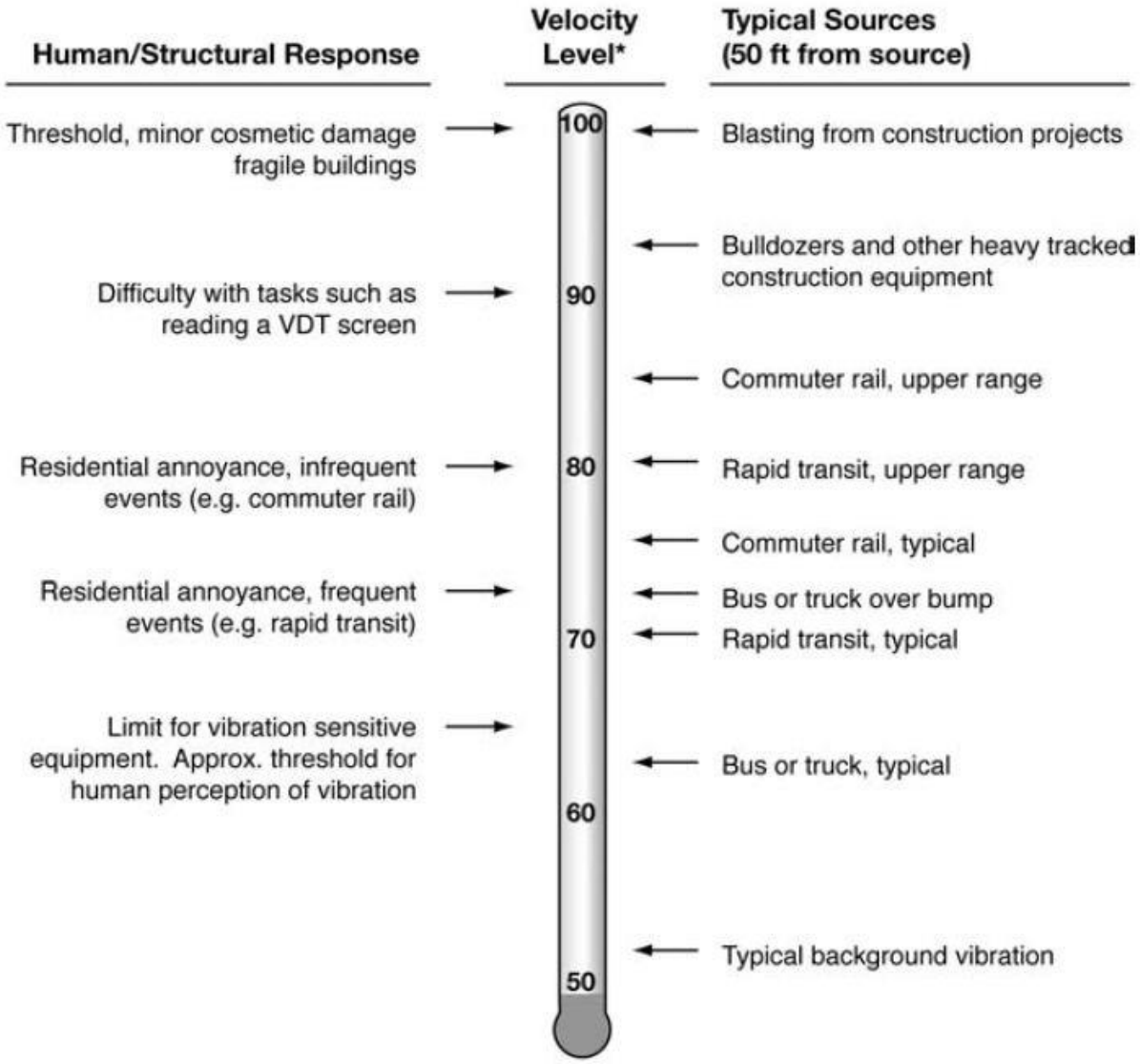
2.8 VIBRATION

Per the Federal Transit Administration (FTA) *Transit Noise and Vibration Impact Assessment Manual*, 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. Additionally, in contrast to airborne noise, ground-borne vibration outdoors is not a common environmental problem and annoyance from ground-borne vibration is almost exclusively an indoor phenomenon (8). Therefore, the effects of vibrations should only be evaluated at a structure and the effects of the building structure on the vibration should be considered. Wood-frame buildings, such as typical residential structures, are more easily excited by ground vibration than heavier buildings. In contrast, large masonry buildings with spread footings have a low response to ground vibration (8). In general, the heavier a building is, the lower the response will be to the incident vibration energy. However, all structurers reduce vibration levels due to the coupling of the building to the soil.

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 (8). 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 (8). However, the RMS amplitude and PPV are related mathematically, and the RMS amplitude of equipment is typically calculated from the PPV reference level. The RMS amplitude is approximately 70% of the PPV (9). Thus, either can be used in the description of vibration impacts.

While not universally accepted, vibration decibel notation (VdB) is another vibration notation developed and used by the FTA in their guidance manual to describe vibration levels and provide a background of common vibration levels and set vibration limits. (8) Decibel notation (VdB) serves to reduce the range of numbers used to describe vibration levels and is used in this report to describe vibration levels. As stated in the FTA guidance manual, 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

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). (10) 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 TORRANCE GENERAL PLAN NOISE ELEMENT

The City of Torrance General Plan Noise Element's goals and policies aim to minimize adverse noise impacts and to preserve high quality of life for city residents. Torrance will maintain a peaceful environment by identifying noise impacts and mitigating noise problems through acoustical treatments and appropriate land use policies. (11) To protect City of Torrance residents from excessive noise levels, the Noise Element contains the following four objectives:

N. I *To identify noise pollution and establish effective noise abatement methods*
N. 2 *To minimize transportation-related noise impacts*
N. 3 *To minimize noise incompatibilities between land uses*
N. 4 *To research and implement new means of noise abatement*

The noise policies specified in the City of Torrance Noise Element provide the guidelines necessary to satisfy these objectives. The noise criteria identified in the City of Torrance Noise Element (Table N-3) are guidelines to evaluate the land use compatibility of transportation-related noise. The compatibility criteria, shown on Exhibit 3-A, provides the city with a planning tool to gauge the compatibility of land uses relative to existing and future exterior noise levels. The *Noise/Land Use Compatibility Guidelines* indicate that the maximum exterior noise level threshold for industrial land uses, such as the Project, is 75 dBA CNEL.

EXHIBIT 3-A: TORRANCE NOISE / LAND USE COMPATIBILITY GUIDELINES

Property Receiving Noise		Maximum Noise Level Ldn or CNEL, dB(A)	
Type of Use	Land Use Designations	Interior	Exterior
Residential[3]	Low Density Residential Low Medium Density Residential Medium Density Residential	45	60/65[1]
	Medium High Density Residential	45	65 / 70[2]
	High Density Residential	45	70[1]
Commercial and Office	General Commercial Commercial Center	--	70
	Residential Office	50	70
Industrial	Business Park Light Industrial Heavy Industrial	55	75
Public and Medical Uses	Public/Quasi-Public/Open Space	50	65
	Hospital/Medical	50	70
Airport	Airport	--	70

1. The normally acceptable standard is 60 db(A). The higher standard is acceptable subject to inclusion of noise-reduction features in project design and construction.
2. Maximum exterior noise levels up to 70 dB CNEL are allowed for Multiple-Family Housing.
3. Regarding aircraft-related noise, the maximum acceptable exposure for new residential development is 60 dB(A) CNEL.

Source: City of Torrance General Plan Noise Element, Table N-3.

3.3 CITY OF TORRANCE MUNICIPAL CODE

The City of Torrance Municipal Code (Municipal Code) establishes operational noise standards applicable to the Sequoia Commerce Center Project. For the purposes of regulating operational noise, the Municipal Code at Chapter 6 Noise Regulation, Article 7, Section 46.7.2 divides the City into four "Noise Regions." The Project site is in Noise Limit Region 1 as shown on Figure N-5 of City of Torrance General Plan and Article 8 Exhibit A of the Municipal Code. The nearest noise sensitive land use is located north 190th Street in Noise Limit Region 4.

Municipal Code Section 46.7.2[a][1] establishes exterior noise level standards for noise sensitive residential land uses 500 feet or more distant of the City's Noise Limit Region 1 boundaries. To account for noise sensitive receiver locations within 500 feet of Noise Limit Region 1, Municipal Code Section 46.7.2[a][2] provides for an additional noise level increase of 5 dBA. In this context, and for the purposes of this analysis, the Municipal Code standards presented at Table 3-1 are employed in evaluation of noise levels that would be received at the nearest noise sensitive land uses located within Noise Limit Region 4. The City of Torrance Municipal Code noise standards are included in Appendix 3.1.

TABLE 3-1: OPERATIONAL NOISE LEVEL STANDARDS

Jurisdiction	Land Use	Time Period	Noise Level Standard (dBA L_{eq})[2]
City of Torrance[1]	Residential	Daytime (7:00 a.m. - 10:00 p.m.)	60
		Nighttime (10:00 p.m. - 7:00 a.m.)	55

[1] Residential receivers in Noise Limit Region 4 and within 500 feet of Noise Limit Region 1 are increased by 5 dBA. City of Torrance Municipal Code, Article 7, Section 46.7.2[a][2] (Appendix 3.1).

[2] L_{eq} represents a steady state sound level containing the same total energy as a time varying signal over a given sample period.

3.4 CONSTRUCTION NOISE STANDARDS

To control noise impacts associated with construction, the City has established limits to the hours of construction activities in Section 46.3.1[a] of the City's Municipal Code. Per Section 46.3.1[a] construction activities are permitted within the hours of 7:30 a.m. to 6:00 p.m. Monday through Friday and 9:00 a.m. to 5:00 p.m. on Saturdays; with no activity allowed on Sundays and holidays. (12) In addition, the Municipal Code identifies an exterior construction noise level limit of 50 dBA L_{eq} for all other time periods outside the permitted hours. Section 46.3.1[b] indicates that The Community Development Director may allow expanded hours and days of construction if unusual circumstances and conditions exist. Such requests must be made in writing and must receive approval by the Director prior to any expansion of the hour and day restrictions listed.

While the City establishes limits to the hours during which construction activity may take place, neither the City's General Plan nor Municipal Code establish numeric maximum acceptable construction source noise levels at potentially affected receivers during the permitted construction hours. 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. (8 p. 179)

3.5 VIBRATION STANDARDS

Construction activity can result in varying degrees of ground-borne vibration, depending on the equipment and methods used, distance to the affected structures and soil type. Construction vibration is generally associated with pile driving and rock blasting. Other construction equipment such as air compressors, light trucks, hydraulic loaders, etc., generates little or no ground vibration. (8)

To analyze vibration impacts originating from the operation and construction of the Sequoia Commerce Center, vibration-generating activities are appropriately evaluated against standards established under a City's Municipal Code, if such standards exist. However, the City of Torrance does not identify specific vibration level limits. Therefore, for analysis purposes, the Caltrans *Transportation and Construction Vibration Guidance Manual*, (9 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 State CEQA Guidelines. (1) For the purposes of this report, impacts would be potentially significant if the Project results in or causes:

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

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

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

4.1 NOISE LEVEL INCREASES (THRESHOLD A)

Noise level increases resulting from the Project are evaluated based on the Appendix G CEQA Guidelines described above at the closest sensitive receiver locations. Under CEQA, consideration must be given to the magnitude of the increase, the existing baseline ambient noise levels, and the location of noise-sensitive receivers to determine if a noise increase represents a significant adverse environmental impact. This approach recognizes *that there is no single noise increase that renders a noise impact significant.* (13) This is primarily because of the wide variation in individual thresholds of annoyance and differing individual experiences with noise. Thus, an important way of determining a person's subjective reaction to a new noise is the comparison of it to the existing environment to which one has adapted—the so-called *ambient* environment. In general, the more a new noise level exceeds the previously existing ambient noise level, the less acceptable the new noise level will typically be judged.

The Federal Interagency Committee on Noise (FICON) (14) developed guidance to be used for the assessment of project-generated increases in noise levels that consider the ambient noise level. The FICON recommendations are based on studies that relate aircraft noise levels to the percentage of persons highly annoyed by aircraft noise. Although the FICON recommendations were specifically developed to assess aircraft noise impacts, these recommendations are often used in environmental noise impact assessments involving the use of cumulative noise exposure metrics, such as the average-daily noise level (CNEL) and equivalent continuous noise level (L_{eq}).

As previously stated, the approach used in this noise study recognizes *that there is no single noise increase that renders the noise impact significant*, based on a 2008 California Court of Appeal ruling on Gray v. County of Madera. (13) For example, if the ambient noise environment is quiet (<60 dBA) and the new noise source greatly increases the noise levels, an impact may occur if the noise criteria may be exceeded. Therefore, for this analysis, a *readily perceptible* 5 dBA or greater project-related noise level increase is considered a significant impact when the without project noise levels are below 60 dBA. Per the FICON, in areas where the without project noise levels range from 60 to 65 dBA, a 3 dBA *barely perceptible* noise level increase appears to be appropriate for most people. When the without project noise levels already exceed 65 dBA, any

increase in community noise louder than 1.5 dBA or greater is considered a significant impact if the noise criteria for a given land use is exceeded, since it likely contributes to an existing noise exposure exceedance. The FICON guidance provides an established source of criteria to assess the impacts of substantial temporary or permanent increase in baseline ambient noise levels. Based on the FICON criteria, the amount to which a given noise level increase is considered acceptable is reduced when the without Project (baseline) noise levels are already shown to exceed certain land-use specific exterior noise level criteria. The specific levels are based on typical responses to noise level increases of 5 dBA or *readily perceptible*, 3 dBA or *barely perceptible*, and 1.5 dBA depending on the underlying without Project noise levels for noise-sensitive uses. These levels of increases and their perceived acceptance at noise sensitive receiver locations are consistent with guidance provided by both the Federal Highway Administration (4 p. 9) and Caltrans (15 p. 2_48).

4.2 VIBRATION (THRESHOLD B)

As described in Section 3.5, the vibration impacts originating from the construction of Sequoia Commerce Center, vibration-generating activities are appropriately evaluated using the Caltrans vibration damage thresholds 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).

4.3 CEQA GUIDELINES NOT FURTHER ANALYZED (THRESHOLD C)

CEQA Noise Threshold C applies when there are nearby public and private airports and/or airstrips and focuses on land use compatibility of the Project to nearby airports and airstrips. 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 Los Angeles International Airport (LAX) located roughly 6.5 miles northwest 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 Appendix G to the CEQA Guidelines, Noise Threshold C.

4.4 SIGNIFICANCE CRITERIA SUMMARY

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

TABLE 4-1: SIGNIFICANCE CRITERIA SUMMARY

Analysis	Receiving Land Use	Condition(s)	Significance Criteria	
			Daytime	Nighttime
Operational	Noise-Sensitive	Exterior Noise Level Standards	See Table 3-1	
		if ambient is < 60 dBA L_{eq}[1]	≥ 5 dBA L_{eq} Project increase	
		if ambient is 60 - 65 dBA L_{eq}[1]	≥ 3 dBA L_{eq} Project increase	
		if ambient is > 65 dBA L_{eq}[1]	≥ 1.5 dBA L_{eq} Project increase	
Construction	Noise-Sensitive	Permitted hours of 7:30 a.m. to 6:00 p.m. on weekdays, 9:00 a.m. to 5:00 p.m. on Saturdays with no activity on Sundays and federal holidays[2]		
		Noise Level Threshold	80 dBA L_{eq}[3]	50 dBA L_{eq}[2]
		Vibration Level Threshold[4]	0.3 PPV (in/sec)	

[1] FICON, 1992.
[2] City of Torrance Municipal Code, Section 46.3.1 (Appendix 3.1).
[3] Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual.
[4] Caltrans Transportation and Construction Vibration Guidance Manual, April 2020, Table 19.
"Daytime" = 7:00 a.m. - 10:00 p.m.; "Nighttime" = 10:00 p.m. - 7:00 a.m.

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5 EXISTING NOISE LEVEL MEASUREMENTS

To assess the existing noise level environment, 24-hour noise level measurements were taken at three locations in the Project study area. The noise level measurement 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, August 13, 2024. 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 equivalent daytime and nighttime hourly noise levels. 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. (16)

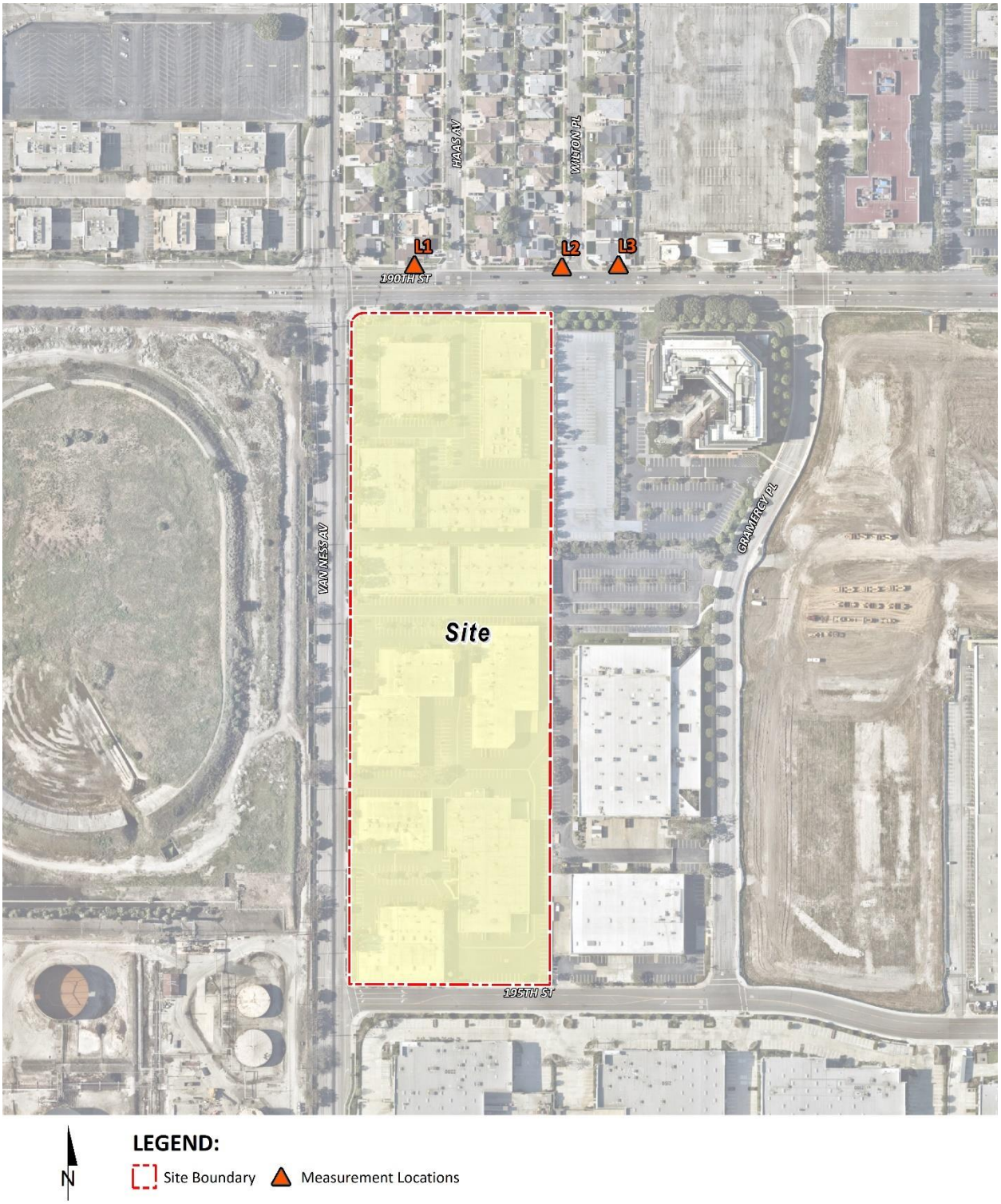
5.2 NOISE MEASUREMENT LOCATIONS

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

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

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

EXHIBIT 5-A: NOISE MEASUREMENT LOCATIONS



5.3 NOISE MEASUREMENT RESULTS

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

TABLE 5-1: AMBIENT NOISE LEVEL MEASUREMENTS

Location[1]	Description	Energy Average Noise Level (dBA L_{eq})[2]	
		Daytime	Nighttime
L1	Located north of the site near the residence at 18932 Van Ness Avenue.	70.9	69.4
L2	Located north of the site near the residence at 18932 Haas Avenue.	70.1	67.3
L3	Located north of the site near the residence at 18932 Wilton Place.	71.6	68.8

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

Table 5-1 provides the equivalent 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.

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6 RECEIVER LOCATIONS

To assess the potential for long-term operational and short-term construction noise impacts, the following sensitive receiver locations, as shown on Exhibit 6-A, were identified as representative locations for analysis. 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. 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.

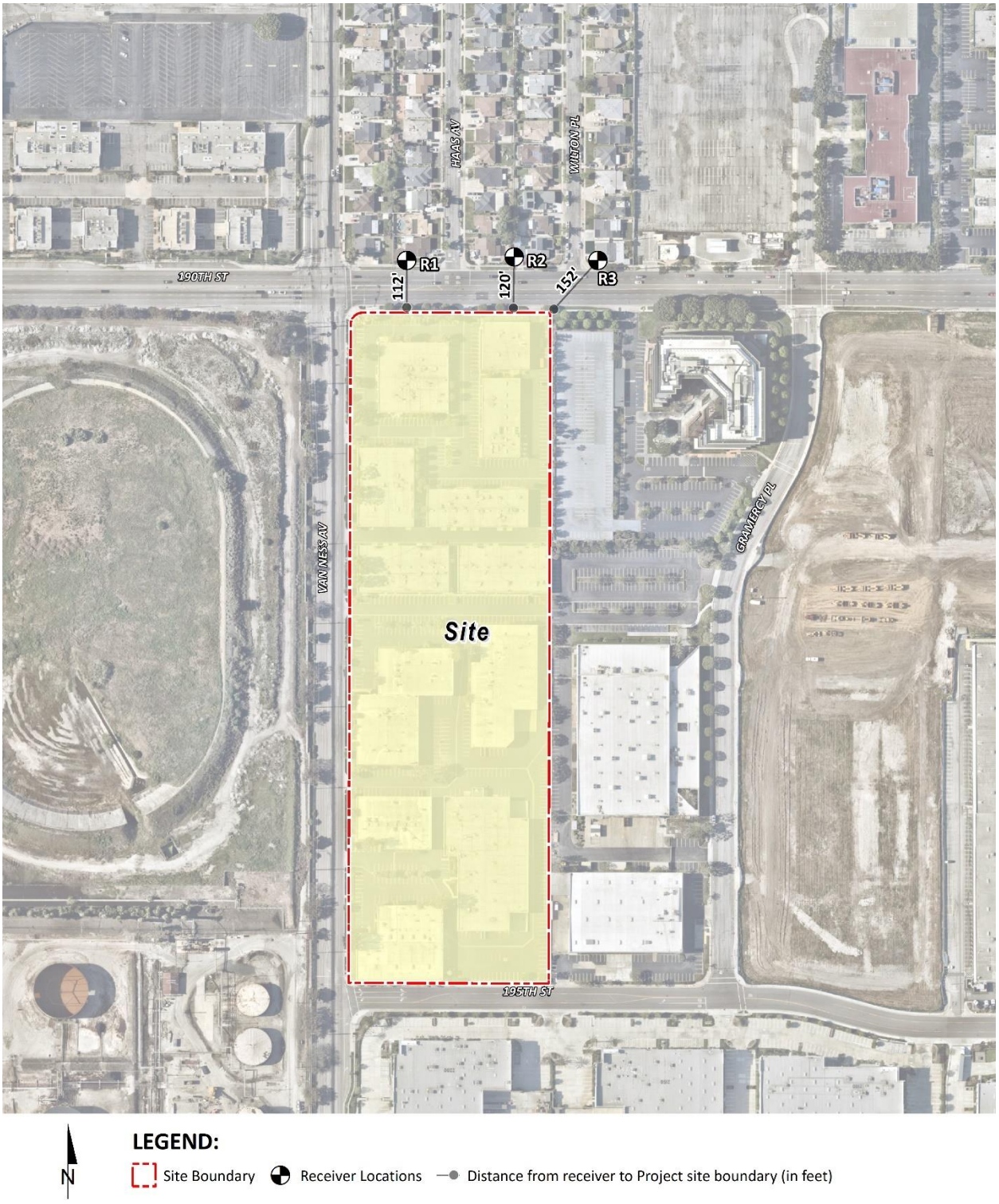
To describe the potential off-site Project noise levels, three receiver locations in the vicinity of the Project site were identified. All distances are measured from the Project site boundary to the outdoor living areas (e.g., private backyards) or at the building façade, whichever is closer to the Project site. Other sensitive land uses in the Project study area that are located at greater distances than those identified in this noise study will experience lower noise levels than those presented in this report due to the additional attenuation from distance and the shielding of intervening structures. Distance is measured in a straight line from the Project boundary to each receiver location.

R1: Location R1 represents the existing residence building at 18931 Haas Avenue, approximately 112 feet north of the Project site. Since there are no private outdoor living areas (backyards) facing the Project site, receiver R1 is placed at the building façade. A 24-hour noise measurement was taken near this location, L1, to describe the existing ambient noise environment.

R2: Location R2 represents the existing residence building at 18932 Haas Avenue, approximately 120 feet north of the Project site. Since there are no private outdoor living areas (backyards) facing the Project site, receiver R2 is placed at the building façade. A 24-hour noise measurement was taken near this location, L2, to describe the existing ambient noise environment.

R1: Location R1 represents the existing residence building at 18931 Wilton Place, approximately 152 feet northeast of the Project site. Since there are no private outdoor living areas (backyards) facing the Project site, receiver R3 is placed at the building façade. A 24-hour noise measurement was taken near this location, L3, to describe the existing

EXHIBIT 6-A: RECEIVER LOCATIONS



7 OPERATIONAL NOISE ANALYSIS

This section analyzes the potential stationary-source operational noise impacts at the nearby receiver locations, identified in Section 6, resulting from the operation of the proposed Sequoia Commerce Center 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 and industrial 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, 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 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, roof-top air conditioning units, trash enclosure activity, parking lot vehicle movements, and truck movements all operating at the same time. These sources of noise activity will likely vary throughout the day.

7.2.1 MEASUREMENT PROCEDURES

The reference noise level measurements presented in this section were collected using a Larson Davis LxT Type 1 precision 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. The 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. (16)

EXHIBIT 7-A: OPERATIONAL NOISE SOURCE LOCATIONS

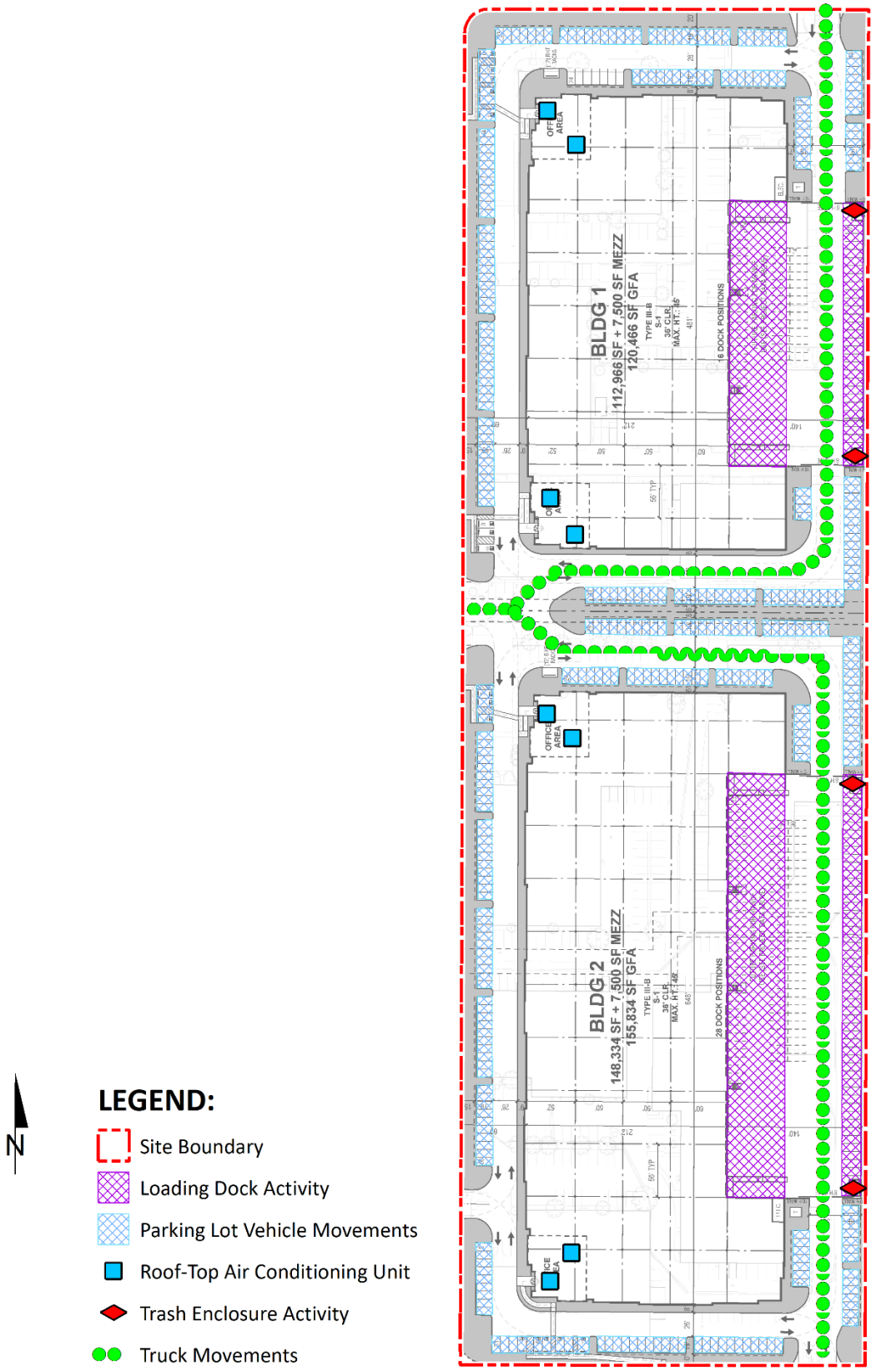


TABLE 7-1: REFERENCE NOISE LEVEL MEASUREMENTS

Noise Source[1]	Noise Source Height (Feet)	Min./ Hour[2]		Reference Noise Level (dBA L_{eq}) @ 50 Feet	Sound Power Level (dBA)[3]
		Day	Night		
Loading Dock Activity	8'	60	60	62.8	103.4
Roof-Top Air Conditioning Units	5'	39	28	57.2	88.9
Trash Enclosure Activity	5'	60	30	57.3	89.0
Parking Lot Vehicle Movements	5'	60	60	52.6	81.1
Truck Movements	8'	60	60	59.8	93.2

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

7.2.2 LOADING DOCK ACTIVITY

The reference loading dock activities are intended to describe the typical operational noise source levels associated with the Project. This includes truck idling, deliveries, backup alarms, unloading/loading, docking including a combination of tractor trailer semi-trucks, two-axle delivery trucks, and background forklift operations. At a uniform reference distance of 50 feet, Urban Crossroads collected a reference noise level of 62.8 dBA L_{eq}. The loading dock activity noise level measurement was taken over a fifteen-minute period and represents multiple noise sources taken from the center of activity. 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.

The noise level measurements represent the typical weekday industrial building operation in a single building with a loading dock area on the eastern side of the building façade. In addition, since this reference noise level describes the peak noise source activity, it is also used in the noise prediction model as area source to conservatively describe the entire loading dock area even though during normal operations, the loading dock noise source activity will occur at different locations throughout the loading dock area.

7.2.3 ROOF-TOP AIR CONDITIONING UNITS

The noise level measurements describe a single mechanical roof-top air conditioning unit. The reference noise level represents a Lennox SCA120 series 10-ton model packaged air conditioning unit. At the uniform reference distance of 50 feet, the reference noise level is 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.

7.2.4 TRASH ENCLOSURE ACTIVITY

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

7.2.5 PARKING LOT VEHICLE MOVEMENTS

To describe the on-site parking lot activity, a long-term 29-hour reference noise level measurement was collected in the center of activity within the staff parking lot of an Amazon warehouse distribution center. At 50 feet from the center of activity, the parking lot produced a reference noise level of 52.6 dBA L_{eq}. Parking activities are expected to take place during the full hour (60 minutes) throughout the daytime and evening hours. The parking lot noise levels are mainly due to cars pulling in and out of parking spaces in combination with car doors opening and closing.

7.2.6 TRUCK MOVEMENTS

The truck movements reference noise level measurement was collected over a period of 1 hour and 28 minutes and represent 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 9613-2 protocol, CadnaA will calculate the distance from each noise source to the noise receiver locations, using the ground absorption, distance, and barrier/building attenuation inputs to provide a summary of noise level at each receiver and the partial noise level contributions by noise source. Consistent with the ISO 9613-2 protocol, the CadnaA noise

prediction model relies on the reference sound power level (L_w) to describe individual noise sources. While sound pressure levels (e.g., L_{eq}) quantify in decibels the intensity of given sound sources at a reference distance, sound power levels (L_w) are connected to the sound source and are independent of distance. Sound pressure levels vary substantially with distance from the source and diminish because of intervening obstacles and barriers, air absorption, wind, and other factors. Sound power is the acoustical energy emitted by the sound source and is an absolute value that is not affected by the environment.

The operational noise level calculations provided in this noise study account for the distance attenuation provided due to geometric spreading, when sound from a localized stationary source (i.e., a point source) propagates uniformly outward in a spherical pattern. A default ground attenuation factor of 0.5 was used in the CadnaA noise analysis to account for mixed ground representing a combination of hard and soft surfaces. Appendix 7.1 includes the noise model inputs and calculations.

7.4 PROJECT OPERATIONAL NOISE LEVELS

Using the reference noise levels to represent the Project operations that include loading dock activity, roof-top air conditioning units, trash enclosure activity, parking lot vehicle movements, and truck movements, Urban Crossroads, Inc. calculated the operational source noise levels that are expected to be generated at the Project site and the Project-related noise level increases that would be experienced at each of the sensitive receiver locations. Table 7-2 shows the Project operational noise levels during the daytime hours of 7:00 a.m. to 10:00 p.m. The daytime hourly noise levels at the off-site receiver locations are expected to range from 44.6 to 51.9 dBA L_{eq}.

TABLE 7-2: DAYTIME PROJECT OPERATIONAL NOISE LEVELS

Noise Source[1]	Operational Noise Levels by Receiver Location (dBA Leq)		
	R1	R2	R3
Loading Dock Activity	31.6	49.5	51.2
Roof-Top Air Conditioning Units	39.5	35.3	33.1
Trash Enclosure Activity	21.2	37.7	37.6
Parking Lot Vehicle Movements	42.2	41.6	38.4
Truck Movements	33.0	40.4	39.0
Total (All Noise Sources)	**44.6**	**50.9**	**51.9**

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

Table 7-3 shows the Project operational noise levels during the nighttime hours of 10:00 p.m. to 7:00 a.m. The nighttime hourly noise levels at the off-site receiver locations are expected to range from 44.0 to 51.8 dBA L_{eq}. The minor differences between the daytime and nighttime noise levels are largely related to the estimated duration of noise activity as outlined in Table 7-1 and Appendix 7.1.

TABLE 7-3: NIGHTTIME PROJECT OPERATIONAL NOISE LEVELS

Noise Source[1]	Operational Noise Levels by Receiver Location (dBA Leq)		
	R1	R2	R3
Loading Dock Activity	31.6	49.5	51.2
Roof-Top Air Conditioning Units	37.1	32.9	30.6
Trash Enclosure Activity	17.2	33.8	33.6
Parking Lot Vehicle Movements	42.2	41.6	38.4
Truck Movements	33.0	40.4	39.0
Total (All Noise Sources)	**44.0**	**50.8**	**51.8**

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

7.5 PROJECT OPERATIONAL NOISE LEVEL COMPLIANCE

To demonstrate compliance with local noise regulations, the Project-only operational noise levels are evaluated against exterior noise level thresholds at nearby noise-sensitive receiver locations. Table 7-5 shows the operational noise levels associated with Sequoia Commerce Center Project will not exceed the City of Torrance exterior noise level standards.

TABLE 7-4: OPERATIONAL NOISE LEVEL COMPLIANCE

Receiver Location[1]	Project Operational Noise Levels (dBA Leq)[2]		Noise Level Standards (dBA Leq)[3]		Noise Level Standards Exceeded?[4]	
	Daytime	Nighttime	Daytime	Nighttime	Daytime	Nighttime
R1	44.6	44.0	60	55	No	No
R2	50.9	50.8	60	55	No	No
R3	51.9	51.8	60	55	No	No

[1] See Exhibit 6-A for the receiver locations.
[2] Proposed Project operational noise levels as shown on Tables 7-2 and 7-3.
[3] Exterior noise level standards, as shown on Table 3-1.
[4] Do the estimated Project operational noise source activities exceed the noise level standards?
"Daytime" = 7:00 a.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. As indicated on Tables 7-5 and 7-6, the Project will generate noise level increases ranging from 0.0 to 0.1 dBA L_{eq} at the nearest receiver locations.

TABLE 7-5: DAYTIME PROJECT OPERATIONAL NOISE LEVEL INCREASES

Receiver Location[1]	Total Project Operational Noise Level[2]	Measurement Location[3]	Reference Ambient Noise Levels[4]	Combined Project and Ambient[5]	Project Increase[6]	Increase Criteria[7]	Increase Criteria Exceeded?
R1	44.6	L1	70.9	70.9	0.0	1.5	No
R2	50.9	L2	70.1	70.2	0.1	1.5	No
R3	51.9	L3	71.6	71.6	0.0	1.5	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 7-6: NIGHTTIME OPERATIONAL NOISE LEVEL INCREASES

Receiver Location[1]	Total Project Operational Noise Level[2]	Measurement Location[3]	Reference Ambient Noise Levels[4]	Combined Project and Ambient[5]	Project Increase[6]	Increase Criteria[7]	Increase Criteria Exceeded?
R1	44.0	L1	69.4	69.4	0.0	1.5	No
R2	50.8	L2	67.3	67.4	0.1	1.5	No
R3	51.8	L3	68.8	68.9	0.1	1.5	No

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

The Project-related operational noise level increases will not exceed the operational noise level increase significance criteria presented in Table 4-1. Therefore, the incremental Project operational noise level increase is considered *less than significant* at all receiver locations.

7.7 OFF-SITE TRAFFIC NOISE ANALYSIS

Traffic generated by the operation of the proposed Project will influence the traffic noise levels in surrounding off-site areas and at the Project site. According to the *Sequoia Commerce Center prepared by Urban Crossroads, Inc.* (17) the Project is anticipated to result in a net decrease of approximately 213 daily trips as compared to the previous and approved use. Therefore, since the Project represents a net reduction in trips from the previous and approved use, the off-site traffic noise levels generated by the Project are considered *less than significant* and no further analysis is required.

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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 activity boundaries in relation to the nearest sensitive receiver locations previously described in Section 6.

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:

- Demolition
- 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. (18) 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 noise levels for the loudest construction equipment, assuming all equipment operates at the same time. To account for the dynamic nature of construction activities, the CadnaA construction noise analysis evaluates the equipment as multiple moving point sources within the construction area (Project site boundary). Construction impacts are based on the highest noise level calculated at each receiver location. As shown on Table 8-2, the construction noise levels are expected to range from 57.0 to 70.1 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 Equipment[1]	Reference Noise Level @ 50 Feet (dBA L_{eq})	Composite Reference Noise Level (dBA L_{eq})[2]	Reference Power Level (dBA L_w)[3]
Demolition	Concrete Saw	83	86.8	118.4
	Grapple (on backhoe)	83		
	Gradall	79		
Site Preparation	Tractor	80	84.0	115.6
	Backhoe	74		
	Grader	81		
Grading	Scraper	80	83.3	114.9
	Excavator	77		
	Dozer	78		
Building Construction	Crane	73	80.6	112.2
	Generator	78		
	Front End Loader	75		
Paving	Paver	74	77.8	109.5
	Dump Truck	72		
	Roller	73		
Architectural Coating	Man Lift	68	76.2	107.8
	Compressor (air)	74		
	Generator (<25kVA)	70		

[1] FHWA Road Construction Noise Model.
[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.

TABLE 8-2: CONSTRUCTION EQUIPMENT NOISE LEVEL SUMMARY

Receiver Location[1]	Construction Noise Levels (dBA L_{eq})						
	Demolition	Site Preparation	Grading	Building Construction	Paving	Architectural Coating	Highest Levels[2]
R1	70.1	67.3	66.6	63.9	61.2	59.5	70.1
R2	69.6	66.8	66.1	63.4	60.7	59.0	69.6
R3	67.6	64.8	64.1	61.4	58.7	57.0	67.6

[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 satisfy 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	70.1	80	No
R2	69.6	80	No
R3	67.6	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 NIGHTTIME CONCRETE POUR NOISE ANALYSIS

It is our understanding that nighttime concrete pouring activities may occur as a part of Project building construction activities. Nighttime concrete pouring activities are often used to support reduced concrete mixer truck transit times and lower air temperatures than during the daytime hours and are generally limited to the actual building pad area. Since Section 46.3.1[a] *7:30 a.m. to 6:00 p.m. Monday through Friday and 9:00 a.m. to 5:00 p.m. on Saturdays; with no activity allowed on Sundays and holidays, t*he Project Applicant will be required to obtain authorization for nighttime work from the City of Torrance. Any nighttime construction noise activities shall satisfy the noise limits outlined in Table 3-1.

8.5.1 NIGHTTIME CONCRETE POUR REFERENCE NOISE LEVEL MEASUREMENTS

To estimate the noise levels due to nighttime concrete pour activities, sample reference noise level measurements were taken during a nighttime concrete pour at an unrelated construction site. Urban Crossroads, Inc. collected short-term nighttime concrete pour reference noise level measurements during the noise-sensitive nighttime hours between 1:00 a.m. to 2:00 a.m. at 27334 San Bernardino Avenue in the City of Redlands. At 50 feet from the center of activity, the nighttime concrete pour activities produced a reference noise level of 67.7 dBA L_{eq}. The reference noise level describes the expected concrete pour noise sources that may include concrete mixer truck movements and pouring activities, concrete paving equipment, rear mounted concrete mixer truck backup alarms, engine idling, air brakes, generators, and workers communicating/whistling. To describe the nighttime concrete pour noise levels associated with the construction of the Sequoia Commerce Center, this analysis relies on a reference noise level of 67.7 dBA L_{eq} at 50 feet

8.5.2 NIGHTTIME CONCRETE POUR NOISE LEVEL COMPLIANCE

As shown on Table 8-4, the noise levels associated with the nighttime concrete pour activities are estimated to range from 47.2 to 49.8 dBA L_{eq} and will satisfy the City of Torrance nighttime stationary-source exterior hourly average L_{eq} residential noise level threshold at all the receiver locations. Based on the results of this analysis, all nearest noise receiver locations will experience *less than significant* impacts due to the Project related nighttime concrete pour activities. Appendix 8.2 includes the CadnaA nighttime concrete pour noise model inputs.

TABLE 8-4: NIGHTTIME CONCRETE POUR NOISE LEVEL COMPLIANCE

Receiver Location[1]	Concrete Pour Construction Noise Levels (dBA L_{eq})		
	Exterior Noise Levels[2]	Threshold[3]	Threshold Exceeded?[4]
R1	49.8	50	No
R2	49.3	50	No
R3	47.2	50	No

[1] Construction noise source and receiver locations are shown on Exhibit 8-A.
[2] Nighttime Concrete Pour noise model inputs are included in Appendix 8.2.
[3] Exterior nighttime noise level standards as shown on Table 3-1.
[4] Do the estimated Project construction noise levels exceed the construction noise level threshold?

8.6 CONSTRUCTION VIBRATION ANALYSIS

Construction activity can result in varying degrees of ground vibration, depending on the equipment and methods employed. The operation of construction equipment causes ground vibrations that spread through the ground and diminish in strength with distance. Construction vibration is generally associated with pile driving and rock blasting. However, no pile driving, or rock blasting activities are planned for the Project. Ground vibration levels associated with various types of construction equipment are summarized on Table 8-5. Based on the representative vibration levels presented for various construction equipment types, it is possible

to estimate the potential for human response (annoyance) and building damage using the following vibration assessment methods defined by the FTA. To describe the vibration impacts the FTA provides the following equation: $PPV_{equip} = PPV_{ref} \times (25/D)^{1.5}$

TABLE 8-5: VIBRATION SOURCE LEVELS FOR CONSTRUCTION EQUIPMENT

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

Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual

Table 8-6 presents the expected Project related vibration levels at the nearby receiver locations. At distances ranging from 112 to 152 feet from Project construction activities, construction vibration velocity levels are estimated to range from 0.014 to 0.022 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. Moreover, the vibration levels reported at the sensitive receiver locations are unlikely to be sustained during the entire construction period but will occur rather only during the times that heavy construction equipment is operating adjacent to the Project site perimeter.

TABLE 8-6: PROJECT CONSTRUCTION VIBRATION LEVELS

Receiver[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	112'	0.000	0.004	0.008	0.009	0.022	0.022	0.3	No
R2	120'	0.000	0.003	0.007	0.008	0.020	0.020	0.3	No
R3	152'	0.000	0.002	0.005	0.006	0.014	0.014	0.3	No

[1] Construction noise source and receiver locations are shown on Exhibit 8-A.
[2] Distance from receiver location 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

9 REFERENCES

1. **California Natural Resources Agency.** *2024 California Environmental Quality Act (CEQA) Statue and Guidelines.* s.l. : Association of Environmental Professionals.
2. **California Department of Transportation Environmental Program.** *Technical Noise Supplement - A Technical Supplement to the Traffic Noise Analysis Protocol.* Sacramento, CA : s.n., September 2013.
3. **Environmental Protection Agency Office of Noise Abatement and Control.** *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety.* March 1974. EPA/ONAC 550/9/74-004.
4. **U.S. Department of Transportation, Federal Highway Administration, Office of Environment and Planning, Noise and Air Quality Branch.** *Highway Traffic Noise Analysis and Abatement Policy and Guidance.* December 2011.
5. **U.S. Department of Transportation Federal Highway Administration.** *Highway Noise Barrier Design Handbook.* 2001.
6. **U.S. Department of Transportation, Federal Highway Administration.** *Highway Traffic Noise in the United States, Problem and Response.* April 2000. p. 3.
7. **U.S. Environmental Protection Agency Office of Noise Abatement and Control.** *Noise Effects Handbook-A Desk Reference to Health and Welfare Effects of Noise.* October 1979 (revised July 1981). EPA 550/9/82/106.
8. **U.S. Department of Transportation, Federal Transit Administration.** *Transit Noise and Vibration Impact Assessment Manual, FTA Report No. 0123.* September 2018.
9. **California Department of Transportation.** *Transportation and Construction Vibration Guidance Manual.* April 2020.
10. **Office of Planning and Research.** *State of California General Plan Guidlines.* October 2019.
11. **City of Torrance.** *General Plan, Noise Element.* April 2010.
12. —. *Municipal Code, Chapter 6 Noise Regulation.*
13. **California Court of Appeal.** *Gray v. County of Madera, F053661.* 167 Cal.App.4th 1099; - Cal.Rptr.3d, October 2008.
14. **Federal Interagency Committee on Noise.** *Federal Agency Review of Selected Airport Noise Analysis Issues.* August 1992.
15. **California Department of Transportation.** *Technical Noise Supplement.* November 2009.
16. **American National Standards Institute (ANSI).** *Specification for Sound Level Meters ANSI S1.4-2014/IEC 61672-1:2013.*
17. **Urban Crossroads, Inc.** *Sequoia Commerce Center.* August 2024.
18. **U.S. Department of Transportation, Federal Highway Administration, Office of Environment and Planning.** *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 Sequoia Commerce Center Project. The information contained in this noise study report is based on the best available data at the time of preparation. If you have any questions, please contact me directly at (949) 584-3148.

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EDUCATION

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

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

PROFESSIONAL REGISTRATIONS

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

PROFESSIONAL AFFILIATIONS

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

PROFESSIONAL CERTIFICATIONS

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

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APPENDIX 3.1:

CITY OF TORRANCE MUNICIPAL CODE

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CHAPTER 6

NOISE REGULATION Revised 10/21

ARTICLE 1 - GENERAL PROVISIONS
(Added by O-2170; Amended by O-2211)

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

46.1.2 DEFINITIONS.
(Amended by O-2466)

As used in this Chapter, unless the context otherwise clearly indicates, the words and phrases used in this Chapter are defined as follows:

a) Ambient noise is the all encompassing noise associated with a given environment, being usually a composite of sounds from many sources near and far, without inclusion of intruding noises from isolated identifiable sources.

b) Decibel (db) shall mean a unit of level which denotes the ratio between two (2) quantities which are proportional to power; the number of decibels corresponding to the ratio to two (2) amounts of power is ten (10) times the logarithm to the base ten (10) of this ratio.

c) Emergency work shall mean work made necessary to restore property to a safe condition following a public calamity or work required to protect persons or property from an imminent exposure to danger.

d) Noise level, in decibels, is the A-weighted sound pressure level as measured using the slow dynamic characteristic for sound level meters specified in ASA S1.4-1961, American Standard Specification for General Purpose Sound Level Meters, or latest revision thereof. The reference pressure is twenty (20) micronewtons/square meter (2 x 10-4 microbar).

e) Person shall mean a person, firm, association, copartnership, joint venture, corporation or any entity, public or private in nature.

f) Sound level meter shall mean an instrument including a microphone, an amplifier, an output meter, and frequency weighting networks for the measurement of noise and sound levels in a specified manner as specified in ASA S1.4-1961, American Standard Specification for General Purpose Sound Level Meters, or latest revision thereof.

g) Sound pressure level, in decibels (db) of a sound is twenty (20) times the logarithm to the base ten (10) of the ratio of the pressure of this sound to the reference pressure. For the purpose of this Chapter the reference pressure shall be twenty (20) micronewtons/square meter (2 x 10-4 microbar).

h) Impulsive sound means a short duration sound (such as might be produced by the impact of a drophammer or pile driver) with one (1) second or less duration.

i) Motor vehicles shall include, but not be limited to, minibikes and go carts.

j) Sound amplifying equipment shall mean any machine or device for the amplification of the human voice, music, or any other sound. Sound amplifying equipment shall not include standard automobile radios when used and heard only by the occupants of the vehicle in which the automobile radio is installed. Sound amplifying equipment, as used in this Chapter, shall not include warning devices on authorized emergency vehicles or horns or other warning devices on any vehicle used only for traffic safety purposes.

k) Sound truck shall mean any motor vehicle, or any other vehicle regardless of motive power, whether in motion or stationary, having mounted thereon, or attached thereto, any sound amplifying equipment.

l) Commercial purpose shall mean and include the use, operation or maintenance of any sound amplifying equipment for the purpose of advertising any business or any goods or any services, or for the purpose of attracting the attention of the public to, or advertising for, or soliciting patronage or customers to or for any performance, show, entertainment, exhibition, or event, or for the purpose of demonstrating any such sound equipment.

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

n) Residential land shall mean that land which is utilized for residential purposes or zoned for residential purposes.

o) Residential purpose means any purpose involving routine and relatively permanent use of a building as a dwelling, as opposed to relatively transient uses such as hotels and motels.

p) Day means the time period from 7:00 A.M. to 10:00 P.M.

q) Night means the time period from 10:00 P.M. to 7:00 A.M.

46.1.3 MEASUREMENTS.
Noise levels shall be measured with a sound level meter satisfying the requirements of ASA S1.4-1961, American Standard Specification for General Purpose Sound Level Meters, or latest revision thereof. Noise level of steady or slowly varying sounds shall be measured using the slow dynamic characteristic of the sound level meter and by reading the central tendency of the needle. Noise level of impulse sounds shall be measured using the fast dynamic characteristic of the sound level meter and by reading the maximum indication of the needle.

ARTICLE 2 - SPECIAL NOISE SOURCES Revised 10/21
46.2.1 RADIOS, TELEVISION SETS AND SIMILAR DEVICES.
a) Use Restricted. It shall be unlawful for any person within the City of Torrance to use or operate any radio receiving set, musical instrument, phonograph, television set, or other machine or device for the producing or reproducing of sound at any time in such a manner as to produce noise levels on residential land which would disturb the peace, quiet and comfort of neighboring residents or any reasonable person of normal sensitiveness residing in the area.

b) Prima Facie Violation. Any noise exceeding the ambient noise level at the property line of any residential land (or if a condominium or apartment house, within any adjoining apartment) by more than five (5) decibels shall be deemed to be prima facie evidence of a violation of the provisions of this Section.

46.2.2 HAWKERS AND PEDDLERS.
It shall be unlawful for any person within the City to sell anything by outcry within any area of the City utilized for residential purposes. The provisions of this Section shall not be construed to prohibit the selling by outcry of merchandise, food and beverages at licensed sporting events, parades, fairs, circuses and other similar licensed public entertainment events.

46.2.3 DRUMS.
It shall be unlawful for any person to use any drum or other instrument or device of any kind for the purpose of attracting attention by the creation of noise within the City. This Section shall not apply to any person who is a participant in a school band or duly licensed parade or who has been otherwise duly authorized by the City to engage in such conduct.

46.2.4 SCHOOLS, HOSPITALS AND CHURCHES.
It shall be unlawful for any person to 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, which noise unreasonably interferes with the workings of such institution or which disturbs or unduly annoys patients in the hospital, provided

conspicuous signs are displayed in such streets, sidewalks or public place indicating the presence of a school, church or hospital.

46.2.5 ANIMALS AND FOWL.
No person shall keep or maintain, or permit the keeping of upon any premises owned, occupied or controlled by such person, any animal or fowl otherwise permitted to be kept which, by any sound, cry or behavior shall cause annoyance or discomfort to a reasonable person of normal sensitiveness on any residential land.

46.2.6 MACHINERY, EQUIPMENT, FANS AND AIR CONDITIONING.
It shall be unlawful for any person to operate any machinery, equipment, pump, fan, air conditioning apparatus or similar mechanical device in any manner so as to create any noise which would cause the noise level at the property line of any residential land to exceed the ambient noise level by more than five (5) decibels.

46.2.7 OIL PRODUCTION EQUIPMENT.
(Added by O-2528)

It shall be unlawful for any person to operate, or cause to be operated any oil production equipment in any manner so as to create any noise which would cause the noise level at the nearest property line of any residential land to exceed the ambient noise level by more than five (5) decibels; provided, however, that the aforesaid provisions of this Section shall not apply to oil production equipment being used in the drilling, redrilling, deepening, repair, maintenance or abandonment of an oil well.

46.2.8 TRAIN HORNS AND WHISTLES. Revised 10/21
(Added by O-3894)

It shall be unlawful for any person to operate or sound or cause to be operated or sounded, between the hours of 10:00 p.m. of one day and 7:00 a.m. of the next day, a train horn or train whistle which creates noise in excess of ninety-six (96) dB at any place or point three hundred (300) feet or more distant from along a line normal to the direction of travel of the source of such sound.

ARTICLE 3 - CONSTRUCTION
46.3.1 CONSTRUCTION OF BUILDINGS AND PROJECTS.
(Amended by O-3712)

a) It shall be unlawful for any person within the City of Torrance to operate power construction tools, equipment, or engage in the performance of any outside construction or repair work on buildings, structures, or projects in or adjacent to a residential area involving the creation of noise beyond 50 decibels (db) as measured at property lines, except between the hours of 7:30 A.M. to 6:00 P.M. Monday through Friday and 9:00 A.M. to 5:00 P.M. on Saturdays. Construction shall be prohibited on Sundays and Holidays observed by City Hall. An exception exists between the hours of 10:00 A.M. to 4:00 P.M. for homeowners that reside at the property.

b) The Community Development Director may allow expanded hours and days of construction if unusual circumstances and conditions exist. Such requests must be made in writing and must receive approval by the Director prior to any expansion of the hour and day restrictions listed above.

c) Every construction project requiring Planning Commission review or considered to be a significant remodel as defined by Section 231.1.2, shall be required to post an information board along the front property line that displays the property owner's name and contact number, contractor's name and contact number, a copy of TMC Section 46.3.1, a list of any special conditions, and the Code Enforcement phone number where violations can be reported.

d) Properties zoned as commercial, industrial or within an established redevelopment District, are exempted from the above day and hour restrictions if a minimum buffer of 300 feet is maintained from the subject property's property line to the closest residential property. The Community Development Director, may, however, revoke such exemption for a particular project if the noise level exceeds 50 decibels (db) at the property line of a residential property beyond the 300 linear foot buffer.

e) Heavy construction equipment such as pile drivers, mechanical shovels, derricks, hoists, pneumatic hammers, compressors or similar devices shall not be operated at any time, within or adjacent to a residential area, without first obtaining from the Community Development Director permission to do so. Such request for permission shall include a list and type of equipment to be used, the requested hours and locations of its use, and the applicant shall be required to show that the selection of equipment and construction techniques has been based on minimization of noise within the limitations of such equipment as is commercially available or combinations of such equipment and auxiliary sound barriers. Such permission to operate heavy construction equipment will be revoked if operation of such equipment is not in accordance to approval. No permission shall be required to perform emergency work as defined in Article 1 of this Chapter.

46.3.2 OPERATION OF OIL EQUIPMENT.
(Added by O-2528)

a) It shall be unlawful for any person to operate machinery or power tools for the repair, maintenance or abandonment of oil well equipment on Sundays and legal holidays and, except between the hours of 7:00 A.M. and 8:00 P.M., on any other day; provided, however, that the provisions of this subsection shall not apply to any well, the surface of which is three hundred (300) or more feet from any dwelling.

b) It shall be unlawful for any person to conduct oil drilling or redrilling operations other than circulation of mud, on Sundays and legal holidays and, except between the hours of 7:00 A.M. and 9:00 P.M., on any other day; provided, however, that the provisions of this subsection shall not apply to any well the surface of which is three hundred (300) or more feet from any dwelling.

c) It shall be unlawful for any person to operate machinery or power tools for the repair, maintenance or abandonment of oil well equipment or to conduct oil well drilling or redrilling operations at any time within three hundred (300) feet of any dwelling without first obtaining from the Director of Building and Safety permission to do so. Such request for permission shall include a list and type of equipment to be used, the requested hours and locations of its use. The Director of Building and Safety shall issue such permit only if the applicant demonstrates to the reasonable satisfaction of the Director that the selection of equipment and construction techniques has been based on minimization of noise within the limitations of such equipment as is commercially available or combinations of such equipment and auxiliary sound barriers or acoustical sound blankets as provided in Section 46.3.3. Such permission to operate oil well equipment shall be revoked if such equipment is not operated and construction is not accomplished in accordance with the conditions of approval. No permission shall be required to perform emergency work as defined in Article 1 of this Chapter. The person performing such emergency work shall first notify the occupants of adjacent residences and the Torrance Police Department as to the nature and extent of the work to be performed.

46.3.3 ACOUSTICAL BLANKETS.
(Added by O-2528)

Acoustical blankets shall be made of fibrous glass insulation 1-1/2 inches thick, 0.50 pounds per cubic foot density, 0.63 pounds per square foot weight, .00010 to .00015 fibre diameter (inches) with phenolic binder having a temperature limit of 450 degrees F. sewed between layers of fire retardant vinyl fibre glass cloth, 15-17 ounces per square yard sewed with dacron thread D-92 with stitches not more than six (6) to the inch. The lacing cord shall be flat vinyl coated tape composed of fibrous glass yard braided, heat set and bonded. The tape shall have a 90 pound tensile strength. Grommets shall be No. 4 brass. Provided, however, that there may be substituted for the aforesaid specifications an acoustical blanket which in the opinion of the Director of Building and Safety is equal to sound-proofing ability and fire resistive qualities to the aforesaid specifications.

ARTICLE 4 - VEHICLES
46.4.1 VEHICLE REPAIRS.
It shall be unlawful for any person within the City of Torrance to repair, rebuild or test any motor vehicle at any time in such a manner that a reasonable person of normal sensitiveness located on residential land is caused discomfort or annoyance by reason of the noise produced therefrom.

46.4.2 MOTOR DRIVEN VEHICLES.
It shall be unlawful for any person to operate any motor driven vehicle within the City in such a manner that a reasonable person of normal sensitiveness residing in the area is caused discomfort or annoyance; provided, however, that any such vehicle which is operated upon any public highway, street or right-of-way shall be excluded from the provisions of this Section, provided the provisions of the California Motor Vehicle Code, Sections 23130, 27150 and 27151 are complied with.

ARTICLE 5 - AMPLIFIED SOUND
(Amended by O-3360)

46.5.1 PURPOSE.
The Council enacts the provisions of this Article for the sole purpose of securing and promoting the public health, comfort, safety, and welfare for its citizenry. While recognizing that the use of sound amplifying equipment is protected by the constitutional rights of freedom of speech and assembly, the Council nevertheless feels obligated to reasonably regulate the use of sound amplifying equipment in order to protect the correlative constitutional rights of the citizens of this community to privacy and freedom from public nuisance of loud and unnecessary noise.

46.5.2 APPLICATION REQUIRED.
It shall be unlawful for any person, other than personnel of law enforcement or governmental agencies, to install, use or operate within the City a loudspeaker or sound amplifying equipment in a fixed or movable position or mounted upon any sound truck for the purposes of giving instructions, directions, talks, addresses, lectures or transmitting music to any persons or assemblages of persons in or upon any street, alley, sidewalk, park, place or public property without first filing an application and obtaining a permit therefor as set forth in Division 3 of this Code.

46.5.3 REGULATIONS.
The commercial and noncommercial use of sound amplifying equipment shall be subject to the following regulations:

a) The only sounds permitted shall be either music or human speech, or both.

b) The operation of sound amplifying equipment shall only occur between the hours of 9:00 A.M. and 9:00 P.M. each day except on Sundays and legal holidays. The operation of sound amplifying equipment for noncommercial purposes on Sundays and legal holidays shall only occur between the hours of 10:00 A.M. and 6:00 P.M.

c) No sound emanating from sound amplifying equipment shall exceed fifteen (15) dBA above the ambient as measured at any property line.

d) Notwithstanding the provisions of subsection c) of this Section, sound amplifying equipment shall not be operated within two hundred (200) feet of churches, schools or hospitals.

e) In any event, the volume of sound shall be so controlled that it will not be unreasonably loud, raucous, jarring, disturbing or a nuisance to reasonable persons of normal sensitiveness within the area of audibility.

ARTICLE 6 - POWERED GARDENING EQUIPMENT Revised 10/21
46.6.1 EXCESSIVE NOISE PROHIBITED. Revised 10/21
(Amended by O-3894)

a) It shall be unlawful for any person within the City of Torrance to operate power gardening equipment, including but not limited to leaf blowers, mowers and edgers, or engage in the performance of gardening work with powered equipment in or adjacent to a residential area involving the creation of noise beyond fifty (50) decibels (dB) as measured at property lines, except between the hours of 7:30 a.m. to 6:00 p.m. Monday through Friday and 9:00 a.m. to 5:00 p.m. on Saturdays. Operation of powered gardening equipment shall be prohibited on Sundays and holidays observed by City Hall. An exception exists between the hours of 10:00 a.m. to 4:00 p.m. for homeowners that reside at the property.

b) Properties zoned as commercial, industrial or within an established redevelopment district are exempted from the above day and hour restrictions if a minimum buffer of three hundred (300) feet is maintained from the subject

property's property line to the closest residential property. The Community Development Director may, however, revoke such exemption for a particular property if the noise level exceeds fifty (50) decibels (dB) at the property line of a residential property beyond the three hundred (300) linear foot buffer.

ARTICLE 7 - GENERAL NOISE REGULATIONS

46.7.1 GENERAL NOISE REGULATIONS.

Notwithstanding any other provision of this Chapter and in addition thereto, it shall be unlawful for any person to willfully make or continue, or cause to be made or continued, any loud, unnecessary or unusual noise which disturbs the peace or quiet of any neighborhood or which causes discomfort or annoyance to any reasonable person of normal sensitiveness residing in the area.

46.7.2 NOISE LIMITS.

To provide for methodical enforcement and to give reasonable notice of the performance standards to be met, the foregoing intent is expressed in the following numerical standards. For purposes of this Chapter, the City is divided into regions as set forth in Exhibit A.

a) Noise Limits on Residential Land. It shall be unlawful for any person within the City of Torrance (wherever located) to produce noise in excess of the following levels as received on residential land owned or occupied by another person within the designated regions. In addition to the noise limits stated herein, the noise limits set forth in Sec. 46.7.2.b) shall also be complied with.

1) For noise receivers located on residential land, for measurement positions five hundred (500) feet or more distant from the boundaries of Regions 1 and 2, the following limits apply:

REGION (in which noise receiver is located)	NOISE LEVEL, db	
	Day	Night
3	50	45
4	55	50

2) For noise receivers located on residential land, for positions within five hundred (500) feet from the boundary of Region 1 or 2, the following limits apply:

Five (5) dB above the limits set forth in Section 46.7.2.a) 1 above, or 5 dB above the ambient noise level, whichever is the lower number.

b) Noise Limits at Industrial and Commercial Boundaries:

1) Noise Sources in Region 1: It shall be unlawful for any person in Region 1 to produce noise levels at the boundary of Region 1 in excess of 70 dB during the day or 65 dB during the night.

2) Noise Sources in Region 2: It shall be unlawful for any person in Region 2 to produce noise levels at the boundary of Region 2 in excess of 60 dB during the day or 55 dB during the night.

3) Noise Sources in All Remaining Industrial Use Land: It shall be unlawful for any person on industrial use land outside Region 1 and 2 to produce noise levels at his own property boundary in excess of 60 dB during the day or 55 dB during the night.

4) Noise Sources on All Land Use for Commercial Purposes: It shall be unlawful for any person on land used for commercial purposes to produce noise levels at his own property boundary in excess of 60 dB during the day or 55 dB during the night.

In addition to the noise limits set forth herein (Sec. 46.7.2.b), the noise limits set forth in Sec. 46.7.2.(a) shall also be complied with.

c) Corrections to the Noise Limits: The numerical limits given in Sec. 46.7.2.(a) and (b) shall be adjusted by addition of the following corrections where appropriate.

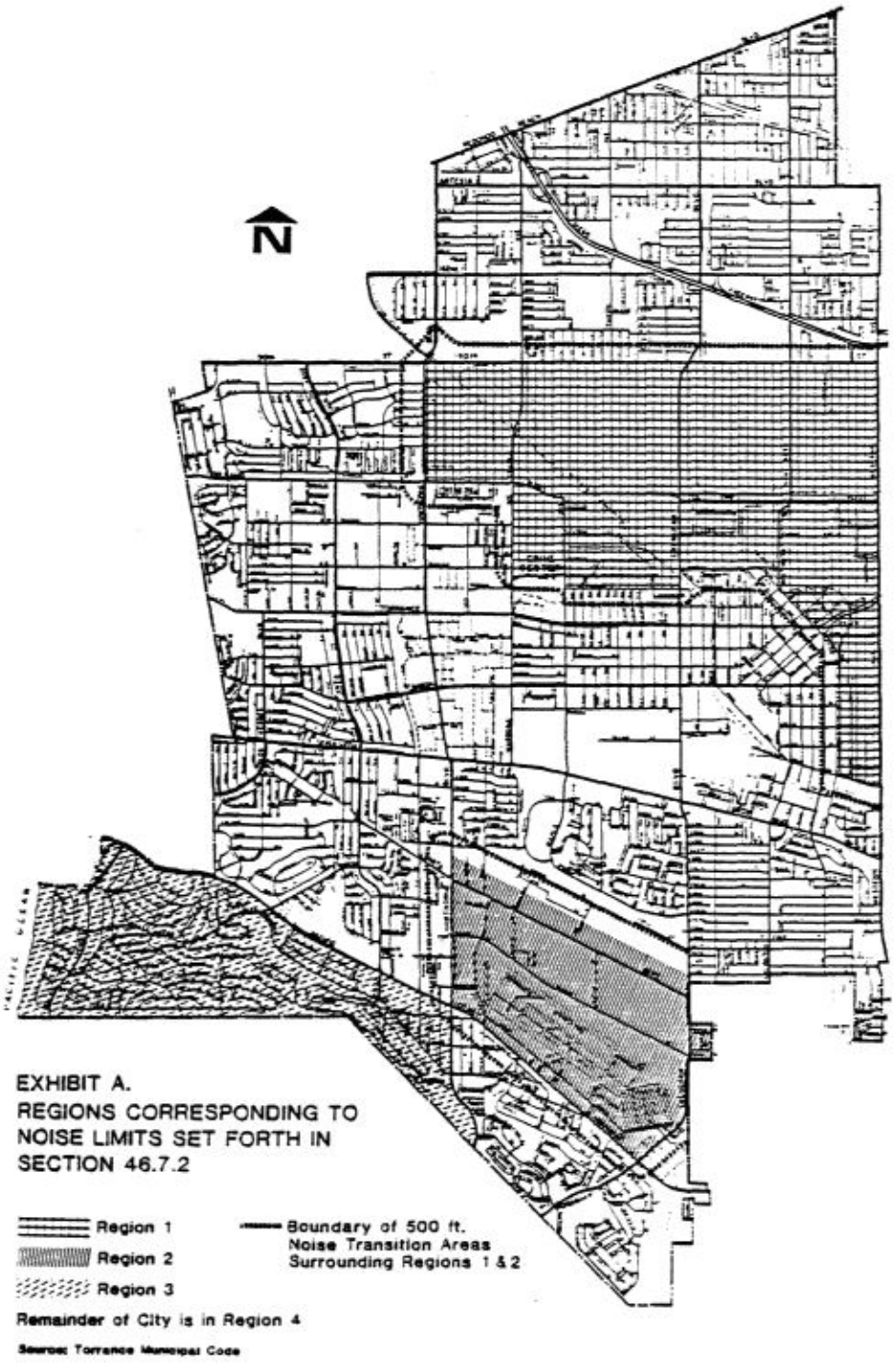
	Noise Conditions		Correction to the Limits, decibels
1.	Noise contains a steady, audible tone, such as a whine, screech or hum		-5
2.	Noise is a repetitive impulsive noise, such as hammering or riveting		-5
3.	If the noise is not continuous, one of the following corrections to the limits shall be applied:		
	a)	Noise occurs less than 5 hours per day or less than 1 hour per night	+5
	b)	Noise occurs less than 90 minutes per day or less than 20 minutes per night	+10
	c)	Noise occurs less than 30 minutes per day or less than 6 minutes per night	+15
4.	Noise occurs on Sunday morning (between 12:01 A.M. and 12:01 P.M. Sunday)		-5

46.7.3 EXCEPTIONS.

The following noise sources are specifically excluded from the provisions of this Chapter:

1) Aircraft in flight.

2) Motor vehicles operating in accordance with Sec. 46.4.2. and in accordance with all the sections of the California Motor Vehicles Code.



ARTICLE 8 - AIRPORT NOISE LIMITS
(Added by O-2784)

46.8.1 VIOLATIONS UNLAWFUL.
It shall be unlawful for any person to pilot or operate or permit to be piloted or operated an aircraft in violation of the provisions of Sections 46.8.8., 46.8.9. or 46.8.14.

46.8.2 EXTENDED AIRPORT BOUNDARIES DEFINED.
For the purposes of this Article, the term extended airport boundaries shall mean the area enclosed by Lomita Boulevard on the north, Crenshaw Boulevard on the east, Pacific Coast Highway on the south and Hawthorne Boulevard on the west.

46.8.3 TAKE-OFF DEFINED.
(Amended by O-3270)

For the purposes of this Article, take-off shall mean the flight of an aircraft departing Torrance Airport from the time it commences on its departure on the runway.

46.8.4 LANDING DEFINED.
(Amended by O-3270)

For the purposes of this Article, landing shall mean the flight of an aircraft from the time it begins its landing approach until it is taxied from the runway.

46.8.5 SOUND EXPOSURE LEVEL.
For the purposes of this Article, the sound exposure level is the level of sound accumulated during a given event, with reference to a duration of one second. More specifically, sound exposure level, in decibels, is the level of the time-integrated A-weighted squared sound pressure for a stated time interval or event, based on the reference pressure of 20 micronewtons per square meter and reference duration of one second.

46.8.6 SENEL.
For the purposes of this Article, the single event noise exposure level (SENEL), in decibels, is the sound exposure level of a single event, such as an aircraft fly-by, measured over the time interval between the initial and final times for which the sound level of a single event exceeds the threshold sound level. For implementation of the provisions of this Article, the threshold noise level shall be at least 20 decibels below the numerical value of the single event noise exposure level limits specified in Sections 46.8.8. or 46.8.9. as the case may be.

46.8.7 MAXIMUM SOUND LEVEL DEFINED.
For the purposes of this Article, the maximum sound level, in decibels, is the highest sound level reached at any instant of time during the time interval used in measuring the sound exposure level of a single event.

46.8.8 AIRCRAFT NOISE LIMIT.
Except as provided in Section 46.8.10., no aircraft taking off from or landing on the Torrance Municipal Airport may exceed a single event noise exposure level (SENEL) of 88 dBA or a maximum sound level of 82 dBA measured at ground level outside the extended Airport boundaries.

46.8.9 AIRCRAFT NOISE LIMIT AT NIGHT.
(Amended by O-3284)

Notwithstanding the provisions of Section 46.8.8., except as provided in Section 46.8.10., no aircraft taking off from or landing on the Torrance Municipal Airport between the hours of 10:00 P.M. of any day and 7:00 A.M. of the following morning on any Monday through Friday inclusive, nor between the hours of 10:00 P.M. each night and 8:00 A.M. of the following morning on any Saturday or Sunday inclusive, nor on any of the following holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day; provided, however, that if any such holiday falls on a Saturday or Sunday, the observance of which is then moved to the preceding Friday, or the following Monday, then such Friday or Monday shall be considered to be a holiday for purposes of this section, may exceed a single event noise exposure level (SENEL) of 82 dBA or a maximum sound level of 76 dBA measured at ground level outside the extended Airport boundaries.

46.8.10 AIRCRAFT NOISE EXEMPTION.
(Amended by O-3382)

The following categories of aircraft shall be exempt from the provisions of Sections 46.8.8. and 46.8.9.:

1) Aircraft operated by the United States of America or the State of California;

2) Law enforcement, emergency, fire or rescue aircraft operated by any county or city of said state;

3) Aircraft used for emergency purposes during an emergency that has been officially proclaimed by competent authority pursuant to the laws of the United States, said State or the City;

4) Civil Air Patrol aircraft when engaged in actual search and rescue missions;

5) Aircraft engaged in landings or takeoffs while conducting tests under the direction of the Airport Manager in an attempt to rebut the presumption of aircraft noise violation pursuant to the provisions of Section 46.8.13

6) Aircraft while participating in a City-sponsored event approved by City Council.

46.8.11 CULPABILITY OF INSTRUCTOR PILOT.
In the case of any training flight in which both an instructor pilot and a student pilot are in the aircraft which is flown in violation of any of the provisions of this Article, the instructor pilot shall be rebuttably presumed to have caused such violation.

46.8.12 CULPABILITY OF AIRCRAFT OWNER OR LESSEE.
For purposes of this Article, the beneficial owner of an aircraft shall be presumed to be the pilot of the aircraft with authority to control the aircraft's operations, except that where the aircraft is leased, the lessee shall be presumed to be the pilot. Such presumption may be rebutted only if the owner or lessee identifies the person who in fact was the pilot at the time of the asserted violation.

46.8.13 DENIAL OF USE OF AIRPORT.
(See Section 51.7.2. et seq. concerning denial of the use of the Airport for repeated violations of this Article.)

46.8.14 PRESUMPTION OF AIRCRAFT NOISE VIOLATION.
In the event that the Airport Manager determines to his reasonable satisfaction that available published noise measurements for a particular type or class of aircraft indicate that it cannot meet the noise levels set forth in Sections 46.8.8. and 46.8.9., it shall be presumed that operation of such aircraft will result in violation of the provisions of Sections 46.8.8. and 46.8.9. and such aircraft will not be permitted to land on, tie down on, be based at or take off from the Torrance Municipal Airport, except in emergencies as set forth in Section 51.4.2.; provided, however, that the owner or operator of such aircraft shall be entitled to rebut such presumption to the reasonable satisfaction of the Airport Manager by furnishing evidence to the contrary.

46.8.15 DESIGNATED ENFORCEMENT OFFICIAL.
The Director of Building and Safety, the Administrator of Environmental Quality, the Environmental Quality Officers and such other City employees as are designated by the Director of Building and Safety with the approval of the City Manager, all acting under the direction and control of the City Manager, shall have the duty and authority to enforce the provisions of this Article, pursuant to the provisions of Section 836.5 of the State Penal Code.

APPENDIX 5.1:

STUDY AREA PHOTOS

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JN:15795

15795_L1_A 1.North
33, 51' 30.540000", 118, 19' 1.890000"

15795_L1_A 2.South
33, 51' 30.510000", 118, 19' 1.890000"

15795_L1_A 3.East
33, 51' 30.510000", 118, 19' 1.890000"

15795_L1_A 4.West
33, 51' 30.510000", 118, 19' 1.920000"

15795_L2_B 1.North
33, 51' 30.510000", 118, 18' 58.160000"

15795_L2_B 2.South
33, 51' 30.510000", 118, 18' 58.160000"

15795_L2_B 3.East
33, 51' 30.510000", 118, 18' 58.160000"

15795_L2_B 4.West
33, 51' 30.510000", 118, 18' 58.160000"

JN:15795

15795_L3_C 1.North
33, 51' 30.500000", 118, 18' 56.700000"

15795_L3_C 2.South
33, 51' 30.540000", 118, 18' 56.760000"

15795_L3_C 3.East
33, 51' 30.560000", 118, 18' 56.730000"

15795_L3_C 4.West
33, 51' 30.550000", 118, 18' 56.730000"

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APPENDIX 5.2:

NOISE LEVEL MEASUREMENT WORKSHEETS

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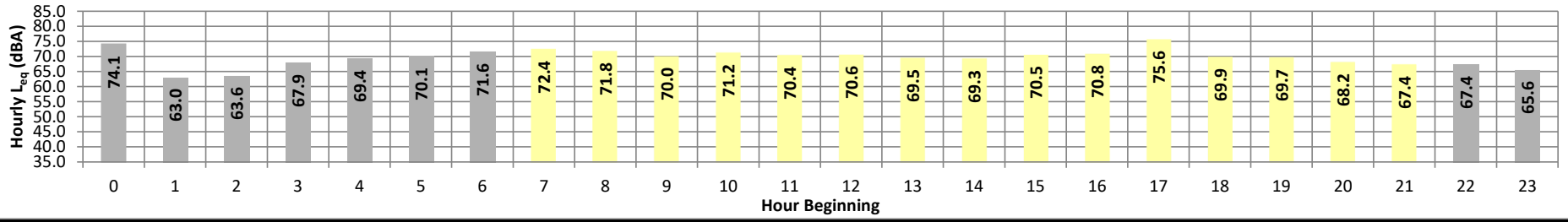
24-Hour Noise Level Measurement Summary

Date: Tuesday, August 13, 2024 *Location:* L1 - Located north of the site near the residence at 18932 Van *Meter:* Piccolo II *JN:* 15795

Project: Sequoia Commerce Center *Source:* Ness Avenue. *Analyst:* Z. Ibrahim

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	74.1	87.3	60.9	86.6	85.5	80.8	78.3	70.3	66.4	62.8	62.3	61.4	74.1	10.0	84.1
	1	63.0	73.2	48.7	72.9	72.4	70.4	68.8	62.3	56.7	49.8	49.3	48.8	63.0	10.0	73.0
	2	63.6	74.8	48.6	74.4	73.8	71.0	68.7	62.3	56.4	49.4	49.0	48.7	63.6	10.0	73.6
	3	67.9	81.2	50.8	80.2	78.8	76.0	72.7	64.4	59.3	52.0	51.3	50.9	67.9	10.0	77.9
	4	69.4	82.3	55.0	81.6	80.6	75.4	72.9	67.4	63.0	56.7	55.9	55.1	69.4	10.0	79.4
	5	70.1	79.6	58.3	79.2	78.7	76.3	74.5	70.5	66.7	60.7	59.5	58.5	70.1	10.0	80.1
	6	71.6	79.9	61.4	79.5	78.9	77.0	75.7	72.5	69.0	63.4	62.5	61.5	71.6	10.0	81.6
Day	7	72.4	80.8	63.1	80.3	79.5	77.7	76.7	73.3	70.2	64.8	64.0	63.3	72.4	0.0	72.4
	8	71.8	80.1	61.8	79.6	79.1	77.2	76.0	72.5	69.6	64.0	63.1	62.1	71.8	0.0	71.8
	9	70.0	77.9	59.7	77.5	77.0	75.3	74.2	71.1	67.6	61.5	60.6	59.9	70.0	0.0	70.0
	10	71.2	80.6	59.0	80.2	79.7	78.0	76.0	71.3	67.5	61.1	60.1	59.2	71.2	0.0	71.2
	11	70.4	80.9	58.6	80.4	79.6	77.3	74.9	70.2	66.6	60.8	59.9	58.8	70.4	0.0	70.4
	12	70.6	81.9	59.1	81.3	80.3	76.8	74.6	70.2	66.4	61.3	60.1	59.3	70.6	0.0	70.6
	13	69.5	78.4	59.4	77.9	77.1	75.1	73.9	70.2	66.5	61.2	60.3	59.6	69.5	0.0	69.5
	14	69.3	78.0	60.2	77.5	76.8	74.6	73.4	70.2	67.0	62.0	61.1	60.3	69.3	0.0	69.3
	15	70.5	79.5	61.6	79.0	78.1	76.0	74.5	71.1	68.3	63.5	62.6	61.8	70.5	0.0	70.5
	16	70.8	79.4	61.8	78.9	78.4	76.8	75.1	71.2	68.5	63.8	62.9	61.9	70.8	0.0	70.8
	17	75.6	85.7	62.0	85.0	84.0	82.3	81.2	75.6	69.2	64.1	63.1	62.2	75.6	0.0	75.6
	18	69.9	76.9	60.7	76.4	75.9	74.9	74.0	71.1	68.3	62.6	61.7	60.9	69.9	0.0	69.9
	19	69.7	77.8	59.9	77.1	76.5	75.1	74.3	70.9	66.9	61.5	60.7	60.1	69.7	5.0	74.7
	20	68.2	76.3	58.5	75.9	75.3	73.4	72.3	69.2	65.9	60.2	59.3	58.7	68.2	5.0	73.2
	21	67.4	75.2	57.9	74.9	74.3	72.9	71.9	68.2	64.8	59.4	58.7	58.0	67.4	5.0	72.4
Night	22	67.4	77.2	55.4	76.7	76.1	74.1	71.8	67.5	63.4	57.3	56.4	55.5	67.4	10.0	77.4
	23	65.6	75.0	54.5	74.6	74.2	72.1	70.1	65.7	61.7	56.0	55.4	54.6	65.6	10.0	75.6

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	67.4	75.2	57.9	74.9	74.3	72.9	71.9	68.2	64.8	59.4	58.7	58.0
	Max	75.6	85.7	63.1	85.0	84.0	82.3	81.2	75.6	70.2	64.8	64.0	63.3
Energy Average		70.9	Average:		78.8	78.1	76.2	74.9	71.1	67.6	62.1	61.2	60.4
Night	Min	63.0	73.2	48.6	72.9	72.4	70.4	68.7	62.3	56.4	49.4	49.0	48.7
	Max	74.1	87.3	61.4	86.6	85.5	80.8	78.3	72.5	69.0	63.4	62.5	61.5
Energy Average		69.4	Average:		78.4	77.7	74.8	72.6	67.0	62.5	56.5	55.7	55.0

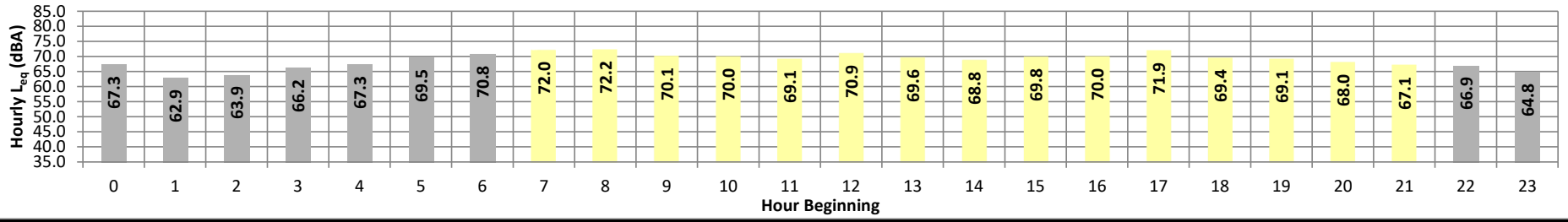
24-Hour CNEL	Leq (dBA) Daytime (7am-10pm)	Leq (dBA) Nighttime (10pm-7am)
76.3	**70.9**	**69.4**

24-Hour Noise Level Measurement Summary

Date: Tuesday, August 13, 2024 *Location:* L2 - Located north of the site near the residence at 18932 Haas *Meter:* Piccolo II *JN:* 15795

Project: Sequoia Commerce Center *Source:* Avenue. *Analyst:* Z. Ibrahim

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	67.3	78.0	52.9	77.6	76.9	74.4	72.4	66.7	61.4	56.0	55.1	53.5	67.3	10.0	77.3
	1	62.9	74.9	47.9	74.3	73.5	70.5	68.1	60.5	54.3	48.9	48.4	48.0	62.9	10.0	72.9
	2	63.9	76.5	47.7	76.0	75.0	71.3	68.6	60.8	54.7	49.1	48.3	47.8	63.9	10.0	73.9
	3	66.2	78.7	49.4	78.1	77.4	74.0	70.9	63.5	57.0	51.2	50.3	49.6	66.2	10.0	76.2
	4	67.3	78.1	53.5	77.5	76.7	74.4	72.7	66.9	60.7	54.9	54.2	53.6	67.3	10.0	77.3
	5	69.5	79.4	54.8	78.9	78.1	75.7	74.2	70.3	65.4	56.9	55.8	55.0	69.5	10.0	79.5
	6	70.8	79.6	55.7	79.2	78.5	76.6	75.3	71.7	67.9	59.0	57.2	55.9	70.8	10.0	80.8
Day	7	72.0	81.6	59.9	81.0	79.9	77.3	76.0	72.9	69.2	62.3	61.1	60.0	72.0	0.0	72.0
	8	72.2	82.8	61.0	82.2	81.0	77.9	75.8	72.3	69.1	63.1	61.9	61.1	72.2	0.0	72.2
	9	70.1	78.7	55.3	78.2	77.5	75.6	74.5	71.3	67.6	58.2	56.8	55.5	70.1	0.0	70.1
	10	70.0	79.0	55.1	78.6	78.0	75.9	74.6	70.7	66.9	58.1	56.6	55.3	70.0	0.0	70.0
	11	69.1	77.8	55.0	77.4	76.6	74.6	73.5	70.1	66.5	58.7	56.8	55.3	69.1	0.0	69.1
	12	70.9	83.4	56.9	82.4	80.9	76.7	74.1	70.3	66.9	59.6	58.2	57.0	70.9	0.0	70.9
	13	69.6	78.8	56.2	78.4	77.5	75.3	74.2	70.4	66.3	58.5	57.2	56.3	69.6	0.0	69.6
	14	68.8	76.9	56.5	76.5	75.7	73.9	73.0	69.9	66.7	59.2	57.7	56.6	68.8	0.0	68.8
	15	69.8	78.1	59.0	77.7	77.0	75.1	73.9	70.9	67.5	61.2	60.3	59.2	69.8	0.0	69.8
	16	70.0	78.4	59.4	77.8	77.1	74.9	73.7	71.0	68.2	61.8	60.7	59.6	70.0	0.0	70.0
	17	71.9	82.1	60.0	81.6	80.7	78.2	76.4	72.0	68.5	62.0	61.0	60.2	71.9	0.0	71.9
	18	69.4	77.2	56.6	76.8	76.1	74.5	73.6	70.8	67.3	59.7	58.4	56.9	69.4	0.0	69.4
	19	69.1	78.8	56.8	78.2	77.2	74.6	73.3	69.9	66.4	59.0	58.0	57.0	69.1	5.0	74.1
	20	68.0	77.2	55.4	76.8	76.0	74.0	72.6	68.7	64.6	57.2	56.3	55.6	68.0	5.0	73.0
	21	67.1	76.7	55.2	75.9	75.1	73.1	71.8	67.8	63.4	57.1	56.2	55.4	67.1	5.0	72.1
Night	22	66.9	77.6	54.3	77.2	76.7	73.5	71.2	66.7	62.1	55.6	54.9	54.4	66.9	10.0	76.9
	23	64.8	75.2	52.9	74.9	74.2	71.5	69.5	64.5	59.5	54.0	53.4	53.0	64.8	10.0	74.8

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	67.1	76.7	55.0	75.9	75.1	73.1	71.8	67.8	63.4	57.1	56.2	55.3
	Max	72.2	83.4	61.0	82.4	81.0	78.2	76.4	72.9	69.2	63.1	61.9	61.1
Energy Average		70.1	Average:		78.6	77.8	75.4	74.1	70.6	67.0	59.7	58.5	57.4
Night	Min	62.9	74.9	47.7	74.3	73.5	70.5	68.1	60.5	54.3	48.9	48.3	47.8
	Max	70.8	79.6	55.7	79.2	78.5	76.6	75.3	71.7	67.9	59.0	57.2	55.9
Energy Average		67.3	Average:		77.1	76.3	73.5	71.4	65.7	60.3	54.0	53.1	52.3

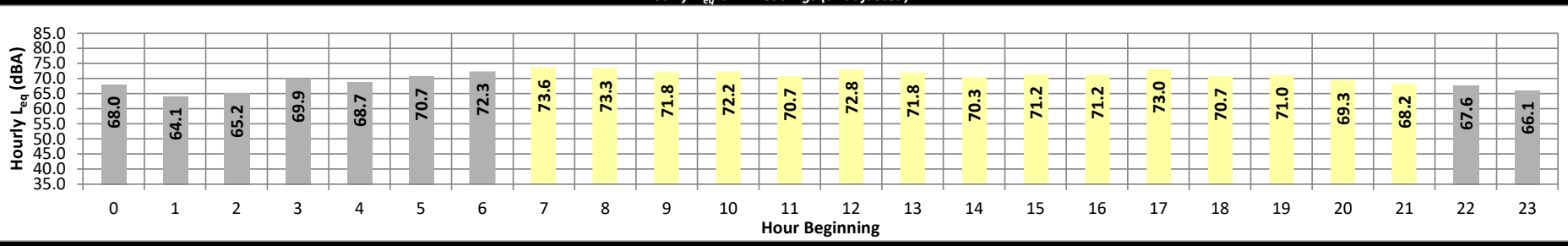
24-Hour CNEL	*Leq (dBA) Daytime (7am-10pm)*	*Leq (dBA) Nighttime (10pm-7am)*
74.5	**70.1**	**67.3**

24-Hour Noise Level Measurement Summary

Date: Tuesday, August 13, 2024 *Location:* L3 - Located north of the site near the residence at 18932 *Meter:* Piccolo II *JN:* 15795

Project: Sequoia Commerce Center *Source:* Wilton Place. *Analyst:* Z. Ibrahim

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	68.0	78.9	52.6	78.4	77.7	74.9	72.9	67.4	61.4	56.2	55.4	53.0	68.0	10.0	78.0
	1	64.1	75.9	48.9	75.5	74.7	71.9	69.5	61.7	55.2	49.7	49.3	49.0	64.1	10.0	74.1
	2	65.2	77.3	48.8	77.0	76.3	72.9	70.1	62.0	55.2	50.0	49.5	49.0	65.2	10.0	75.2
	3	69.9	83.8	50.1	83.0	81.4	77.8	74.6	64.8	58.0	51.8	50.9	50.2	69.9	10.0	79.9
	4	68.7	79.3	53.5	78.9	78.1	75.7	74.1	68.5	61.5	54.9	54.1	53.6	68.7	10.0	78.7
	5	70.7	80.4	55.0	79.9	79.1	76.8	75.5	71.7	66.5	57.1	56.0	55.2	70.7	10.0	80.7
	6	72.3	81.2	55.6	80.8	80.1	78.0	76.8	73.3	69.1	59.7	57.9	56.0	72.3	10.0	82.3
Day	7	73.6	82.6	61.8	82.1	81.2	78.8	77.6	74.5	71.0	64.3	63.1	62.1	73.6	0.0	73.6
	8	73.3	82.0	63.5	81.5	80.8	78.3	77.0	74.1	71.2	66.0	64.8	63.7	73.3	0.0	73.3
	9	71.8	80.4	56.1	80.0	79.3	77.4	76.2	73.0	69.4	59.4	57.8	56.4	71.8	0.0	71.8
	10	72.2	83.0	56.4	82.4	81.4	78.3	76.6	72.3	68.6	59.7	58.0	56.5	72.2	0.0	72.2
	11	70.7	79.8	55.4	79.4	78.7	76.6	75.0	71.5	67.8	58.5	57.0	55.6	70.7	0.0	70.7
	12	72.8	84.7	57.6	84.3	83.2	79.4	76.5	71.9	68.3	60.7	59.0	57.8	72.8	0.0	72.8
	13	71.8	82.7	56.8	82.0	80.9	77.8	76.1	72.1	67.3	59.1	57.9	56.9	71.8	0.0	71.8
	14	70.3	78.8	57.6	78.3	77.6	75.6	74.5	71.4	67.9	60.3	58.9	57.8	70.3	0.0	70.3
	15	71.2	79.8	59.8	79.4	78.7	76.7	75.3	72.2	68.7	62.4	61.2	60.0	71.2	0.0	71.2
	16	71.2	78.9	59.8	78.5	78.0	76.3	75.2	72.3	69.3	62.7	61.5	60.1	71.2	0.0	71.2
	17	73.0	83.5	60.8	82.9	82.0	79.1	77.1	73.0	69.8	63.1	62.1	61.0	73.0	0.0	73.0
	18	70.7	78.3	57.5	78.0	77.4	75.8	74.8	72.1	68.6	60.8	59.0	57.9	70.7	0.0	70.7
	19	71.0	82.0	57.6	81.1	80.0	77.0	74.8	71.3	67.5	59.5	58.6	57.8	71.0	5.0	76.0
	20	69.3	78.4	55.9	78.0	77.4	75.4	74.0	70.0	65.7	58.2	57.0	56.1	69.3	5.0	74.3
	21	68.2	77.1	55.4	76.7	76.1	74.3	73.0	69.2	64.6	57.0	56.2	55.5	68.2	5.0	73.2
Night	22	67.6	77.5	54.4	77.1	76.5	74.2	72.4	67.9	63.2	55.5	55.0	54.5	67.6	10.0	77.6
	23	66.1	76.6	53.2	76.3	75.7	73.1	71.0	65.7	60.2	54.2	53.6	53.3	66.1	10.0	76.1

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	68.2	77.1	55.4	76.7	76.1	74.3	73.0	69.2	64.6	57.0	56.2	55.5
	Max	73.6	84.7	63.5	84.3	83.2	79.4	77.6	74.5	71.2	66.0	64.8	63.7
Energy Average		71.6	Average:		80.3	79.5	77.1	75.6	72.1	68.4	60.8	59.5	58.3
Night	Min	64.1	75.9	48.8	75.5	74.7	71.9	69.5	61.7	55.2	49.7	49.3	49.0
	Max	72.3	83.8	55.6	83.0	81.4	78.0	76.8	73.3	69.1	59.7	57.9	56.0
Energy Average		68.8	Average:		78.5	77.7	75.0	73.0	67.0	61.2	54.4	53.5	52.6

24-Hour CNEL	*Leq (dBA) Daytime (7am-10pm)*	*Leq (dBA) Nighttime (10pm-7am)*
76.0	**71.6**	**68.8**

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APPENDIX 7.1:

CADNAA OPERATIONAL NOISE MODEL INPUTS

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15795 - Sequoia Commerce Center

CadnaA Noise Prediction Model: 15795-02.cna
Date: 29.08.24
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	
Daytime Penalty (dB)	**0.00**
Recr. Time Penalty (dB)	**5.00**
Night-time Penalty (dB)	**10.00**
DTM	
Standard Height (m)	**0.00**
Model of Terrain	**Triangulation**
Reflection	
max. Order of Reflection	**2**
Search Radius Src	**100.00**
Search Radius Rcvr	**100.00**
Max. Distance Source - Rcvr	**1000.00 1000.00**
Min. Distance Rvcr - Reflector	**1.00 1.00**
Min. Distance Source - Reflector	**0.10**
Industrial (ISO 9613)	
Lateral Diffraction	**some Obj**
Obst. within Area Src do not shield	**On**
Screening	**Incl. Ground Att. over Barrier**
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	**3.0 20.0 0.0**
Temperature (#(Unit,TEMP))	**10**
rel. Humidity (%)	**70**
Ground Absorption G	**0.50**
Wind Speed for Dir. (#(Unit,SPEED))	**3.0**
Roads (TNM)	
Railways (FTA/FRA)	
Aircraft (???)	
Strictly acc. to AzB	

Receiver Noise Levels

Name	M.	ID	Level Lr			Limit. Value			Land Use			Height		Coordinates		
			Day	Night	CNEL	Day	Night	CNEL	Type	Auto	Noise Type			X	Y	Z
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)				(ft)		(ft)	(ft)	(ft)
RECEIVERS		R1	44.6	44.0	50.7	60.0	55.0	0.0				5.00	a	6465348.90	1771042.15	5.00
RECEIVERS		R2	50.9	50.8	57.4	60.0	55.0	0.0				5.00	a	6465578.67	1771049.61	5.00
RECEIVERS		R3	51.9	51.8	58.5	60.0	55.0	0.0				5.00	a	6465757.67	1771042.43	5.00

Point Source(s)

Name	M.	ID	Result. PWL			Lw / Li			Operating Time			Height		Coordinates		
			Day	Evening	Night	Type	Value	norm.	Day	Special	Night			X	Y	Z
			(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	(ft)		(ft)	(ft)	(ft)
POINTSOURCE		AC01	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6465341.73	1769614.60	50.00
POINTSOURCE		AC02	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6465318.96	1769584.59	50.00
POINTSOURCE		AC03	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6465342.76	1770158.94	50.00
POINTSOURCE		AC04	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6465315.86	1770184.81	50.00
POINTSOURCE		AC05	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6465345.24	1770374.24	50.00
POINTSOURCE		AC06	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6465319.33	1770413.12	50.00
POINTSOURCE		AC07	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6465346.77	1770786.62	50.00
POINTSOURCE		AC08	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6465316.28	1770822.83	50.00
POINTSOURCE		TRASH01	89.0	89.0	89.0	Lw	89		900.00	0.00	270.00	5.00	a	6465640.61	1770717.25	5.00
POINTSOURCE		TRASH02	89.0	89.0	89.0	Lw	89		900.00	0.00	270.00	5.00	a	6465641.38	1770457.71	5.00
POINTSOURCE		TRASH03	89.0	89.0	89.0	Lw	89		900.00	0.00	270.00	5.00	a	6465639.47	1769683.26	5.00
POINTSOURCE		TRASH04	89.0	89.0	89.0	Lw	89		900.00	0.00	270.00	5.00	a	6465638.71	1770110.89	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	68.5	68.5	68.5	Lw	93.2									8	a
LINESOURCE		TRUCK02	93.2	93.2	93.2	68.0	68.0	68.0	Lw	93.2									8	a

Name	ID	Height				Coordinates			
		Begin		End		x	y	z	Ground
		(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
LINESOURCE	TRUCK01	8.00	a			6465610.79	1770929.61	8.00	0.00
						6465611.83	1770361.77	8.00	0.00
						6465604.75	1770352.99	8.00	0.00
						6465596.28	1770345.54	8.00	0.00
						6465586.66	1770339.65	8.00	0.00
						6465576.18	1770335.49	8.00	0.00
						6465565.14	1770333.18	8.00	0.00
						6465553.87	1770332.79	8.00	0.00
						6465329.31	1770335.90	8.00	0.00
						6465314.63	1770328.59	8.00	0.00
						6465301.11	1770319.30	8.00	0.00
						6465289.02	1770308.21	8.00	0.00
						6465278.60	1770295.54	8.00	0.00
						6465226.81	1770295.56	8.00	0.00
LINESOURCE	TRUCK02	8.00	a			6465277.57	1770295.54	8.00	0.00
						6465331.38	1770251.04	8.00	0.00
						6465607.69	1770244.83	8.00	0.00
						6465607.69	1769495.38	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		CAR01	81.1	81.1	81.1	60.8	60.8	60.8	Lw	81.1					5	a
AREASOURCE		CAR02	81.1	81.1	81.1	60.9	60.9	60.9	Lw	81.1					5	a
AREASOURCE		CAR03	81.1	81.1	81.1	62.3	62.3	62.3	Lw	81.1					5	a
AREASOURCE		CAR04	81.1	81.1	81.1	62.0	62.0	62.0	Lw	81.1					5	a
AREASOURCE		CAR05	81.1	81.1	81.1	60.9	60.9	60.9	Lw	81.1					5	a
AREASOURCE		CAR06	81.1	81.1	81.1	59.9	59.9	59.9	Lw	81.1					5	a
AREASOURCE		CAR07	81.1	81.1	81.1	60.1	60.1	60.1	Lw	81.1					5	a
AREASOURCE		CAR08	81.1	81.1	81.1	59.8	59.8	59.8	Lw	81.1					5	a
AREASOURCE		CAR09	81.1	81.1	81.1	61.3	61.3	61.3	Lw	81.1					5	a
AREASOURCE		CAR10	81.1	81.1	81.1	60.3	60.3	60.3	Lw	81.1					5	a
AREASOURCE		CAR11	81.1	81.1	81.1	59.6	59.6	59.6	Lw	81.1					5	a
AREASOURCE		CAR12	81.1	81.1	81.1	59.4	59.4	59.4	Lw	81.1					5	a
AREASOURCE		CAR13	81.1	81.1	81.1	59.7	59.7	59.7	Lw	81.1					5	a
AREASOURCE		CAR14	81.1	81.1	81.1	59.6	59.6	59.6	Lw	81.1					5	a
AREASOURCE		CAR15	81.1	81.1	81.1	63.7	63.7	63.7	Lw	81.1					5	a
AREASOURCE		CAR16	81.1	81.1	81.1	58.2	58.2	58.2	Lw	81.1					5	a
AREASOURCE		CAR17	81.1	81.1	81.1	59.9	59.9	59.9	Lw	81.1					5	a
AREASOURCE		CAR18	81.1	81.1	81.1	60.1	60.1	60.1	Lw	81.1					5	a
AREASOURCE		CAR19	81.1	81.1	81.1	60.0	60.0	60.0	Lw	81.1					5	a
AREASOURCE		CAR20	81.1	81.1	81.1	60.1	60.1	60.1	Lw	81.1					5	a
AREASOURCE		CAR21	81.1	81.1	81.1	60.1	60.1	60.1	Lw	81.1					5	a
AREASOURCE		CAR22	81.1	81.1	81.1	61.1	61.1	61.1	Lw	81.1					5	a
AREASOURCE		CAR23	81.1	81.1	81.1	57.7	57.7	57.7	Lw	81.1					5	a
AREASOURCE		CAR24	81.1	81.1	81.1	61.4	61.4	61.4	Lw	81.1					5	a
AREASOURCE		CAR25	81.1	81.1	81.1	61.5	61.5	61.5	Lw	81.1					5	a
AREASOURCE		CAR26	81.1	81.1	81.1	59.7	59.7	59.7	Lw	81.1					5	a
AREASOURCE		CAR27	81.1	81.1	81.1	61.3	61.3	61.3	Lw	81.1					5	a
AREASOURCE		CAR28	81.1	81.1	81.1	63.1	63.1	63.1	Lw	81.1					5	a
AREASOURCE		CAR29	81.1	81.1	81.1	59.9	59.9	59.9	Lw	81.1					5	a
AREASOURCE		CAR30	81.1	81.1	81.1	60.4	60.4	60.4	Lw	81.1					5	a
AREASOURCE		CAR31	81.1	81.1	81.1	60.0	60.0	60.0	Lw	81.1					5	a
AREASOURCE		CAR32	81.1	81.1	81.1	60.1	60.1	60.1	Lw	81.1					5	a
AREASOURCE		CAR33	81.1	81.1	81.1	59.7	59.7	59.7	Lw	81.1					5	a
AREASOURCE		CAR34	81.1	81.1	81.1	60.4	60.4	60.4	Lw	81.1					5	a
AREASOURCE		CAR35	81.1	81.1	81.1	58.9	58.9	58.9	Lw	81.1					5	a
AREASOURCE		CAR36	81.1	81.1	81.1	59.7	59.7	59.7	Lw	81.1					5	a
AREASOURCE		CAR37	81.1	81.1	81.1	59.5	59.5	59.5	Lw	81.1					5	a
AREASOURCE		CAR38	81.1	81.1	81.1	61.3	61.3	61.3	Lw	81.1					5	a
AREASOURCE		CAR39	81.1	81.1	81.1	61.3	61.3	61.3	Lw	81.1					5	a
AREASOURCE		CAR40	81.1	81.1	81.1	61.5	61.5	61.5	Lw	81.1					5	a
AREASOURCE		DOCK01	103.4	103.4	103.4	74.2	74.2	74.2	Lw	103.4					8	a
AREASOURCE		DOCK02	103.4	103.4	103.4	69.3	69.3	69.3	Lw	103.4					8	a
AREASOURCE		DOCK03	103.4	103.4	103.4	76.1	76.1	76.1	Lw	103.4					8	a
AREASOURCE		DOCK04	103.4	103.4	103.4	71.4	71.4	71.4	Lw	103.4					8	a

Name	ID	Height				Coordinates			
		Begin		End		x	y	z	Ground
		(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
AREASOURCE	CAR01	5.00	a			6465578.87	1770837.31	5.00	0.00
						6465594.12	1770837.31	5.00	0.00
						6465594.12	1770761.46	5.00	0.00
						6465578.87	1770762.61	5.00	0.00
AREASOURCE	CAR02	5.00	a			6465631.85	1770885.71	5.00	0.00
						6465647.86	1770886.09	5.00	0.00
						6465648.62	1770819.40	5.00	0.00
						6465631.09	1770818.63	5.00	0.00
AREASOURCE	CAR03	5.00	a			6465631.47	1770809.10	5.00	0.00
						6465648.24	1770809.10	5.00	0.00
						6465647.86	1770759.18	5.00	0.00
						6465631.85	1770760.32	5.00	0.00
AREASOURCE	CAR04	5.00	a			6465517.51	1770908.96	5.00	0.00
						6465568.58	1770907.82	5.00	0.00
						6465568.58	1770890.67	5.00	0.00
						6465518.27	1770891.43	5.00	0.00
AREASOURCE	CAR05	5.00	a			6465499.60	1770865.89	5.00	0.00
						6465568.20	1770865.13	5.00	0.00
						6465567.44	1770848.74	5.00	0.00
						6465499.98	1770849.50	5.00	0.00
AREASOURCE	CAR06	5.00	a			6465423.37	1770909.34	5.00	0.00
						6465509.51	1770908.96	5.00	0.00
						6465509.13	1770892.19	5.00	0.00
						6465424.14	1770892.95	5.00	0.00
AREASOURCE	CAR07	5.00	a			6465405.84	1770866.65	5.00	0.00
						6465491.21	1770865.89	5.00	0.00
						6465490.83	1770849.89	5.00	0.00
						6465406.60	1770850.65	5.00	0.00
AREASOURCE	CAR08	5.00	a			6465330.00	1770910.10	5.00	0.00
						6465415.75	1770910.10	5.00	0.00
						6465414.99	1770892.95	5.00	0.00
						6465329.24	1770893.33	5.00	0.00
AREASOURCE	CAR09	5.00	a			6465261.01	1770910.48	5.00	0.00
						6465321.23	1770910.48	5.00	0.00
						6465320.47	1770893.71	5.00	0.00
						6465262.16	1770892.95	5.00	0.00
AREASOURCE	CAR10	5.00	a			6465243.10	1770887.24	5.00	0.00
						6465259.87	1770887.62	5.00	0.00
						6465261.01	1770812.54	5.00	0.00
						6465243.48	1770812.54	5.00	0.00
AREASOURCE	CAR11	5.00	a			6465260.25	1770803.39	5.00	0.00
						6465260.25	1770710.01	5.00	0.00
						6465243.86	1770710.39	5.00	0.00
						6465243.86	1770803.39	5.00	0.00
AREASOURCE	CAR12	5.00	a			6465242.72	1770700.87	5.00	0.00
						6465259.87	1770701.63	5.00	0.00
						6465261.01	1770608.63	5.00	0.00
						6465243.86	1770609.01	5.00	0.00
AREASOURCE	CAR13	5.00	a			6465244.25	1770599.11	5.00	0.00
						6465259.87	1770598.34	5.00	0.00
						6465259.49	1770505.73	5.00	0.00
						6465243.10	1770507.25	5.00	0.00
AREASOURCE	CAR14	5.00	a			6465243.10	1770498.11	5.00	0.00
						6465259.11	1770496.58	5.00	0.00
						6465260.25	1770404.73	5.00	0.00
						6465243.10	1770404.73	5.00	0.00
AREASOURCE	CAR15	5.00	a			6465577.35	1770423.41	5.00	0.00
						6465594.88	1770424.17	5.00	0.00
						6465595.26	1770389.87	5.00	0.00
						6465577.35	1770390.63	5.00	0.00
AREASOURCE	CAR16	5.00	a			6465647.09	1770434.46	5.00	0.00
						6465647.09	1770316.69	5.00	0.00
						6465629.56	1770316.31	5.00	0.00
						6465629.56	1770435.60	5.00	0.00
AREASOURCE	CAR17	5.00	a			6465355.91	1770318.60	5.00	0.00
						6465442.05	1770318.98	5.00	0.00
						6465440.91	1770301.07	5.00	0.00
						6465356.68	1770302.97	5.00	0.00
AREASOURCE	CAR18	5.00	a			6465450.81	1770317.45	5.00	0.00
						6465536.19	1770317.07	5.00	0.00
						6465535.42	1770300.69	5.00	0.00
						6465450.43	1770301.83	5.00	0.00
AREASOURCE	CAR19	5.00	a			6465545.33	1770316.31	5.00	0.00
						6465629.56	1770316.31	5.00	0.00
						6465629.18	1770299.54	5.00	0.00
						6465544.95	1770299.92	5.00	0.00
AREASOURCE	CAR20	5.00	a			6465355.91	1770285.06	5.00	0.00

Name	ID	Height				Coordinates			
		Begin		End		x	y	z	Ground
		(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
						6465441.67	1770284.30	5.00	0.00
						6465441.67	1770267.53	5.00	0.00
						6465356.68	1770269.81	5.00	0.00
AREASOURCE	CAR21	5.00	a			6465450.81	1770283.92	5.00	0.00
						6465535.04	1770284.30	5.00	0.00
						6465536.57	1770267.53	5.00	0.00
						6465450.81	1770268.67	5.00	0.00
AREASOURCE	CAR22	5.00	a			6465544.19	1770283.92	5.00	0.00
						6465612.79	1770282.01	5.00	0.00
						6465613.55	1770267.15	5.00	0.00
						6465544.57	1770267.15	5.00	0.00
AREASOURCE	CAR23	5.00	a			6465629.18	1770266.38	5.00	0.00
						6465646.33	1770266.38	5.00	0.00
						6465646.33	1770130.32	5.00	0.00
						6465629.18	1770129.56	5.00	0.00
AREASOURCE	CAR24	5.00	a			6465577.35	1770193.59	5.00	0.00
						6465593.74	1770194.73	5.00	0.00
						6465594.12	1770134.90	5.00	0.00
						6465576.59	1770134.90	5.00	0.00
AREASOURCE	CAR25	5.00	a			6465494.64	1770232.46	5.00	0.00
						6465553.34	1770231.70	5.00	0.00
						6465554.10	1770214.55	5.00	0.00
						6465494.64	1770216.08	5.00	0.00
AREASOURCE	CAR26	5.00	a			6465400.89	1770233.23	5.00	0.00
						6465486.26	1770232.46	5.00	0.00
						6465485.12	1770214.55	5.00	0.00
						6465400.51	1770216.08	5.00	0.00
AREASOURCE	CAR27	5.00	a			6465332.67	1770233.61	5.00	0.00
						6465390.98	1770233.99	5.00	0.00
						6465390.60	1770215.69	5.00	0.00
						6465331.14	1770217.22	5.00	0.00
AREASOURCE	CAR28	5.00	a			6465241.20	1770215.31	5.00	0.00
						6465258.73	1770216.46	5.00	0.00
						6465258.35	1770175.68	5.00	0.00
						6465241.96	1770176.06	5.00	0.00
AREASOURCE	CAR29	5.00	a			6465241.96	1770165.77	5.00	0.00
						6465258.35	1770166.15	5.00	0.00
						6465258.73	1770081.92	5.00	0.00
						6465241.58	1770082.30	5.00	0.00
AREASOURCE	CAR30	5.00	a			6465242.34	1770072.39	5.00	0.00
						6465257.58	1770072.77	5.00	0.00
						6465257.97	1769988.54	5.00	0.00
						6465242.72	1769989.31	5.00	0.00
AREASOURCE	CAR31	5.00	a			6465241.58	1769979.02	5.00	0.00
						6465258.73	1769978.64	5.00	0.00
						6465257.58	1769895.17	5.00	0.00
						6465241.96	1769894.79	5.00	0.00
AREASOURCE	CAR32	5.00	a			6465241.96	1769886.02	5.00	0.00
						6465257.58	1769886.40	5.00	0.00
						6465257.97	1769801.03	5.00	0.00
						6465241.96	1769800.65	5.00	0.00
AREASOURCE	CAR33	5.00	a			6465241.96	1769792.65	5.00	0.00
						6465258.35	1769792.27	5.00	0.00
						6465258.73	1769707.66	5.00	0.00
						6465240.43	1769707.27	5.00	0.00
AREASOURCE	CAR34	5.00	a			6465240.43	1769625.33	5.00	0.00
						6465257.20	1769625.71	5.00	0.00
						6465257.97	1769549.49	5.00	0.00
						6465241.58	1769549.87	5.00	0.00
AREASOURCE	CAR35	5.00	a			6465257.20	1769526.62	5.00	0.00
						6465360.87	1769525.86	5.00	0.00
						6465360.11	1769508.71	5.00	0.00
						6465257.97	1769508.71	5.00	0.00
AREASOURCE	CAR36	5.00	a			6465368.87	1769526.62	5.00	0.00
						6465462.25	1769525.48	5.00	0.00
						6465461.87	1769509.47	5.00	0.00
						6465370.40	1769510.23	5.00	0.00
AREASOURCE	CAR37	5.00	a			6465471.78	1769526.24	5.00	0.00
						6465565.15	1769524.72	5.00	0.00
						6465564.01	1769508.33	5.00	0.00
						6465471.78	1769509.47	5.00	0.00
AREASOURCE	CAR38	5.00	a			6465576.20	1769639.05	5.00	0.00
						6465593.36	1769638.29	5.00	0.00
						6465593.36	1769579.60	5.00	0.00
						6465575.44	1769579.60	5.00	0.00
AREASOURCE	CAR39	5.00	a			6465627.66	1769664.97	5.00	0.00
						6465645.57	1769664.21	5.00	0.00

Name	ID	Height				Coordinates			
		Begin		End		x	y	z	Ground
		(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
						6465644.81	1769605.51	5.00	0.00
						6465627.66	1769605.51	5.00	0.00
AREASOURCE	CAR40	5.00	a			6465628.42	1769596.75	5.00	0.00
						6465645.19	1769597.13	5.00	0.00
						6465644.43	1769536.91	5.00	0.00
						6465628.04	1769538.06	5.00	0.00
AREASOURCE	DOCK01	8.00	a			6465628.80	1770120.79	8.00	0.00
						6465648.62	1770120.41	8.00	0.00
						6465647.47	1769674.50	8.00	0.00
						6465627.28	1769675.26	8.00	0.00
AREASOURCE	DOCK02	8.00	a			6465506.46	1770122.70	8.00	0.00
						6465567.06	1770121.18	8.00	0.00
						6465567.06	1769672.97	8.00	0.00
						6465505.70	1769673.35	8.00	0.00
AREASOURCE	DOCK03	8.00	a			6465628.80	1770725.26	8.00	0.00
						6465649.76	1770725.26	8.00	0.00
						6465650.14	1770447.80	8.00	0.00
						6465629.18	1770447.04	8.00	0.00
AREASOURCE	DOCK04	8.00	a			6465508.75	1770727.93	8.00	0.00
						6465568.58	1770726.40	8.00	0.00
						6465568.58	1770445.89	8.00	0.00
						6465507.98	1770446.66	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)
BARRIERPLANNED			0						0.00	a		6465568.58	1770726.40	0.00	0.00
												6465595.89	1770726.62	0.00	0.00
BARRIERPLANNED			0						0.00	a		6465655.16	1770726.27	0.00	0.00
												6465628.73	1770726.79	0.00	0.00
BARRIERPLANNED			0						0.00	a		6465568.58	1770445.89	0.00	0.00
												6465595.88	1770446.48	0.00	0.00
BARRIERPLANNED			0						0.00	a		6465629.18	1770447.04	0.00	0.00
												6465654.83	1770446.48	0.00	0.00
BARRIERPLANNED			0						0.00	a		6465567.06	1770121.18	0.00	0.00
												6465594.52	1770120.92	0.00	0.00
BARRIERPLANNED			0						0.00	a		6465628.80	1770120.79	0.00	0.00
												6465652.96	1770120.75	0.00	0.00
BARRIERPLANNED			0						0.00	a		6465567.06	1769672.97	0.00	0.00
												6465593.34	1769672.88	0.00	0.00
BARRIERPLANNED			0						0.00	a		6465628.40	1769672.21	0.00	0.00
												6465652.79	1769672.04	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		45.00	a	6465303.70	1770836.55	45.00	0.00
									6465567.82	1770833.50	45.00	0.00
									6465568.58	1770726.40	45.00	0.00
									6465508.75	1770727.93	45.00	0.00
									6465507.98	1770446.66	45.00	0.00
									6465568.58	1770445.89	45.00	0.00
									6465567.82	1770358.23	45.00	0.00
									6465302.94	1770362.81	45.00	0.00
									6465296.46	1770436.75	45.00	0.00
									6465296.08	1770764.89	45.00	0.00
BUILDING			BUILDING00002	x	0		45.00	a	6465301.41	1770204.64	45.00	0.00
									6465567.44	1770205.79	45.00	0.00
									6465567.06	1770121.18	45.00	0.00
									6465506.46	1770122.70	45.00	0.00
									6465505.70	1769673.35	45.00	0.00
									6465567.06	1769672.97	45.00	0.00
									6465561.34	1769563.97	45.00	0.00
									6465297.60	1769567.02	45.00	0.00
									6465292.65	1769925.28	45.00	0.00
									6465294.55	1770132.61	45.00	0.00

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APPENDIX 8.1:

CADNAA CONSTRUCTION NOISE MODEL INPUTS

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15795 - Sequoia Commerce Gateway

CadnaA Noise Prediction Model: 15795-02_Construction.cna
Date: 29.08.24
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	
Daytime Penalty (dB)	**0.00**
Recr. Time Penalty (dB)	**5.00**
Night-time Penalty (dB)	**10.00**
DTM	
Standard Height (m)	**0.00**
Model of Terrain	**Triangulation**
Reflection	
max. Order of Reflection	**2**
Search Radius Src	**100.00**
Search Radius Rcvr	**100.00**
Max. Distance Source - Rcvr	**1000.00 1000.00**
Min. Distance Rvcr - Reflector	**1.00 1.00**
Min. Distance Source - Reflector	**0.10**
Industrial (ISO 9613)	
Lateral Diffraction	**some Obj**
Obst. within Area Src do not shield	**On**
Screening	**Incl. Ground Att. over Barrier**
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	**3.0 20.0 0.0**
Temperature (#(Unit,TEMP))	**10**
rel. Humidity (%)	**70**
Ground Absorption G	**0.50**
Wind Speed for Dir. (#(Unit,SPEED))	**3.0**
Roads (TNM)	
Railways (FTA/FRA)	
Aircraft (???)	
Strictly acc. to AzB	

Receiver Noise Levels

Name	M.	ID	Level Lr			Limit. Value			Land Use			Height		Coordinates		
			Day	Night	CNEL	Day	Night	CNEL	Type	Auto	Noise Type			X	Y	Z
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)				(ft)		(ft)	(ft)	(ft)
RECEIVERS		R1	65.4	-41.5	62.4	60.0	55.0	0.0				5.00	a	6465348.90	1771042.15	5.00
RECEIVERS		R2	64.8	-42.2	61.8	60.0	55.0	0.0				5.00	a	6465578.67	1771049.61	5.00
RECEIVERS		R3	62.3	-44.7	59.3	60.0	55.0	0.0				5.00	a	6465757.67	1771042.43	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	125.4	18.4	18.4	77.8	-29.2	-29.2	PWL-Pt	118.4					0	a

Name	ID	Height				Coordinates			
		Begin		End		x	y	z	Ground
		(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
SITEBOUNDARY	CONSTRUCTION	0.00	a			6465253.88	1770930.20	0.00	0.00
						6465283.17	1770930.15	0.00	0.00
						6465655.91	1770929.53	0.00	0.00
						6465654.48	1770429.49	0.00	0.00
						6465654.19	1770329.50	0.00	0.00
						6465654.08	1770291.00	0.00	0.00
						6465653.90	1770229.49	0.00	0.00
						6465653.61	1770129.70	0.00	0.00
						6465653.37	1770029.31	0.00	0.00
						6465653.25	1769973.81	0.00	0.00
						6465653.13	1769929.30	0.00	0.00
						6465652.90	1769829.31	0.00	0.00

Name	ID	Height		Coordinates			
		Begin	End	x	y	z	Ground
		(ft)	(ft)	(ft)	(ft)	(ft)	(ft)
				6465652.64	1769729.29	0.00	0.00
				6465652.06	1769495.30	0.00	0.00
				6465489.48	1769495.59	0.00	0.00
				6465224.17	1769496.47	0.00	0.00
				6465225.58	1769922.17	0.00	0.00
				6465226.27	1770131.10	0.00	0.00
				6465226.80	1770291.71	0.00	0.00
				6465228.83	1770905.28	0.00	0.00
				6465228.85	1770906.12	0.00	0.00
				6465228.90	1770906.99	0.00	0.00
				6465229.08	1770908.72	0.00	0.00
				6465229.22	1770909.58	0.00	0.00
				6465229.37	1770910.36	0.00	0.00
				6465229.49	1770910.92	0.00	0.00
				6465229.63	1770911.47	0.00	0.00
				6465229.81	1770912.13	0.00	0.00
				6465230.07	1770912.97	0.00	0.00
				6465230.30	1770913.64	0.00	0.00
				6465230.48	1770914.12	0.00	0.00
				6465231.41	1770916.26	0.00	0.00
				6465231.78	1770916.97	0.00	0.00
				6465232.89	1770918.85	0.00	0.00
				6465234.16	1770920.63	0.00	0.00
				6465234.71	1770921.30	0.00	0.00
				6465236.50	1770923.21	0.00	0.00
				6465237.14	1770923.81	0.00	0.00
				6465237.80	1770924.38	0.00	0.00
				6465238.48	1770924.93	0.00	0.00
				6465240.62	1770926.42	0.00	0.00
				6465241.37	1770926.87	0.00	0.00
				6465241.38	1770926.88	0.00	0.00
				6465242.89	1770927.68	0.00	0.00
				6465243.40	1770927.92	0.00	0.00
				6465243.92	1770928.15	0.00	0.00
				6465244.98	1770928.58	0.00	0.00
				6465245.50	1770928.77	0.00	0.00
				6465246.15	1770928.99	0.00	0.00
				6465246.99	1770929.24	0.00	0.00
				6465248.24	1770929.57	0.00	0.00
				6465248.80	1770929.69	0.00	0.00
				6465252.18	1770930.14	0.00	0.00

APPENDIX 8.2:

CADNAA CONCRETE POUR NOISE MODEL INPUTS

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15795 - Sequoia Commerce Gateway

CadnaA Noise Prediction Model: 15795-02_Pour.cna
Date: 29.08.24
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	
Daytime Penalty (dB)	**0.00**
Recr. Time Penalty (dB)	**5.00**
Night-time Penalty (dB)	**10.00**
DTM	
Standard Height (m)	**0.00**
Model of Terrain	**Triangulation**
Reflection	
max. Order of Reflection	**2**
Search Radius Src	**100.00**
Search Radius Rcvr	**100.00**
Max. Distance Source - Rcvr	**1000.00 1000.00**
Min. Distance Rvcr - Reflector	**1.00 1.00**
Min. Distance Source - Reflector	**0.10**
Industrial (ISO 9613)	
Lateral Diffraction	**some Obj**
Obst. within Area Src do not shield	**On**
Screening	**Incl. Ground Att. over Barrier**
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	**3.0 20.0 0.0**
Temperature (#(Unit,TEMP))	**10**
rel. Humidity (%)	**70**
Ground Absorption G	**0.50**
Wind Speed for Dir. (#(Unit,SPEED))	**3.0**
Roads (TNM)	
Railways (FTA/FRA)	
Aircraft (???)	
Strictly acc. to AzB	

Receiver Noise Levels

Name	M.	ID	Level Lr			Limit. Value			Land Use			Height		Coordinates		
			Day	Night	CNEL	Day	Night	CNEL	Type	Auto	Noise Type			X	Y	Z
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)				(ft)		(ft)	(ft)	(ft)
RECEIVERS		R1	49.8	-54.9	46.8	60.0	55.0	0.0				5.00	a	6465348.90	1771042.15	5.00
RECEIVERS		R2	49.3	-55.4	46.3	60.0	55.0	0.0				5.00	a	6465578.67	1771049.61	5.00
RECEIVERS		R3	47.2	-57.5	44.2	60.0	55.0	0.0				5.00	a	6465757.67	1771042.43	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		POUR	105.1	0.3	0.3	57.5	-47.3	-47.3	PWL-Pt	100.3					8	a

Name	ID	Height				Coordinates			
		Begin		End		x	y	z	Ground
		(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
SITEBOUNDARY	POUR	8.00	a			6465253.88	1770930.20	8.00	0.00
						6465283.17	1770930.15	8.00	0.00
						6465655.91	1770929.53	8.00	0.00
						6465654.48	1770429.49	8.00	0.00
						6465654.19	1770329.50	8.00	0.00
						6465654.08	1770291.00	8.00	0.00
						6465653.90	1770229.49	8.00	0.00
						6465653.61	1770129.70	8.00	0.00
						6465653.37	1770029.31	8.00	0.00
						6465653.25	1769973.81	8.00	0.00
						6465653.13	1769929.30	8.00	0.00
						6465652.90	1769829.31	8.00	0.00

Name	ID	Height		Coordinates			
		Begin	End	x	y	z	Ground
		(ft)	(ft)	(ft)	(ft)	(ft)	(ft)
				6465652.64	1769729.29	8.00	0.00
				6465652.06	1769495.30	8.00	0.00
				6465489.48	1769495.59	8.00	0.00
				6465224.17	1769496.47	8.00	0.00
				6465225.58	1769922.17	8.00	0.00
				6465226.27	1770131.10	8.00	0.00
				6465226.80	1770291.71	8.00	0.00
				6465228.83	1770905.28	8.00	0.00
				6465228.85	1770906.12	8.00	0.00
				6465228.90	1770906.99	8.00	0.00
				6465229.08	1770908.72	8.00	0.00
				6465229.22	1770909.58	8.00	0.00
				6465229.37	1770910.36	8.00	0.00
				6465229.49	1770910.92	8.00	0.00
				6465229.63	1770911.47	8.00	0.00
				6465229.81	1770912.13	8.00	0.00
				6465230.07	1770912.97	8.00	0.00
				6465230.30	1770913.64	8.00	0.00
				6465230.48	1770914.12	8.00	0.00
				6465231.41	1770916.26	8.00	0.00
				6465231.78	1770916.97	8.00	0.00
				6465232.89	1770918.85	8.00	0.00
				6465234.16	1770920.63	8.00	0.00
				6465234.71	1770921.30	8.00	0.00
				6465236.50	1770923.21	8.00	0.00
				6465237.14	1770923.81	8.00	0.00
				6465237.80	1770924.38	8.00	0.00
				6465238.48	1770924.93	8.00	0.00
				6465240.62	1770926.42	8.00	0.00
				6465241.37	1770926.87	8.00	0.00
				6465241.38	1770926.88	8.00	0.00
				6465242.89	1770927.68	8.00	0.00
				6465243.40	1770927.92	8.00	0.00
				6465243.92	1770928.15	8.00	0.00
				6465244.98	1770928.58	8.00	0.00
				6465245.50	1770928.77	8.00	0.00
				6465246.15	1770928.99	8.00	0.00
				6465246.99	1770929.24	8.00	0.00
				6465248.24	1770929.57	8.00	0.00
				6465248.80	1770929.69	8.00	0.00
				6465252.18	1770930.14	8.00	0.00