1130 S. Hope Street

NOISE IMPACT ANALYSIS

CITY OF LOS ANGELES

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LIST OF ABBREVIATED TERMS

(1)	Reference
ADT	Average Daily Traffic
ANSI	American National Standards Institute
Calveno	California Vehicle Noise
CEQA	California Environmental Quality Act
CNEL	Community Noise Equivalent Level
dBA	A-weighted decibels
EPA	Environmental Protection Agency
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
INCE	Institute of Noise Control Engineering
L_{eq}	Equivalent continuous (average) sound level
L_{max}	Maximum level measured over the time interval
L_{min}	Minimum level measured over the time interval
mph	Miles per hour
NIOSH	National Institute for Occupational Safety and Health
OSHA	Occupational Safety and Health Administration
PPV	Peak Particle Velocity
Project	1130 S. Hope Street
REMEL	Reference Energy Mean Emission Level
VdB	Vibration Decibels

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EXECUTIVE SUMMARY

Urban Crossroads, Inc. has prepared this noise study to determine the potential noise impacts and the necessary noise mitigation measures, if any, for the proposed 1130 S. Hope Street development ("Project"). The Project site is located east of Staples Center in South Park area in the City of Los Angeles . The Project is proposed to consist of a 12-story, 175-foot high limited-service hotel with 144 guest rooms and 378 square feet of ground-floor retail uses. The total floor area of the building is 61,392 square feet.

The results of this 1130 S. Hope Street Noise Impact Analysis are summarized below based on the significance criteria in Section 4 of this report consistent with Appendix G of the California Environmental Quality Act (CEQA) Guidelines. (1). Table ES-1 shows the findings of significance for each potential noise and/or vibration impact under CEQA. All impacts are considered less than significant without mitigation.

TABLE ES-1: SUMMARY OF CEQA SIGNIFICANCE FINDINGS

Analysis	Report Section	Significance Findings	
		Unmitigated	Mitigated
Operational Noise	7	*Less Than Significant*	-
Construction Noise	8	*Less Than Significant*	-
Construction Vibration		*Less Than Significant*	-

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1 INTRODUCTION

This noise analysis has been completed to determine the noise impacts associated with the development of the proposed 1130 S. Hope Street ("Project"). This noise study describes the proposed Project, provides information regarding noise fundamentals, outlines the local regulatory setting, provides the study methods and procedures for traffic noise analysis, and evaluates the future exterior noise environment. In addition, this study includes an analysis of the potential Project-related long-term operational noise and short-term construction noise impacts.

1.1 SITE LOCATION

The proposed Project is located at 1130 S. Hope Street between 11th and 12th street, in the City of Los Angeles, as shown on Exhibit 1-A. The Project site is located around 0.5 miles east of Interstate 110 (I-110), 0.5 miles north of Interstate 10 (I-10), and 2 miles west of Highway 101. Los Angeles International Airport is located approximately 11 miles to the southwest.

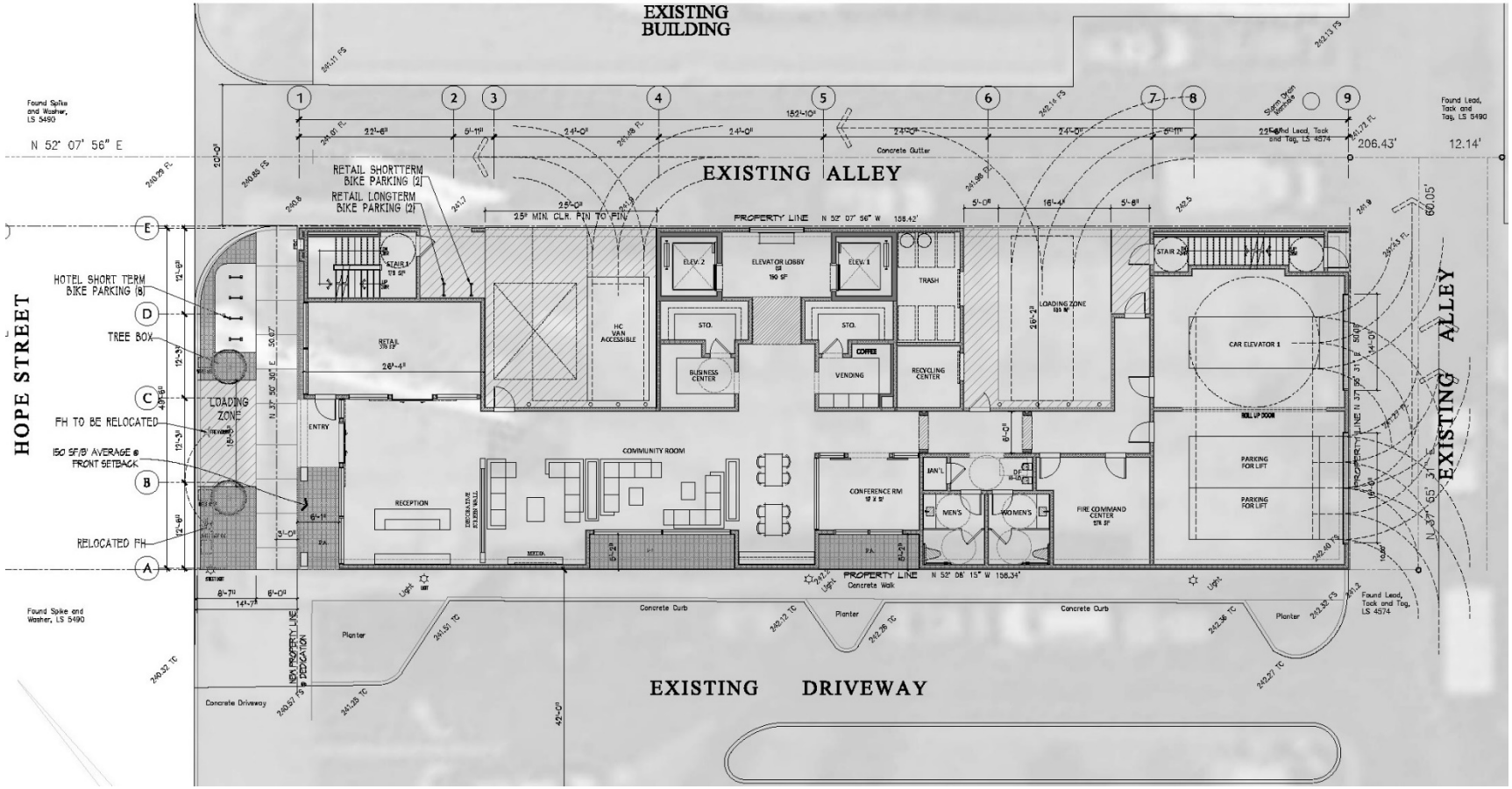
1.2 PROJECT DESCRIPTION

The Project proposes to consist of a mixed-use hotel development, with 144 hotel rooms, 378 square feet of retail and 53 parking spaces within an indoor parking garage as shown on Exhibit 1-B. The Project is expected to be fully operational by 2023.

The on-site Project-related noise sources are expected to include: roof-top air conditioning units, outdoor activity area, exercise station, and pool activity. 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 will operate 24-hours daily for seven days per week. Per the 1130 Hope Street Traffic Impact Analysis by KOA Consultants, the Project is expected to generate 1,035 daily two way trips (538 inbound and 538 outbound) (2).

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. (3) The most common sounds vary between 40 dBA (very quiet) to 100 dBA (very loud). Normal conversation at three feet is roughly at 60 dBA, while loud jet engine noises equate to 110 dBA

at approximately 100 feet, which can cause serious discomfort. (4) 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 figure is the equivalent level (L_{eq}). Equivalent sound levels are not measured directly but are calculated from sound pressure levels typically measured in A-weighted decibels (dBA). The equivalent sound level (L_{eq}) represents a steady state sound level containing the same total energy as a time varying signal over a given sample period (typically one hour) and is commonly used to describe the "average" noise levels within the environment.

Peak hour or average noise levels, while useful, do not completely describe a given noise environment, however. Noise levels lower than peak hour may be disturbing if they occur during times when quiet is most desirable, namely evening and nighttime (sleeping) hours. To account for this, the Community Noise Equivalent Level (CNEL), representing a composite 24-hour noise level is utilized. The CNEL is the weighted average of the intensity of a sound, with corrections for time of day, and averaged over 24 hours. The time of day corrections require the addition of 5 decibels to dBA L_{eq} sound levels in the evening from 7:00 p.m. to 10:00 p.m., and the addition of 10 decibels to dBA L_{eq} sound levels at night between 10:00 p.m. and 7:00 a.m. These additions are made to account for the noise sensitive time periods during the evening and night hours when sound appears louder. CNEL does not represent the actual sound level heard at any time, but rather represents the total sound exposure. The City of Los Angeles 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. Based on guidance from the U.S. Department of Transportation, Federal Highway Administration (FHWA), Office of Environment and Planning, Noise and Air Quality Branch, 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. (3)

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 feet. 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. (5)

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. (3)

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 nearest 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)

2.3.5 REFLECTION

Field studies conducted by the FHWA have shown that the reflection from barriers and buildings does not substantially increase noise levels. (5) If all the noise striking a structure was reflected back to a given receiving point, the increase would be theoretically limited to 3 dBA. Further, not all the acoustical energy is reflected back to same point. Some of the energy would go over the structure, some is reflected to points other than the given receiving point, some is scattered by ground coverings (e.g., grass and other plants), and some is blocked by intervening structures and/or obstacles (e.g., the noise source itself). Additionally, some of the reflected energy is lost due to the longer path that the noise must travel. FHWA measurements made to quantify reflective increases in traffic noise have not shown an increase of greater than 1-2 dBA; an increase that is not perceptible to the average human ear.

2.4 NOISE CONTROL

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

2.5 NOISE BARRIER ATTENUATION

Effective noise barriers can reduce noise levels by up to 10 to 15 dBA, cutting the loudness of traffic noise in half. A noise barrier is most effective when placed close to the noise source or receiver. Noise barriers, however, do have limitations. For a noise barrier to work, it must be high enough and long enough to block the path of the noise source. (5)

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

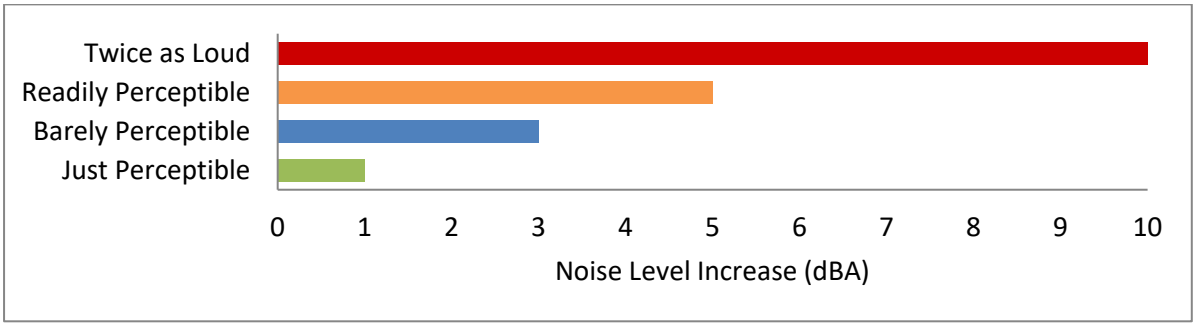
Community responses to noise may range from registering a complaint by telephone or letter, to initiating court action, depending upon everyone's susceptibility to noise and personal attitudes about noise. Several factors are related to the level of community annoyance including:

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

Approximately ten percent of the population has a very low tolerance for noise and will object to any noise not of their making. Consequently, even in the quietest environment, some complaints will occur. Twenty-five percent of the population will not complain even in very severe noise environments. Thus, a variety of reactions can be expected from people exposed to any given noise environment. (7) Surveys have shown that about ten percent of the people exposed to traffic noise of 60 dBA will report being highly annoyed with the noise, and each increase of one dBA is associated with approximately two percent more people being highly annoyed. When

traffic noise exceeds 60 dBA or aircraft noise exceeds 55 dBA, people may begin to complain. (7) 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 are considered *barely perceptible*, and changes of 5 dBA are considered *readily perceptible*. (5)

EXHIBIT 2-B: NOISE LEVEL INCREASE PERCEPTION



2.8 VIBRATION

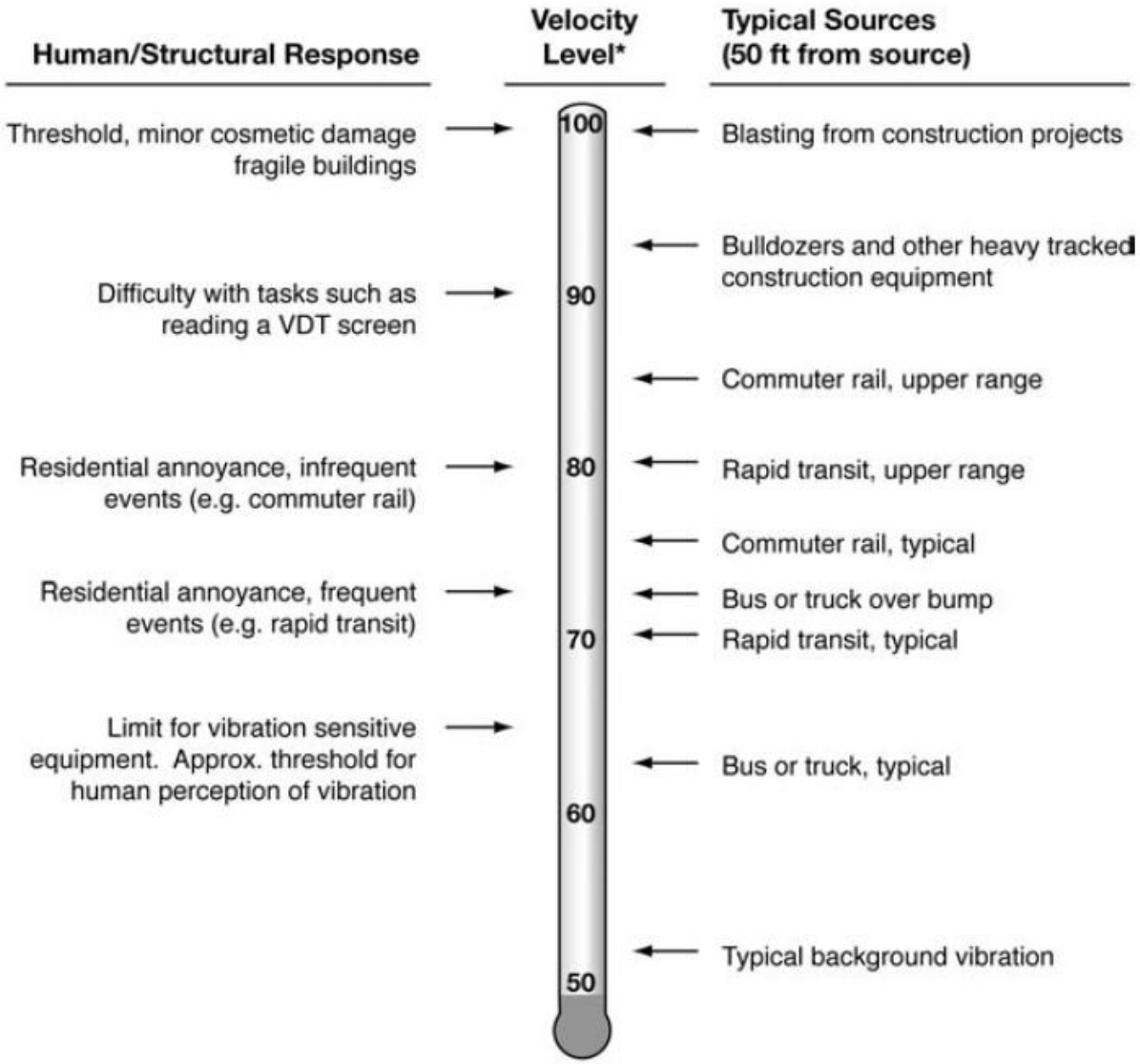
Per the Federal Transit Administration (FTA) *Transit Noise and Vibration Impact Assessment Manual* (8), vibration is the periodic oscillation of a medium or object. The rumbling sound caused by the vibration of room surfaces is called structure-borne noise. Sources of ground-borne vibrations include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

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

The background vibration-velocity level in residential areas is generally 50 VdB. Ground-borne vibration is normally perceptible to humans at approximately 65 VdB. For most people, a vibration-velocity level of 75 VdB is the approximate dividing line between barely perceptible and

distinctly perceptible levels. Typical outdoor sources of perceptible ground-borne vibration are construction equipment, steel-wheeled trains, and traffic on rough roads. If a roadway is smooth, the ground-borne vibration is rarely perceptible. The range of interest is from approximately 50 VdB, which is the typical background vibration-velocity level, to 100 VdB, which is the general threshold where minor damage can occur in fragile buildings. Exhibit 2-C illustrates common vibration sources and the human and structural response to ground-borne vibration.

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



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

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

3 REGULATORY SETTING

To limit population exposure to physically and/or psychologically damaging as well as intrusive noise levels, the federal government, the State of California, various county governments, and most municipalities in the state have established standards and ordinances to control noise. In most areas, automobile and truck traffic is the major source of environmental noise. Traffic activity generally produces an average sound level that remains constant with time. Air and rail traffic, and commercial and industrial activities are also major sources of noise in some areas. Federal, state, and local agencies regulate different aspects of environmental noise. Federal and state agencies generally set noise standards for mobile sources such as aircraft and motor vehicles, while regulation of stationary sources is left to local agencies.

3.1 STATE OF CALIFORNIA NOISE REQUIREMENTS

The State of California regulates freeway noise, sets standards for sound transmission, provides occupational noise control criteria, identifies noise standards, and provides guidance for local land use compatibility. State law requires that each county and city adopt a General Plan that includes a Noise Element which is to be prepared per guidelines adopted by the Governor's Office of Planning and Research (OPR). (9) The purpose of the Noise 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 STATE OF CALIFORNIA BUILDING CODE

The State of California's noise insulation standards are codified in the California Code of Regulations, Title 24, Building Standards Administrative Code, Part 2, and the California Building Code. These noise standards are applied to new construction in California for controlling interior noise levels resulting from exterior noise sources. The regulations specify that acoustical studies must be prepared when noise-sensitive structures, such as residential buildings, schools, or hospitals, are developed near major transportation noise sources, and where such noise sources create an exterior noise level of 60 dBA CNEL or higher. Acoustical studies that accompany building plans for noise-sensitive land uses must demonstrate that the structure has been designed to limit interior noise in habitable rooms to acceptable noise levels. For new residential buildings, schools, and hospitals, the acceptable interior noise limit for new construction is 45 dBA CNEL.

3.3 CITY OF LOS ANGELES GENERAL PLAN NOISE ELEMENT

The City of Los Angeles has adopted a Noise Element of the General Plan to identify goals, objectives, and policies for managing noise issues within the City. (10) The following goal and objectives are identified in the General Plan Noise Element:

Goal	*A city where noise does not reduce the quality of urban life.*
Objective 1	*Reduce airport and harbor related noise impacts.*

Objective 2 *Reduce or eliminate nonairport related intrusive noise, especially relative to noise sensitive uses.*

Objective 3 *Reduce or eliminate noise impacts associated with proposed development of land and changes in land use.*

Exhibit I of the City of Los Angeles General Plan Noise Element identifies *Guidelines for Noise Compatible Land Use* to evaluate the potential impacts of transportation-related noise. Multi-family residential land use, such as the Project, is considered *conditionally acceptable* with unmitigated exterior noise levels of less than 65 dBA CNEL. For *conditionally acceptable* exterior noise levels, n*ew construction or development only after a detailed analysis of noise mitigation is made and needed noise insulation features are included in project design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning normally will suffice.* (10)

3.4 CITY OF LOS ANGELES OPERATIONAL NOISE STANDARDS

To analyze noise impacts originating from a designated fixed location or private property such as 1130 S. Hope Street Project, stationary-source (operational) noise such as the expected roof-top air conditioning units, outdoor activity area, exercise station, and pool activity are typically evaluated against standards established under a jurisdiction's Municipal Code or General Plan.

The City of Los Angeles Municipal Code, Chapter XI *Noise Regulation,* has set exterior noise limits to control community noise impacts from non-transportation noise sources (such as air-conditioning units, refrigeration, heating, pumping, and filtering equipment). Section 112.02 indicates that stationary noise sources shall not operate in such a manner as to cause the noise level at any sensitive use to exceed the existing ambient noise level by 5 dBA. (11) The City of Los Angeles Municipal Code, Chapter XI, is provided in Appendix 3.1.

3.5 CITY OF LOS ANGELES CONSTRUCTION NOISE STANDARDS

Section 112.05 of the City's Municipal Code identifies exterior noise level limits for construction equipment and states: *in any residential zone or within 500 feet thereof, no person shall operate or cause to be operated any powered equipment or powered hand tool that produces a maximum noise level exceeding the following noise limits at a distance of 50 feet therefrom*: (11)

- *75dB(A) for construction, industrial, and agricultural machinery including crawler-tractors, dozers, rotary drills and augers, loaders, power shovels, cranes, derricks, motor graders, paving machines, off-highway trucks, ditchers, trenchers, compactors, scrapers, wagons, pavement breakers, compressors and pneumatic or other powered equipment.*

Therefore, for the purpose of this noise study, the City of Los Angeles Municipal Code 75 dBA L_{eq} threshold is used to determine potential Project-related construction noise level impacts at nearby sensitive receiver locations.

4 SIGNIFICANCE CRITERIA

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

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

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

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

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

4.1 CEQA GUIDELINES NOT FURTHER ANALYZED

The Project site is not located within two miles of a public airport or within an airport land use plan; nor is the Project within the vicinity of a private airstrip. As such, the Project site would not be exposed to excessive noise levels from airport operations, and therefore, impacts are considered *less than significant,* and no further noise analysis is conducted in relation to Guideline C.

4.2 NOISE-SENSITIVE RECEIVERS

Noise level increases resulting from the Project are evaluated based on the Appendix G CEQA Guidelines described above at the nearest sensitive receiver locations. Under CEQA, consideration must be given to the magnitude of the increase, the existing ambient noise levels, and the location of noise-sensitive receivers to determine if a noise level increase represents a significant adverse environmental impact. This approach recognizes *that there is no single noise increase that renders the noise impact significant.* (12) Unfortunately, there is no completely satisfactory way to measure the subjective effects of noise or of the corresponding human reactions of annoyance and dissatisfaction. This is primarily because of the wide variation in individual thresholds of annoyance and differing individual experiences with noise. Thus, an important way of determining a person's subjective reaction to a new noise is the comparison of it to the existing environment to which one has adapted—the so-called *ambient* environment. In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will typically be judged.

Since neither the City of Los Angeles General Plan Noise Element or Municipal Code identify any noise level increase thresholds, the substantial noise level increase criteria are derived from the Federal Transit Administration (FTA) *Transit Noise and Vibration Impact Assessment Manual.* To describe the amount to which a given noise level increase is considered acceptable, the FTA criteria is used to evaluate the incremental noise level increase and establishes a method for comparing future project noise with existing ambient conditions under CEQA Significance Threshold A. In effect, the amount to which a given noise level increase is considered acceptable is reduced based on existing ambient noise conditions.

4.3 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.

TABLE 4-1: SIGNIFICANCE CRITERIA SUMMARY

Analysis	Receiving Land Use	Condition(s)	Significance Criteria	
			Daytime	Nighttime
Operational	Noise-Sensitive[1]	Exterior Noise Level Standards	Existing Ambient Noise Level plus 5 dBA L_{eq}	
Construction	Noise-Sensitive	Exterior Noise Level Standards[2]	75 dBA L_{eq}	n/a
		Vibration Level Threshold[3]	78 VdB	n/a

[1] City of Los Angeles Municipal Code, Section 112.02 (Appendix 3.1).
[2] City of Los Angeles Municipal Code, Section 112.05 (Appendix 3.1).
[3] Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual.
"Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

5 EXISTING NOISE LEVEL MEASUREMENTS

To assess the existing noise level environment, 24-hour noise level measurements were taken at four locations in the Project study area. The receiver locations were selected to describe and document the existing noise environment within the Project study area. Exhibit 5-A provides the boundaries of the Project study area and the noise level measurement locations. To fully describe the existing noise conditions, noise level measurements were collected by Urban Crossroads, Inc. on Wednesday, September 2nd, 2020. Appendix 5.1 includes study area photos.

5.1 MEASUREMENT PROCEDURE AND CRITERIA

To describe the existing noise environment, the hourly noise levels were measured during typical weekday conditions over a 24-hour period. By collecting individual hourly noise level measurements, it is possible to describe the daytime and nighttime hourly noise levels and calculate the 24-hour CNEL. The long-term noise readings were recorded using Piccolo Type 2 integrating sound level meter and dataloggers. The Piccolo sound level meters were calibrated using a Larson-Davis calibrator, Model CAL 150. All noise meters were programmed in "slow" mode to record noise levels in "A" weighted form. The sound level meters and microphones were equipped with a windscreen during all measurements. All noise level measurement equipment satisfies the American National Standards Institute (ANSI) standard specifications for sound level meters ANSI S1.4-2014/IEC 61672-1:2013. (13)

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*. (3) Further, FTA guidance states, t*hat it is not necessary nor recommended that existing noise exposure be determined by measuring at every noise-sensitive location in the project area. Rather, the recommended approach is to characterize the noise environment for clusters of sites based on measurements or estimates at representative locations in the community*. (8)

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

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

5.3 NOISE MEASUREMENT RESULTS

The noise measurements presented below focus on the average or equivalent sound levels (L_{eq}). The equivalent sound level (L_{eq}) represents a steady state sound level containing the same total energy as a time varying signal over a given sample period. Table 5-1 identifies the hourly daytime (7:00 a.m. to 10:00 p.m.) and nighttime (10:00 p.m. to 7:00 a.m.) noise levels at each noise level measurement location. Appendix 5.2 provides a summary of the existing hourly ambient noise levels.

The background ambient noise levels in the Project study area are dominated by the transportation-related noise associated with surface streets. This includes the auto and heavy truck activities on study area roadway segments near the noise level measurement locations. The 24-hour existing noise level measurement results are shown on Table 5-1.

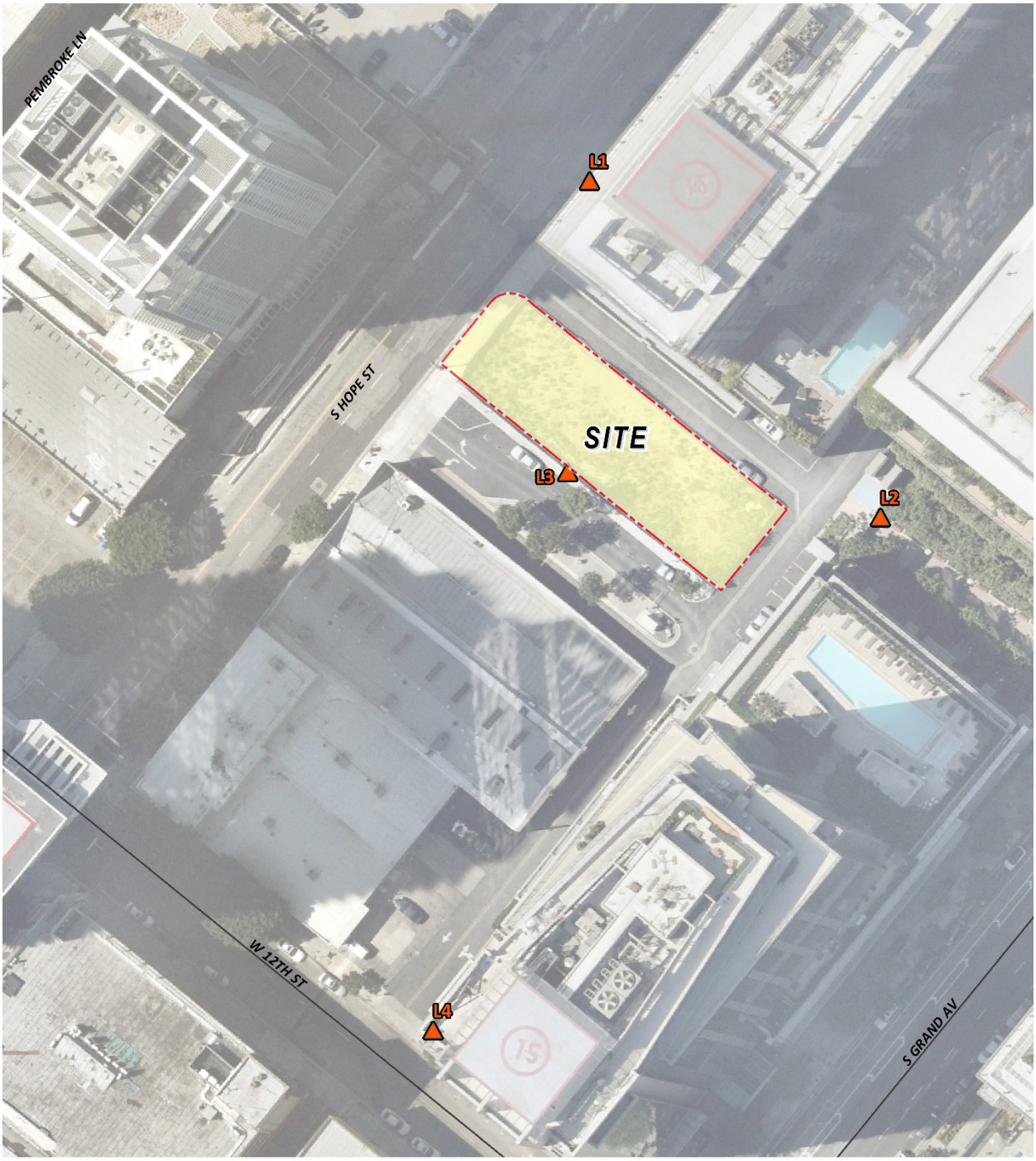
TABLE 5-1: 24-HOUR AMBIENT NOISE LEVEL MEASUREMENTS

Location[1]	Description	Energy Average Noise Level (dBA L_{eq})[2]		CNEL
		Daytime	Nighttime	
L1	Located north of the Project site on Hope Street across from existing multi-family residential homes as 1133 South Hope Street.	63.3	59.2	66.8
L2	Located east of the Project site near Elleven South Lofts at 1111 South Grand Avenue.	58.1	53.7	61.4
L3	Located by the southwest border of the Project site near Downtown Dance & Movement at 1144 South Hope Street.	59.8	55.9	63.5
L4	Located south of the Project site on West 12th Street near Evo South at 1155 South Grand Avenue.	64.4	57.1	65.9

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

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

EXHIBIT 5-A: NOISE MEASUREMENT LOCATIONS



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6 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. Sensitive receivers are generally defined as locations where people reside or where the presence of unwanted sound could otherwise adversely affect the use of the land. Noise-sensitive land uses are generally considered to include schools, hospitals, single-family dwellings, mobile home parks, churches, libraries, and recreation areas. Moderately noise-sensitive land uses typically include multi-family dwellings, hotels, motels, dormitories, out-patient clinics, cemeteries, golf courses, country clubs, athletic/tennis clubs, and equestrian clubs. Land uses that are considered relatively insensitive to noise include business, commercial, and professional developments. Land uses that are typically not affected by noise include: industrial, manufacturing, utilities, agriculture, undeveloped land, parking lots, warehousing, liquid and solid waste facilities, salvage yards, and transit terminals.

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

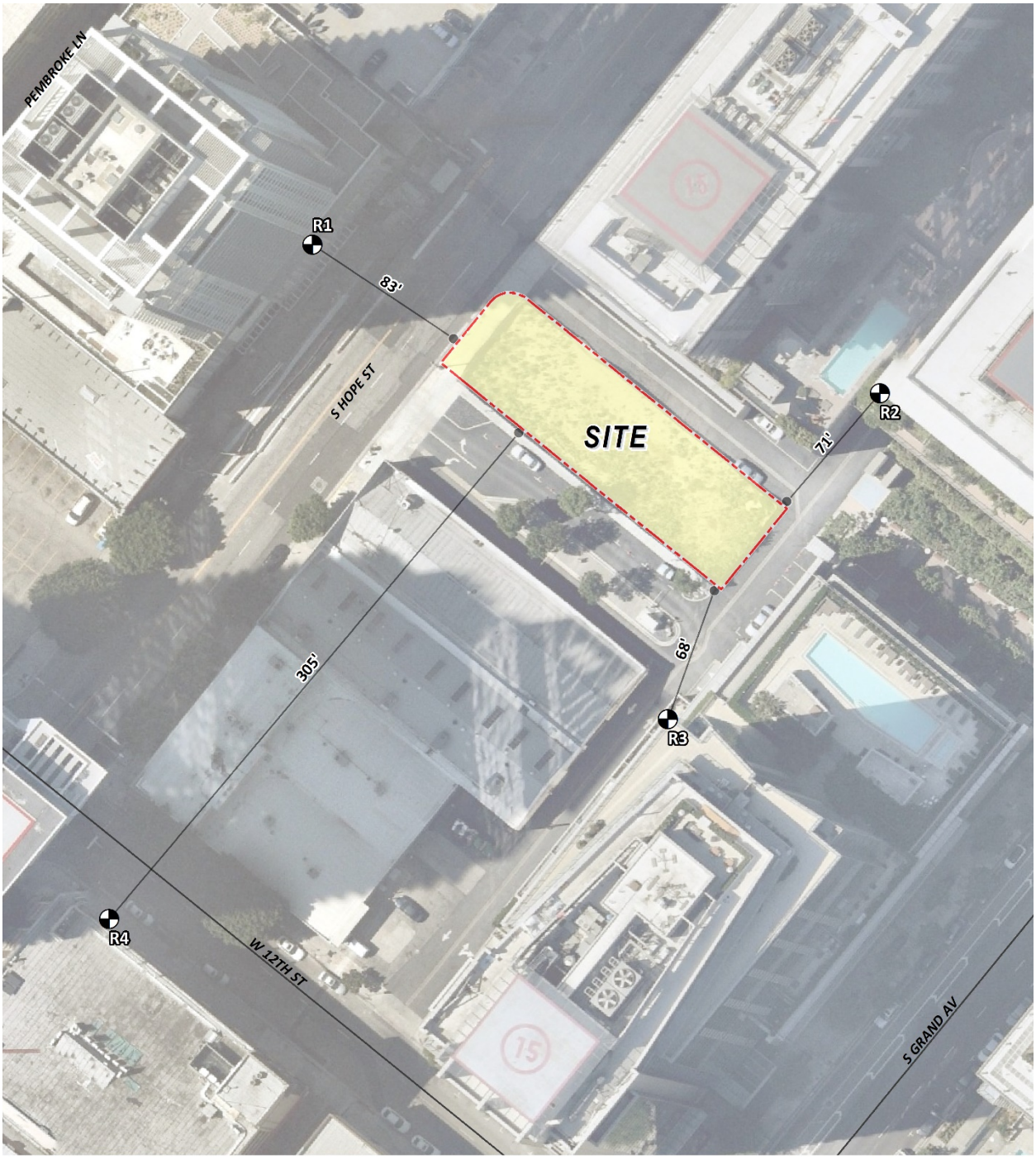
R1: Location R1 represents the existing noise sensitive residence at 1133 South Hope Street, approximately 83 feet northwest of the Project site. Since there are no private outdoor living areas (backyards) facing the Project site, receiver R1 is placed at the residential building façade. A 24-hour noise measurement was taken near this location, L1, to describe the existing ambient noise environment.

R2: Location R2 represents the existing noise sensitive residence at 1111 South Grand Avenue, approximately 71 feet east of the Project site. Since there are no private outdoor living areas (backyards) facing the Project site, receiver R2 is placed at the residential building façade. A 24-hour noise measurement was taken near this location, L2, to describe the existing ambient noise environment.

R3: Location R3 represents the existing noise sensitive residence at 1155 South Grand Avenue, approximately 68 feet south of the Project site. Since there are no private outdoor living areas (backyards) facing the Project site, receiver R3 is placed at the residential building façade. A 24-hour noise measurement near this location, L3, is used to describe the existing ambient noise environment.

R4: Location R4 represents Hudson Loft at 1200 South Hope Street, approximately 305 feet southwest of the Project site. R4 is placed at the building façade. A 24-hour noise measurement near this location, L4, is used to describe the existing ambient noise environment.

EXHIBIT 6-A: RECEIVER LOCATIONS



7 OPERATIONAL NOISE IMPACTS

This section analyzes the potential stationary-source operational noise impacts due to the Project's stationary noise sources on the off-site sensitive receiver locations identified in Section 6. Exhibit 7-A identifies the noise source locations used to assess the Project-related operational noise levels.

7.1 OPERATIONAL NOISE SOURCES

Project-related stationary-source (operational) noise sources are expected to include: roof-top air conditioning units, outdoor activity area, exercise station, and pool activity. Further, the proposed residential land uses are considered noise-sensitive receiving land uses and are not expected to include any specific type of operational noise levels beyond the typical noise sources associated with existing residential land use in the Project study area.

7.2 REFERENCE NOISE LEVELS

To estimate the Project operational noise impacts, reference noise level measurements were collected from similar types of activities to represent the noise levels expected with the development of the proposed Project. Table 7-1 presents a summary of the reference noise level measurements used in this analysis to describe the Project operational noise levels. It is important to note that the following projected noise levels assume the worst-case noise environment with the roof-top air conditioning units, outdoor activity area, exercise station, and pool activity all operating continuously. These sources of noise activity will likely vary throughout the day.

TABLE 7-1: REFERENCE NOISE LEVEL MEASUREMENTS

Noise Source[1]	Noise Source Height (Feet)	Min./Hour[2]		Reference Noise Level @ 50' (dBA L_{eq})	Sound Power Level (dBA)[3]
		Day	Night		
Roof-Top Air Conditioning Units	5'	39	28	57.2	88.9
Outdoor Activity Area	5'	60	0	59.8	91.5
Exercise Station	6'	60	0	57.4	89.1
Pool Activity	5'	60	0	54.7	86.4

[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. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 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.

EXHIBIT 7-A: OPERATIONAL NOISE SOURCE LOCATIONS

7.2.1 ROOF-TOP AIR CONDITIONING UNITS

To assess the noise levels created by the roof-top air conditioning units, reference noise level measurements were collected from a Lennox SCA120 series 10-ton model packaged air conditioning unit. At the uniform reference distance of 50 feet, the reference noise levels are 57.2 dBA L_{eq}. Based on the typical operating conditions observed over a four-day measurement period, the roof-top air conditioning units are estimated to operate for an average of 39 minutes per hour during the daytime hours, and 28 minutes per hour during the nighttime hours. For this noise analysis, the air conditioning units are expected to be located on the roof of the proposed building. This reference noise level describes the expected roof-top air conditioning units located 5 feet above the roof for the planned air conditioning units at the Project Site.

7.2.2 OUTDOOR ACTIVITY

To describe the outdoor common area courtyards activity areas, a reference noise level measurement was taken at the Louie's by the Bay in Newport Beach. At 50 feet, the reference noise level is 59.8 dBA L_{eq} at a noise source height of 5 feet. The reference noise level measurement includes outdoor eating, drinking, with patrons laughing and talking. Outdoor activities are limited to the daytime hours.

7.2.3 EXERCISE STATION

To describe the potential noise levels associated with the Project's exercise stations, a reference noise level measurement was collected at Rialto City Park. The reference noise levels collected are expected to reflect the noise level activities within the park uses at the Project site, since the reference noise level measurement includes children and adults using exercise equipment, people talking, and background playground activity noise levels. Using a uniform reference distance of 50 feet, the reference exercise station activity noise level is 57.4 dBA Leq. The exercise station activities are estimated to occur for 60 minutes during the peak hour conditions.

7.2.4 POOL ACTIVITY

To represent the noise levels associated with pool activities, Urban Crossroads collected a reference noise level measurement at the Covenant Hill Clubhouse Pool in the unincorporated community of Ladera Ranch in the County of Orange. The measured reference noise level at the uniform 50-foot reference distance is 54.7 dBA L_{eq} for pool activity. The pool activity noise levels include kids playing, running, screaming, splashing, playing with a ball, and parents talking. Noise associated with pool activities is expected to occur for the entire hour (60 minutes).

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. This includes the additional noise attenuation provided by the existing intervening building structures and noise barriers located

between the Project and the nearest receiver locations. Using the ISO 9613 protocol, CadnaA will calculate the distance from each noise source to the noise receiver locations, using the ground absorption, distance, and barrier/building attenuation inputs to provide a summary of noise level at each receiver and the partial noise level contributions by noise source. Consistent with the ISO 9613 protocol, the CadnaA noise prediction model relies on the reference sound power level (PWL) 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 (PWL) are connected to the sound source and are independent of distance. Sound pressure levels vary substantially with distance from the source and diminish as a result 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 0.0 was used in the CadnaA noise analysis to account for hard site conditions. Appendix 7.1 includes the detailed noise model inputs used to estimate the Project operational noise levels presented in this section.

7.4 PROJECT OPERATIONAL NOISE LEVELS

Using the reference noise levels to represent the proposed Project operations that include roof-top air conditioning units, outdoor activity area, exercise station, and pool activity, 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. Tables 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 38.5 to 43.2 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	R4
Roof-Top Air Conditioning Units	29.5	32.5	33.9	37.1
Outdoor Activity Area	34.5	35.6	36.0	39.6
Exercise Station	25.0	27.5	28.1	31.5
Pool Activity	41.7	30.7	32.4	37.2
Total (All Noise Sources)	**42.7**	**38.5**	**39.5**	**43.2**

[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 27.1 to 34.7 dBA L_{eq}. The differences between the daytime and nighttime noise levels is largely related to the duration of noise activity (Table 7-1).

TABLE 7-3: NIGHTTIME PROJECT OPERATIONAL NOISE LEVELS

Noise Source[1]	Operational Noise Levels by Receiver Location (dBA Leq)			
	R1	R2	R3	R4
Roof-Top Air Conditioning Units	27.1	30.1	31.5	34.7
Outdoor Activity Area	0.0	0.0	0.0	0.0
Exercise Station	0.0	0.0	0.0	0.0
Pool Activity	0.0	0.0	0.0	0.0
Total (All Noise Sources)	**27.1**	**30.1**	**31.5**	**34.7**

[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 based on the City of Los Angeles exterior noise level standards at nearby noise-sensitive receiver locations. Table 7-4 shows the operational noise levels associated with 1130 S. Hope Street Project will satisfy the City of Los Angeles daytime and nighttime exterior noise level standards at all nearby receiver locations. Therefore, the operational noise impacts are considered *less than significant* at the nearby noise-sensitive receiver locations.

TABLE 7-4: OPERATIONAL NOISE LEVEL COMPLIANCE

Receiver Location[1]	Project Operational Noise Levels (dBA Leq)[2]		Reference Ambient Noise Levels (dBA Leq)[3]		Noise Level Standards (dBA Leq)[4]		Noise Level Standards Exceeded?[5]	
	Daytime	Nighttime	Daytime	Nighttime	Daytime	Nighttime	Daytime	Nighttime
R1	42.7	27.1	63.3	59.2	68	64	No	No
R2	38.5	30.1	58.1	53.7	63	59	No	No
R3	39.5	31.5	59.8	55.9	65	61	No	No
R4	43.2	34.7	64.4	57.1	69	62	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] Observed ambient noise levels as shown on Table 5-1.
[4] Ambient plus 5 dBA per the Municipal Code Section 112.02(a).
[5] Do the estimated Project operational noise source activities exceed the noise level standards?
"Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

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8 CONSTRUCTION IMPACTS

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 nearby sensitive receiver locations previously described in Section 6.

8.1 CONSTRUCTION NOISE LEVELS

Noise generated by the Project construction equipment will include a combination of trucks, power tools, concrete mixers, and portable generators operating simultaneously that when combined can reach high levels. The number and mix of construction equipment are expected to occur in the following stages:

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

This construction noise analysis was prepared using reference noise level measurements taken by Urban Crossroads, Inc. to describe the typical construction activity noise levels for each stage of Project construction. The construction reference noise level measurements represent a list of typical construction activity noise levels with multiple pieces of equipment operating simultaneously to conservatively estimate Project construction noise levels. Noise levels generated by heavy construction equipment can range from approximately 68 dBA to more than 80 dBA when measured at 50 feet. However, these noise levels diminish with distance from the construction site at a rate of 6 dBA per doubling of distance. For example, a noise level of 80 dBA measured at 50 feet from the noise source to the receiver would be reduced to 74 dBA at 100 feet from the source to the receiver, and would be further reduced to 68 dBA at 200 feet from the source to the receiver.

8.2 TYPICAL CONSTRUCTION REFERENCE NOISE LEVELS

To describe the Project typical construction noise levels, measurements were collected for similar activities at several construction sites. Table 8-1 provides a summary of the construction reference noise level measurements. Since the reference noise levels were collected at varying distances of 30 feet and 50 feet, all construction noise level measurements presented on Table 8-1 have been adjusted for consistency to describe a uniform reference distance of 50 feet. Construction noise generated from concrete crushing activities and nighttime concrete pours are addressed separately, below.

TABLE 8-1: TYPICAL CONSTRUCTION REFERENCE NOISE LEVELS

Construction Stage	Reference Construction Activity[1]	Reference Noise Level @ 50 Feet (dBA L_{eq})	Highest Reference Noise Level (dBA L_{eq})
Site Preparation	Scraper, Water Truck, & Dozer Activity	75.3	75.3
	Backhoe	64.2	
	Water Truck Pass-By & Backup Alarm	71.9	
Grading	Rough Grading Activities	73.5	73.5
	Water Truck Pass-By & Backup Alarm	71.9	
	Construction Vehicle Maintenance Activities	67.5	
Building Construction	Foundation Trenching	68.2	71.6
	Framing	62.3	
	Concrete Mixer Backup Alarms & Air Brakes	71.6	
Paving	Concrete Mixer Truck Movements	71.2	71.2
	Concrete Paver Activities	65.6	
	Concrete Mixer Pour & Paving Activities	65.9	
Architectural Coating	Air Compressors	65.2	65.2
	Generator	64.9	
	Crane	62.3	

[1] Reference construction noise level measurements taken by Urban Crossroads, Inc.

8.3 TYPICAL 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 nearest sensitive receiver locations were completed. To assess the worst-case construction noise levels, the Project construction noise analysis relies on the highest noise level impacts when the equipment with the highest reference noise level is operating at the closest point from the edge of primary construction activity (Project site boundary) to each receiver location. As shown on Table 8-2, the construction noise levels are expected to range from 45.8 to 64.8 dBA L_{eq}, and the highest construction levels are expected to range from 55.9 to 64.8 dBA L_{eq} at the nearest receiver locations. Appendix 8.1 includes the detailed CadnaA construction noise model inputs.

The construction noise analysis presents a conservative approach with the highest noise-level-producing equipment for each stage of Project construction operating at the closest point from primary construction activity to the nearest sensitive receiver locations. This scenario is unlikely to occur during typical construction activities and likely overstates the construction noise levels which will be experienced at each receiver location.

TABLE 8-2: TYPICAL CONSTRUCTION EQUIPMENT NOISE LEVEL SUMMARY

Receiver Location[1]	Construction Noise Levels (dBA L_{eq})					
	Site Preparation	Grading	Building Construction	Paving	Architectural Coating	Highest Levels[2]
R1	63.0	61.2	59.3	58.9	52.9	63.0
R2	64.8	63.0	61.1	60.7	54.7	64.8
R3	64.4	62.6	60.7	60.3	54.3	64.4
R4	55.9	54.1	52.2	51.8	45.8	55.9

[1] Noise receiver locations are shown on Exhibit 8-A.
[2] Construction noise level calculations based on distance from the project site boundaries (construction activity area) to nearby receiver locations. CadnaA construction noise model inputs are included in Appendix 8.1.

8.4 TYPICAL 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 75 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 75 dBA L_{eq} significance threshold during Project construction activities as shown on Table 8-3. Therefore, the noise impacts due to Project construction noise is considered *less than significant* at all receiver locations.

TABLE 8-3: TYPICAL CONSTRUCTION NOISE LEVEL COMPLIANCE

Receiver Location[1]	Construction Noise Levels (dBA L_{eq})		
	Highest Construction Noise Levels[2]	Threshold[3]	Threshold Exceeded?[4]
R1	63.0	75	No
R2	64.8	75	No
R3	64.4	75	No
R4	55.9	75	No

[1] Noise receiver locations are shown on Exhibit 8-A.
[2] Highest construction noise level calculations based on distance from the construction noise source activity to nearby receiver locations as shown on Table 8-2.
[3] City of Los Angeles Municipal Code, Section 112.05 (Appendix 3.1).
[4] Do the estimated Project construction noise levels exceed the construction noise level threshold?

EXHIBIT 8-A: CONSTRUCTION NOISE SOURCE AND RECEIVER LOCATIONS

8.5 TYPICAL CONSTRUCTION VIBRATION IMPACTS

Construction activity can result in varying degrees of ground vibration, depending on the equipment and methods used, distance to the affected structures and soil type. It is expected that ground-borne vibration from Project construction activities would cause only intermittent, localized intrusion. Ground-borne vibration levels resulting from typical construction activities occurring within the Project site were estimated by data published by the Federal Transit Administration (FTA). (8) However, while vehicular traffic is rarely perceptible, construction has the potential to result in varying degrees of temporary ground vibration, depending on the specific construction activities and equipment used. Ground vibration levels associated with various types of construction equipment are summarized on Table 8-4. Based on the representative vibration levels presented for various construction equipment types, it is possible to estimate the potential Project construction vibration levels using the following vibration assessment methods defined by the FTA. To describe the human response (annoyance) associated with vibration impacts the FTA provides the following equation: $L_{VdB}(D) = L_{VdB}(25\text{ ft}) - 30\log(D/25)$

TABLE 8-4: VIBRATION SOURCE LEVELS FOR CONSTRUCTION EQUIPMENT

Equipment	Vibration Decibels (VdB) at 25 feet
Small bulldozer	58
Jackhammer	79
Loaded Trucks	86
Large bulldozer	87

Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual

Table 8-5 presents the expected typical construction equipment vibration levels at the nearby receiver locations. At distances ranging from 68 feet to 305 feet from typical Project construction activities (at the Project site boundary), construction vibration levels are estimated to range from 54.4 to 74.0 VdB and will satisfy the FTA *Transit Noise and Vibration Impact Assessment* vibration criteria at all receiver locations. Therefore, the vibration impacts due to Project construction is considered *less than significant* at all receiver locations.

Further, vibration levels at the site of the closest sensitive receiver are unlikely to be sustained during the entire construction period but will occur rather only during the times that heavy construction equipment is operating simultaneously adjacent to the Project site perimeter.

TABLE 8-5: TYPICAL CONSTRUCTION EQUIPMENT VIBRATION LEVELS

Receiver Location[1]	Distance to Construction Activity (Feet)	Receiver Vibration Levels (VdB)[2]					Threshold VdB[3]	Threshold Exceeded?[4]
		Small Bulldozer	Jack-hammer	Loaded Trucks	Large Bulldozer	Highest Vibration Levels		
R1	83'	42.4	63.4	70.4	71.4	71.4	78	No
R2	71'	44.4	65.4	72.4	73.4	73.4	78	No
R3	68'	45.0	66.0	73.0	74.0	74.0	78	No
R4	305'	25.4	46.4	53.4	54.4	54.4	78	No

[1] Noise receiver locations are shown on Exhibit 8-A.
[2] Based on the Vibration Source Levels of Construction Equipment included on Table 8-4.
[3] FTA Transit Noise and Vibration Impact Assessment Manual maximum acceptable vibration criteria as shown on Table 4.1.
[4] Does the vibration level exceed the maximum acceptable vibration threshold?

9 REFERENCES

1. **State of California.** *California Environmental Quality Act, Appendix G.* 2018.
2. **KOA Consultants.** *1130 Hope Street Traffic Impact Analysis.* 2020.
3. **California Department of Transportation Environmental Program.** *Technical Noise Supplement - A Technical Supplement to the Traffic Noise Analysis Protocol.* Sacramento, CA : s.n., September 2013.
4. **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.
5. **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.
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.* September 2018.
9. **Office of Planning and Research.** *State of California General Plan Guidelines.* October 2017.
10. **City of Los Angeles.** *General Plan Noise Element.* February 1999.
11. —. *Municipal Code, Chapter XI - Noise Regulation.*
12. **California Court of Appeal.** *King and Gardiner Farms, LLC v. County of Kern (2020) .* 45 Cal.App.5th 814, 893,
13. **American National Standards Institute (ANSI).** *Specification for Sound Level Meters ANSI S1.4-2014/IEC 61672-1:2013.*

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10 CERTIFICATION

The contents of this noise study report represent an accurate depiction of the noise environment and impacts associated with the proposed 1130 S. Hope Street 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) 336-5979.

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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 Orange • February, 2011
FHWA-NHI-142051 Highway Traffic Noise Certificate of Training • February, 2013

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APPENDIX 3.1:

CITY OF LOS ANGELES MUNICIPAL CODE

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Print

Los Angeles Municipal Code

CHAPTER XI
NOISE REGULATION

(Added by Ord. No. 144,331, Eff. 3/2/73.)

Article

ARTICLE 1
GENERAL PROVISIONS

Section

SEC. 111.00. 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.

SEC. 111.01. DEFINITIONS.

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

(a) "**Ambient Noise**" is the composite of noise from all sources near and far in a given environment, exclusive of occasional and transient intrusive noise sources and of the particular noise source or sources to be measured. Ambient noise shall be averaged over a period of at least 15 minutes at a location and time of day comparable to that during which the measurement is taken of the particular noise source being measured. **(Amended by Ord. No. 156,363, Eff. 3/29/82.)**

(b) "**Commercial Purpose**" is the use, operation, or maintenance of any sound amplifying equipment for the purpose of advertising any business, goods, or services, or for the purpose of attracting the attention of the public to, advertising for, or soliciting patronage or customers to or for any performance, show, entertainment, exhibition, or event, or for the purpose of demonstrating such sound equipment. **(Amended by Ord. No. 156,363, Eff. 3/29/82.)**

(c) "**Decibel**" (dB) is 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 of two (2) amounts of power is ten (10) times the logarithm to the base (10) of this ratio. **(Amended by Ord. No. 156,363, Eff. 3/29/82.)**

(d) "**Emergency Work**" is 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, or work by private or public utilities when restoring utility service. **(Amended by Ord. No. 156,363, Eff. 3/29/82.)**

(e) "**Impulsive Sound**" is sound of short duration, usually less than one second, with an abrupt onset and rapid decay. By way of example "**impulsive sound**" shall include, but shall not be limited to, explosions, musical base drum beats, or the discharge of firearms. **(Amended by Ord. No. 156,363, Eff. 3/29/82.)**

(f) "**Motor Vehicle**" includes, but shall not be limited to, automobiles, trucks, motorcycles, minibikes and go-carts. **(Amended by Ord. No. 156,363, Eff. 3/29/82.)**

(g) "**Noncommercial Purpose**" is the use, operation, or maintenance of any sound equipment for other than a "commercial purpose". "Noncommercial purpose" shall mean and include, but shall not be limited to, philanthropic, political, patriotic, and charitable purposes. **(Amended by Ord. No. 156,363, Eff. 3/29/82.)**

(h) "**Octave Band Noise Analyzer**" is an instrument for measurement of sound levels in octave frequency bands which satisfies the pertinent requirements for Class II octave band analyzers of the American National Standard Specifications for Octave, Half-Octave, and Third-Octave Band Filters, S1.11-1966 or the most recent revision thereof. **(Amended by Ord. No. 156,363, Eff. 3/29/82.)**

(i) "**Person**" is a person, firm, association, co-partnership, joint venture, corporation, or any entity, private or public in nature. **(Amended by Ord. No. 156,363, Eff. 3/29/82.)**

(j) "**Sound Amplifying Equipment**" **(Amended by Ord. No. 156,363, Eff. 3/29/82.)** is any machine or device for the amplification of the human voice, music or any other sound, but shall not include:

1. Automobile radios, stereo players or television receivers when used and heard only by the occupants of the vehicle in which the same is installed.

2. Radio, stereo players, phonographs or television receivers used in any house or apartment within any residential zone or within 500 feet thereof.

3. Warning devices on emergency vehicles.

4. Horns or other warning devices authorized by law on any vehicle when used for traffic purposes.

(k) "**Sound Level**" (Noise level) in decibels (dB) is the sound measured with the "A" weighting and slow responses by a sound level meter; except for impulsive or rapidly varying sounds, the fast response shall be used. **(Amended by Ord. No. 156,363, Eff. 3/29/82.)**

(l) "**Sound Level Meter**" is an instrument including a microphone, an amplifier, an output meter, and "A" frequency weighting network for the measurement of sound levels which satisfies the pertinent requirements for Type S2A meters in American Standard Specifications for sound level meters in S1.4-1971 or the most recent revision thereof. **(Amended by Ord. No. 156,363, Eff. 3/29/82.)**

(m) "**Sound Truck**" is any motor vehicle, or any other vehicle regardless of motive power, whether in motion or stationary, which carries, is equipped with, or which has mounted thereon, or attached thereto, any sound amplifying equipment. **(Amended by Ord. No. 156,363, Eff. 3/29/82.)**

(n) **Supplementary Definitions of Technical Terms**. Definitions of technical terms not defined herein shall be obtained from American Standard Acoustical Terminology S1-1-1971 or the most recent revision thereof. **(Amended by Ord. No. 156,363, Eff. 3/29/82.)**

SEC. 111.02. SOUND LEVEL MEASUREMENT PROCEDURE AND CRITERIA.

(Title amended by Ord. No. 156,363, Eff. 3/29/82.)

(a) **(Amended by Ord. No. 156,363, Eff. 3/29/82.)** Any sound level measurement made pursuant to the provisions of this chapter shall be measured with a sound level meter using the "A" weighting and response as indicated in Section 111.01(k) of this article.

Except when impractical, the microphone shall be located four to five feet above the ground and ten feet or more from the nearest reflective surface. However, in those cases where another elevation is deemed appropriated, the latter shall be utilized.

Interior sound level measurements shall be made at a point at least four feet from the wall, ceiling, or floor nearest the noise source.

Calibration of the sound level meter, utilizing an acoustic calibrator shall be performed immediately prior to recording any sound level data. The ambient noise level and the level of a particular noise being measured shall be the numerical average of noise measurements taken at a given location during a given time period.

(b) **(Amended by Ord. No. 156,363, Eff. 3/29/82.)** Where the sound alleged to be offending is of a type or character set forth below, the following values shall be added to the sound level measurement of the offending noise:

1. Except for noise emanating from any electrical transformer or gas metering and pressure control equipment existing and installed prior to the effective date of the ordinance enacting this chapter, any steady tone with audible fundamental frequency or overtones have 200 Hz.....+5

2. Repeated impulsive noise.....+5

3. Noise occurring more than 5 but less than 15 minutes in any period of 60 consecutive minutes between the hours of 7:00 a.m. and 10:00 p.m. of any day.....-5

4. Noise occurring five minutes or less in any period of 60 consecutive minutes, between the hours of 7:00 a.m. and 10:00 p.m. of any day.....-5 **(Amended by Ord. No. 161,574, Eff. 9/8/86.)**

(c) For those cases where an objectionable noise is clearly audible, but where the level of ambient noise does not permit direct quantative sound level "A" measurements of the objectionable noise, sound measurements may be performed utilizing an octave band sound analyzer to determine sound level "A" limits as indicated in the Table I below. This table is used to convert the sound pressure level meter readings in dB for each band to SPL in dB(A) for each band.

TABLE I
OCTAVE BAND NOISE VALUES CORRESPONDING TO SOUND LEVEL "A" VALUES

Sound Level	Octave Band Sound Pressure Level, dB re .0002 dyne/cm^2 Octave Band Center Frequency in Hz								
"A"	31.5	63	125	250	500	1000	2000	4000	8000
35	58	50	42	35	32	29	26	23	20
40	61	54	46	40	37	34	31	28	25
45	64	58	51	45	42	39	36	33	30
50	67	61	55	50	47	44	41	38	35
55	70	64	60	55	52	49	46	43	40
60	73	68	64	60	57	54	51	48	45
65	76	72	68	65	62	59	56	53	50
70	79	76	73	70	67	64	61	58	55
75	84	81	78	75	72	69	66	63	60

(d) For those cases where a sound level measurement has been made pursuant to the provisions of this chapter and two or more provisions of this chapter apply, the provision establishing the lower or lowest noise level, respectively, shall be used. **(Added by Ord. No. 156,363, Eff. 3/29/82.)**

SEC. 111.03. MINIMUM AMBIENT NOISE LEVEL.

(Amended by Ord. No. 156,363, Eff. 3/29/82.)

Where the ambient noise level is less than the presumed ambient noise level designated in this section, the presumed ambient noise level in this section shall be deemed to be the minimum ambient noise level for purposes of this chapter.

TABLE II
SOUND LEVEL "A" DECIBELS

(In this chart, daytime levels are to be used from 7:00 a.m. to 10:00 p.m. and nighttime levels from 10:00 p.m. to 7:00 a.m.)

ZONE	PRESUMED AMBIENT NOISE LEVEL (dB(A))	
	DAY	NIGHT
A1, A2, RA, RE, RS, RD, RW1, RW2, R1, R2, R3, R4, and R5	50	40
P, PB, CR, C1, C1.5, C2, C4, C5, and CM	60	55
M1, MR1, and MR2	60	55

M2 and M3	65	65

At the boundary line between two zones, the presumed ambient noise level of the quieter zone shall be used.

SEC. 111.04. VIOLATIONS: ADDITIONAL REMEDIES, INJUNCTIONS.

As an additional remedy, the operation or maintenance of any device, instrument, vehicle, or machinery in violation of any provision of this chapter, which operation or maintenance causes discomfort or annoyance to reasonable persons or which endangers the comfort, repose, health, or peace of residents in the area, shall be deemed and is declared to be.a public nuisance and may be subject to abatement summarily by a restraining order or injunction issued by a court order of competent jurisdiction. **(Amended by Ord. No. 156,363, Eff. 3/29/82.)**

SEC. 111.05. ENFORCEMENT, CITATIONS.

(Added by Ord. No. 156,363, Eff. 3/29/82.)

(a) The Department of Building and Safety shall have the power and duty to enforce the following noise control provisions of this Code: Section 12.14 A.6.(h), Section 12.19 A.4.(b)(1), Section 112.02 and Section 112.04(c). **(Amended by Ord. No. 172,086, Eff. 7/30/98.)**

(b) The Police Department shall have the power and duty to enforce the following noise control provisions of this Code: Section 41.32, Section 41.40, Section 41.42, Section 41.44, Section 41.57, Section 63.51(m), Section 112.01, Section 112.04, Section 112.05, Section 112.06, Section 113.01, Section 114.01 through Section 114.05, inclusive, Section 115.02 through Section 115.03, inclusive, and Section 116.01. **(Amended by Ord. No. 185,601, Eff. 7/18/18.)**

(c) Any Building Mechanical Inspector assigned to noise enforcement inspection shall have the power, authority and immunity of a public officer and employee, as set forth in the Penal Code of the State of California, Section 836.5, to make arrests without a warrant whenever such employee has reasonable cause to believe that the person to be arrested has committed a misdemeanor in his presence which is a violation of any provision set forth in Section 111.05(a) of this chapter. The provisions of said Penal Code section regarding issuance of a written promise to appear shall be applicable to arrests authorized herein.

ARTICLE 2
SPECIAL NOISE SOURCES

Section

SEC. 112.01. RADIOS, TELEVISION SETS, AND SIMILAR DEVICES.

(Amended by Ord. No. 156,363, Eff. 3/29/82.)

(a) It shall be unlawful for any person within any zone of the City to use or operate any radio, musical instrument, phonograph, television receiver, or other machine or device for the producing, reproducing or amplification of the human voice, music, or any other sound, in such a manner, as to disturb the peace, quiet, and comfort of neighbor occupants or any reasonable person residing or working in the area.

(b) Any noise level caused by such use or operation which is audible to the human ear at a distance in excess of 150 feet from the property line of the noise source, within any residential zone of the City or within 500 feet thereof, shall be a violation of the provisions of this section.

(c) Any noise level caused by such use or operation which exceeds the ambient noise level on the premises of any other occupied property, or if a condominium, apartment house, duplex, or attached business, within any adjoining unit, by more than five (5) decibels shall be a violation of the provisions of this section.

SEC. 112.02. AIR CONDITIONING, REFRIGERATION, HEATING, PUMPING, FILTERING EQUIPMENT.

(Amended by Ord. No. 156,363, Eff. 3/29/82.)

(a) It shall be unlawful for any person, within any zone of the city to operate any air conditioning, refrigeration or heating equipment for any residence or other structure or to operate any pumping, filtering or heating equipment for any pool or reservoir in such manner as to create any noise which would cause the noise level on the premises of any other occupied property or if a condominium, apartment house, duplex, or attached business, within any adjoining unit.to exceed the ambient noise level by more than five (5) decibels

(b) This section shall not be applicable to emergency work as defined in Section 111.01(c) of this chapter, or to periodic maintenance or testing of such equipment reasonably necessary to maintain such equipment in good working order.

SEC. 112.03. CONSTRUCTION NOISE.

Noise due to construction or repair work shall be regulated as provided by Section 41.40 of this Code.
(Amended by Ord. No. 161,574, Eff. 9/8/86.)

SEC. 112.04. POWERED EQUIPMENT INTENDED FOR REPETITIVE USE IN RESIDENTIAL AREAS AND OTHER MACHINERY, EQUIPMENT, AND DEVICES.

(Title and Section Amended by Ord. No. 161,574, Eff 9/8/86.)

(a) Between the hours of 10:00 p.m and. 7:00 a.m. of the following day, no person shall operate any lawn mower, backpack blower, lawn edger, riding tractor, or any other machinery, equipment, or other mechanical or electrical device, or any hand tool which creates a loud, raucous or impulsive sound, within any residential zone or within 500 feet of a residence.

(b) Except as to the equipment and operations specifically mentioned and related elsewhere in this Chapter or for emergency work as that term is defined in Section 111.01(d), and except as to aircraft, tow tractors, aircraft auxiliary power units, trains and motor vehicles in their respective operations governed by State or federal regulations, no person shall operate or cause to be operated any machinery, equipment, tools, or other mechanical or electrical device, or engage in any other activity in such manner as to create

any noise which would cause the noise level on the premises of any other occupied property, or, if a condominium, apartment house, duplex, or attached business, within any adjoining unit, to exceed the ambient noise level by more than five (5) decibels.

(c) Notwithstanding the provisions of Subsection (a) above, no gas powered blower shall be used within 500 feet of a residence at anytime. Both the user of such a blower as well as the individual who contracted for the services of the user, if any, shall be subject to the requirements of and penalty provisions for this ordinance. Violation of the provisions of this subsection shall be punishable as an infraction in an amount not to exceed One Hundred Dollars ($100.00), notwithstanding the graduated fines set forth in LAMC § 11.00(m). **(Amended by Ord. No. 171,890, Eff. 2/13/98.)**

SEC. 112.05. MAXIMUM NOISE LEVEL OF POWERED EQUIPMENT OR POWERED HAND TOOLS.

(Amended by Ord. No. 161,574, Eff. 9/8/86.)

Between the hours of 7:00 a.m. and 10:00 p.m., in any residential zone of the City or within 500 feet thereof, no person shall operate or cause to be operated any powered equipment or powered hand tool that produces a maximum noise level exceeding the following noise limits at a distance of 50 feet therefrom:

(a) 75dB(A) for construction, industrial, and agricultural machinery including crawler-tractors, dozers, rotary drills and augers, loaders, power shovels, cranes, derricks, motor graders, paving machines, off-highway trucks, ditchers, trenchers, compactors, scrapers, wagons, pavement breakers, compressors and pneumatic or other powered equipment;

(b) 75dB(A) for powered equipment of 20 HP or less intended for infrequent use in residential areas, including chain saws, log chippers and powered hand tools;

(c) 65dB(A) for powered equipment intended for repetitive use in residential areas, including lawn mowers, backpack blowers, small lawn and garden tools and riding tractors;

The noise limits for particular equipment listed above in (a), (b) and (c) shall be deemed to be superseded and replaced by noise limits for such equipment from and after their establishment by final regulations adopted by the Federal Environmental Protection Agency and published in the Federal Register.

Said noise limitations shall not apply where compliance therewith is technically infeasible The burden of proving that compliance is technically infeasible shall be upon the person or persons charged with a violation of this section. Technical infeasibility shall mean that said noise limitations cannot be complied with despite the use of mufflers, shields, sound barriers and/or other noise reduction device or techniques during the operation of the equipment.

SEC. 112.06. PLACES OF PUBLIC ENTERTAINMENT.

It shall be unlawful for any person to operate, play, or to permit the operation or playing of any radio, television receiver, phonograph, musical instrument, sound amplifying equipment, or similar device which produces, reproduces, or amplifies sound in any place of public entertainment at a sound level greater than 95dB(A) at any point that is normally occupied by a customer, unless a conspicuous and legible sign is located outside such place, near each public entrance, stating:

"WARNING: SOUND LEVELS WITHIN MAY CAUSE HEARING IMPAIRMENT."

(Added by Ord. No. 156,363, Eff. 3/29/82.)

ARTICLE 3
SANITARY OPERATION

Section
113.01 Rubbish and Garbage Collection and Disposal.

SEC. 113.01. RUBBISH AND GARBAGE COLLECTION AND DISPOSAL.
(Amended by Ord. No. 161,574, Eff. 9/8/86.)

It shall be unlawful for any person engaged in the business of collecting or disposing of rubbish or garbage to operate any refuse disposal truck, parking lot sweeper, or vacuum truck, or to collect, load, pick up, transfer, unload, dump, discard, sweep, vacuum, or dispose of any rubbish or garbage, as such terms are defined in Section 66.00 of this Code, within 200 feet of any residential building between the hours of 9:00 p.m. and 6:00 a.m. of the following day, unless a permit therefore has been duly obtained beforehand from the Board of Police Commissioners.

The standards which shall be considered in determining whether a permit shall be granted are the following:

(a) Whether the work to be done is in the public interest, or

(b) Whether the applicant would suffer hardship, injustice or delay if the permit were not granted, or

(c) Whether fuel conservation would result if the permit were issued.

No permit shall be required to perform emergency work as defined in Sec. 111.01(c) of this chapter.

ARTICLE 4
VEHICLES

Section
114.01 Vehicle Repairs.
114.02 Motor Driven Vehicles.
114.03 Vehicles – Loading and Unloading.
114.04 Audible Signaling Devices.
114.05 Audible Advertising Devices – Commercial Food Vendors.
114.06 Vehicle Theft Alarm Systems.
114.07 Audible Status Indicator

SEC. 114.01. VEHICLE REPAIRS.
(Amended by Ord. No. 156,363, Eff. 3/29/82.)

It shall be unlawful for any person, within any residential property located within any residential zone of the City or within 500 feet thereof, to repair, rebuild, reconstruct or dismantle any motor vehicle between the hours of 8:00 p.m. of one day and 8:00 a.m. of the next day in such manner:

(a) That a reasonable person residing in the area is caused discomfort or annoyance;

(d) That such activity is audible to the human ear at a distance in excess of 150 feet from the property line of the noise source;

(c) As to create any noise which would cause the noise level on the premises of any occupied residential property, or if a condominium, apartment house or duplex, within any adjoining unit, to exceed the ambient noise level by more than five (5) decibels.

SEC. 114.02. MOTOR DRIVEN VEHICLES.

(Amended by Ord. No. 156,363, Eff. 3/29/82.)

(a) It shall be unlawful for any person to unreasonably operate any motor driven vehicle upon any property within the City or to unreasonably accelerate the engine of any vehicle, or unreasonably sound, blow or operate the horn or other warning device of such vehicle in such manner:

1. As to disturb the peace, quiet and comfort of any neighborhood or of any reasonable person residing in such area

2. That such activity is audible to the human ear at a distance in excess of 150 feet from the property line of the noise source;

3. As to create any noise which would cause the noise level on the premises of any occupied residential property, or if a condominium, apartment house or duplex, within any adjoining unit, to exceed the ambient noise level by more than five (5) decibels.

(b) This section shall not be applicable to any vehicle which is operated upon any public highway, street or right-of-way or to the operation of any off-highway vehicle to the extent it is regulated in the Vehicle Code.

SEC. 114.03. VEHICLES – LOADING AND UNLOADING.

(Amended by Ord. No. 166,514, Eff. 1/24/91.)

(a) It shall be unlawful for any person, between the hours of 10:00 p.m. and 7:00 a.m. of the following day, to load or unload any vehicle, or operate any dollies, carts, forklifts, or other wheeled equipment, which causes any impulsive sound, raucous or unnecessary noise within 200 feet of any residential building.

(b) Irrespective of the provisions of Subsection (a), loading or unloading of vehicles of the type of activity referred to in Subsection (a) may occur between the hours of 6:00 a.m. to 11:00 p.m. of the same day pursuant to a permit issued by the Department of Transportation in accordance with a business program as defined by said department. This permit program would be limited to the area bounded by Western Avenue, Santa Monica Freeway, Central Avenue, and the San Diego Freeway, within the limits of the City of Los Angeles. Such permits will not be issued to high-noise businesses such as trash pickup.

SEC. 114.04. AUDIBLE SIGNALING DEVICES.

(Added by Ord. No. 161,574, Eff. 9/8/86.)

It shall be unlawful for any person, within any residential zone of the City or within 500 feet thereof, to sound, blow, or operate any audible signaling device, including sequential airhorns or electronically operated vehicular loud speaker music devices, which can be heard for a distance greater than 200 feet for any purpose. Violation of this section shall constitute an infraction This section does not address horn or warning devices regulated in Article 1 of Chapter 5 of Division 12 of the Vehicle Code of the State of California, commencing at Section 27000. **(Last sentence amended by Ord. No. 165.191, Eff. 10/23/89.)**

SEC. 114.05. AUDIBLE ADVERTISING DEVICES – COMMERCIAL FOOD VENDORS.
(Added by Ord. No. 164,532, Eff. 4/20/89.)

Notwithstanding the provisions of Section 114.04, it shall be unlawful for any person, to sound, blow or operate any music, chimes or bells, or any similar sound device, amplified or otherwise, within 200 feet of any residential building between the hours of 9:00 p.m. and 7:00 a.m. the next day while operating a catering truck, as that term is defined in Section 80.73 of the Municipal Code.

SEC. 114.06. VEHICLE THEFT ALARM SYSTEMS.
(Former Sec. 114.05, Renumbered by Ord. No. 164,532, Eff. 4/20/89.)

It shall be unlawful for any person to install, operate or use any vehicle theft alarm system that emits or causes the emission of an audible sound, which is not, or does not become, automatically and completely silenced within five minutes. The time period shall be calculated based upon the emission of the first audible sound and shall end five minutes thereafter notwithstanding any variation or stoppage in the emissions of audible sound. Violation of this section shall constitute an infraction.

SEC. 114.07. AUDIBLE STATUS INDICATOR.
(Added by Ord. No. 169,785, Eff. 6/9/94.)

It shall be unlawful for any person to install, operate, use or maintain any vehicle theft alarm system which utilizes an audible status indicator emitting or causing the emission of an audible sound for a duration of more than one minute. The time period shall be calculated from the point in time of the emission of the first audible sound used in calculation and shall end one minute thereafter, notwithstanding any variation or temporary stoppage in the emission of audible sound.

As used in this section, an audible status indicator is a component of a vehicle theft alarm system which emits sound audible outside the vehicle for the purpose of warning that a vehicle theft alarm system is installed and armed or operational. The term "**audible status indicator**" shall include any device which emits a chirp, voice message or other sound when an approaching person is within a certain distance of the vehicle in which the device is installed.

In the event enforcement of a violation occurs under this section, no enforcement shall be taken under Section 80.75.1 of the Municipal Code for the same violation.

Violation of any provision of this section shall constitute an infraction.

ARTICLE 5
AMPLIFIED SOUND

Section
115.01 Purpose.
115.02 Prohibition and Regulations.
115.03 Amplified Sound on Unenclosed Tour Buses.

SEC. 115.01. PURPOSE.

The Council enacts this legislation for the sole purpose of securing and promoting the public health, comfort, safety, and welfare of its citizenry. While recognizing that certain uses of sound amplifying equipment are 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.

SEC. 115.02. PROHIBITION AND REGULATIONS.

It shall be unlawful for any person, other than personnel of law enforcement or governmental agencies, or permittees duly authorized to use the same pursuant to Sec. 103.111 of this Code, 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 public street, alley, sidewalk, park or place, or other public property except when installed, used or operated in compliance with the following provisions:

(a) In all residential zones and within 500 feet thereof, no sound amplifying equipment shall be installed, operated or used for commercial purposes at any time.

(b) The operation or use of sound amplifying equipment for noncommercial purposes in all residential zones and within 500 feet thereof, except when used for regularly scheduled operative functions by any school or for the usual and customary purposes of any church, is prohibited between the hours of 4:30 p.m. and 9:00 a.m. of the following day.

(c) In all other zones, except such portions thereof as may be included within 500 feet of any residential zone, the operation or use of sound amplifying equipment for commercial purposes is prohibited between the hours of 9:00 p.m. and 8:00 a.m. of the following day.

(d) In all other zones, except such portions thereof as may be included within 500 feet of any residential zone, the operation or use of sound amplifying equipment for noncommercial purposes is prohibited between the hours of 10:00 p.m. and 7:00 a.m. of the following day.

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

(f) Sound emanating from sound amplifying equipment shall be limited in volume, tone and intensity as follows:

1. The sound shall not be audible at a distance in excess of 200 feet from the sound equipment.

2. In no event shall the sound be loud and raucous or unreasonably jarring, disturbing, annoying or a nuisance to reasonable persons of normal sensitiveness within the area of audibility.

(g) Except as provided in (b) above, no sound amplifying equipment shall be operated upon any property adjacent to and within 200 feet of any hospital grounds or any school or church building while in use.

(h) **(Amended by Ord. No. 145,691, Eff. 5/2/74.)** The operation or use of any sound amplifying equipment installed, mounted, attached or carried in or by any sound truck is further prohibited:

1. Within the Central Traffic district at any time;
2. Upon Hollywood Boulevard between Vermont Avenue and La Brea at any time;
3. Upon Wilshire Boulevard at any time;
4. Upon Sunset Boulevard at any time;
5. Upon Vine Street at any time;
6. Upon any street between the hours of 4:30 p.m. and 9:00 a.m. of the following day;
7. Upon any street on any Sunday.

SEC. 115.03. AMPLIFIED SOUND ON UNENCLOSED TOUR BUSES.

(Added by Ord. No. 185,601, Eff. 7/18/18.)

(a) **Definitions.** As used in this section:

1. "**Operator**" means any person or corporation who conducts a business or enterprise that operates one or more Unenclosed Tour Buses.

2. "**Sound Amplifying Equipment**" shall have the same meaning as in Subsection (j) of Section 111.01 of this chapter, and shall include loud speakers and public address systems.

3. "**Tour Bus**" means a privately-owned bus or passenger vehicle for hire, which is operated by or for a charter-party carrier of passengers or a passenger stage corporation, as set forth in California Vehicle Code Section 612, subsection (a), and as defined in California Public Utilities Code Sections 226 and 5360. A Tour Bus includes any vehicle that is used primarily for the conveyance of passengers over the public streets, for the purpose of visiting or viewing places of interest.

4. "**Unenclosed Tour Bus**" means a Tour Bus that has had its roof substantially structurally modified or removed, as set forth in California Vehicle Code Section 612, Subsection (b), such that it can be and is operated without a solid roof covering all seating areas of the vehicle. An Unenclosed Tour Bus shall also include any Tour Bus that has had its side panels substantially structurally modified and/or removed, such that it can be and is operated without side panels fully enclosing the sides of the vehicle, when doors and windows are closed.

(b) **Use of Sound Amplifying Equipment Prohibited.** It shall be unlawful for any Operator or any person employed by an Operator to cause, allow, or permit the use of Sound Amplifying Equipment on any Unenclosed Tour Bus while the vehicle is operating within the City of Los Angeles.

(c) **Violation and Punishment.** A violation of this Section shall constitute an infraction pursuant to California Vehicle Code Sections 40000.1 and 42001, and shall be punished pursuant to the fine structure set forth in California Vehicle Code Section 42001.

(d) **Severability.** If any subsection, subdivision, sentence, clause, phrase, or portion of this section, or the application thereof to any person, is for any reason held to be invalid or constitutional by the decision of any court of competent jurisdiction, such decision shall not affect the validity of the remaining portions of this section or its application to other persons. The City Council hereby declares that it would have adopted this section and each subsection, subdivision, sentence, clause, phrase or portion thereof, irrespective of the fact that any one or more subsections, subdivisions, sentences, clauses, phrases, or portions, or the application thereof to any person, be declared invalid or unconstitutional.

ARTICLE 6
GENERAL NOISE

Section
116.01 Loud, Unnecessary and Unusual Noise.

SEC. 116.01. LOUD, UNNECESSARY AND UNUSUAL NOISE.

Notwithstanding any other provisions 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, and 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. The standard which may be considered in determining whether a violation of the provisions of this section exists may include, but not be limited to, the following:

(a) The level of noise;

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

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

(d) The level and intensity of the background noise, if any;

(e) The proximity of the noise to residential sleeping facilities;

(f) The nature and zoning of the area within which the noise emanates;

(g) The density of the inhabitation of the area within which the noise emanates;

(h) The time of the day and night the noise occurs;

(i) The duration of the noise;

(j) Whether the noise is recurrent, intermittent, or constant; and

(k) Whether the noise is produced by a commercial or noncommercial activity.

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APPENDIX 5.1:

STUDY AREA PHOTOS

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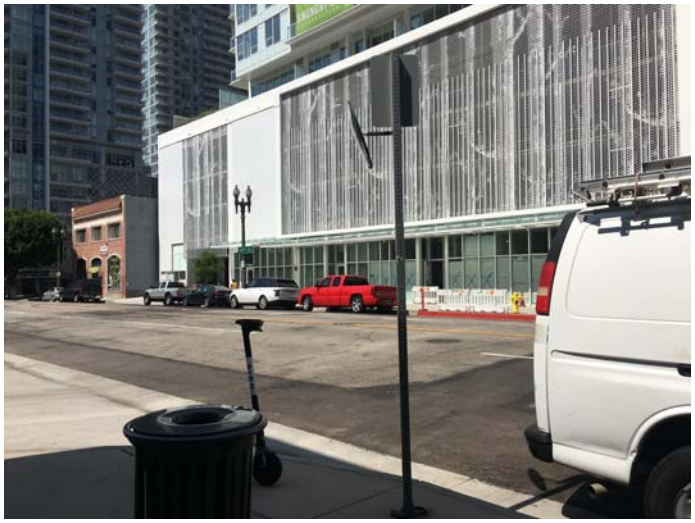
JN: 13686 Study Area Photos

L1_E
34, 2' 29.500000", 118, 15' 49.380000"

L1_N
34, 2' 29.520000", 118, 15' 49.550000"

L1_S
34, 2' 29.570000", 118, 15' 49.360000"

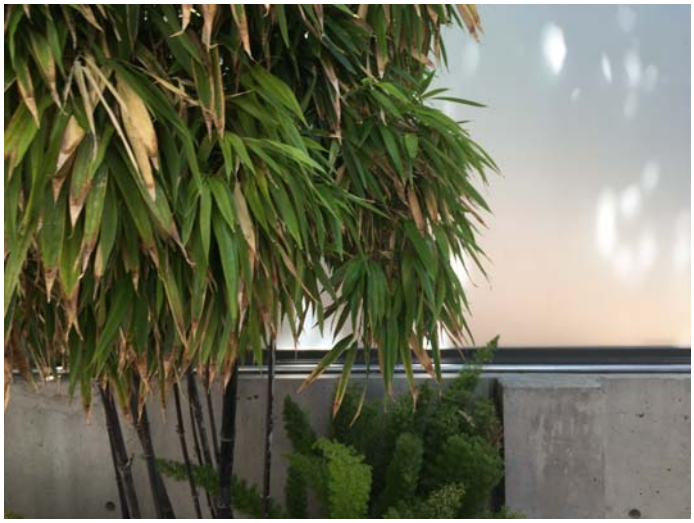


L1_W
34, 2' 29.620000", 118, 15' 49.380000"

L2_E
34, 2' 27.310000", 118, 15' 46.860000"

L2_N
34, 2' 26.230000", 118, 15' 46.500000"

JN: 13686 Study Area Photos



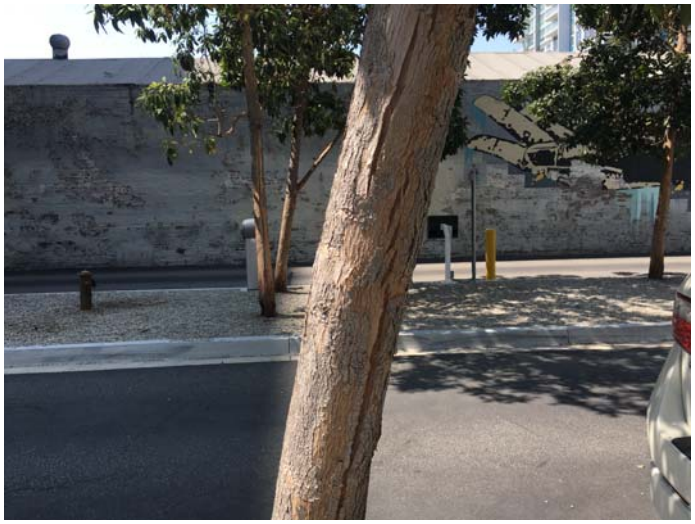
L2_S
34, 2' 27.510000", 118, 15' 47.020000"

L2_W
34, 2' 27.680000", 118, 15' 47.020000"

L3_E
34, 2' 28.880000", 118, 15' 48.890000"

L3_N
34, 2' 29.460000", 118, 15' 48.590000"

L3_S
34, 2' 28.950000", 118, 15' 48.830000"



L3_W
34, 2' 28.950000", 118, 15' 48.830000"

APPENDIX 5.2:

NOISE LEVEL MEASUREMENT WORKSHEETS

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24-Hour Noise Level Measurement Summary

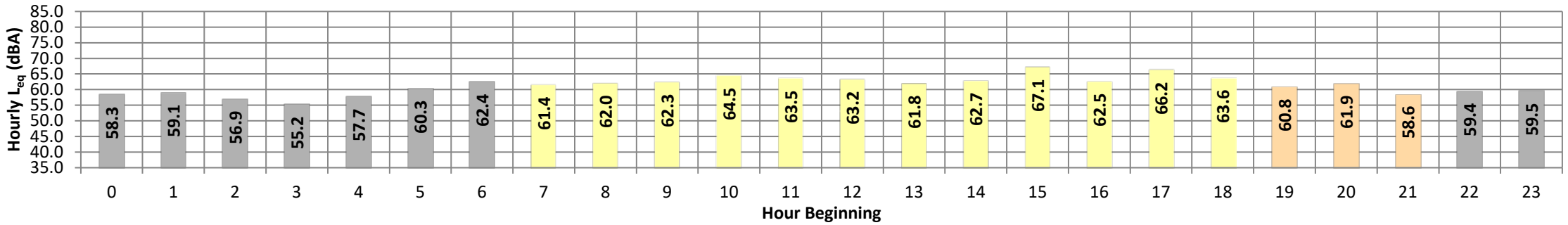
Date: Wednesday, September 02, 2020
Project: 1130 Hope Street

Location: L1 - Located north of the Project site on Hope Street across from existing multi-family residential homes as 1133 South Hope Street.

Meter: Piccolo II

JN: 13686
Analyst: P. Mara

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	58.3	67.8	52.2	67.5	67.0	64.9	63.2	57.2	54.4	52.6	52.5	52.3	58.3	10.0	68.3
	1	59.1	70.0	52.0	69.6	69.0	66.4	64.2	56.4	53.6	52.3	52.1	52.0	59.1	10.0	69.1
	2	56.9	68.2	51.5	67.4	66.4	63.5	61.0	54.6	52.4	51.8	51.7	51.5	56.9	10.0	66.9
	3	55.2	64.0	51.5	63.7	63.3	61.4	59.5	53.9	52.3	51.7	51.7	51.6	55.2	10.0	65.2
	4	57.7	69.0	52.5	68.5	67.6	64.4	61.6	55.2	53.6	52.8	52.7	52.5	57.7	10.0	67.7
	5	60.3	70.1	53.3	69.8	69.2	67.4	65.6	59.0	55.9	53.6	53.5	53.3	60.3	10.0	70.3
	6	62.4	71.3	54.0	70.9	70.5	69.2	67.5	62.0	58.2	54.7	54.4	54.1	62.4	10.0	72.4
Day	7	61.4	71.1	54.6	70.3	69.5	67.4	66.0	61.4	58.1	55.3	55.0	54.7	61.4	0.0	61.4
	8	62.0	70.5	56.2	70.1	69.5	67.6	66.1	62.1	59.4	57.1	56.7	56.3	62.0	0.0	62.0
	9	62.3	70.8	55.4	70.3	69.8	68.0	66.7	62.6	59.4	56.1	55.8	55.5	62.3	0.0	62.3
	10	64.5	73.7	56.8	73.2	72.6	70.7	69.2	64.3	61.0	57.7	57.2	56.9	64.5	0.0	64.5
	11	63.5	71.2	58.3	70.4	69.8	68.1	67.2	64.1	61.8	59.0	58.7	58.4	63.5	0.0	63.5
	12	63.2	71.7	56.8	71.2	70.7	68.9	67.8	63.5	60.1	57.4	57.2	56.8	63.2	0.0	63.2
	13	61.8	70.0	56.3	69.4	68.8	66.7	65.6	62.4	59.7	57.2	56.8	56.4	61.8	0.0	61.8
	14	62.7	71.6	56.0	71.0	70.3	68.8	66.9	62.9	59.7	56.7	56.4	56.1	62.7	0.0	62.7
	15	67.1	70.9	64.4	70.6	70.3	69.5	68.9	67.7	66.9	65.2	64.8	64.4	67.1	0.0	67.1
	16	62.5	82.2	78.6	81.9	81.7	81.6	81.5	81.0	80.2	79.2	79.0	78.7	62.5	0.0	62.5
	17	66.2	75.8	56.7	75.1	74.4	72.8	71.5	65.8	62.2	57.7	57.3	56.8	66.2	0.0	66.2
	18	63.6	72.6	56.8	72.2	71.3	69.3	68.0	63.5	60.7	57.6	57.2	56.9	63.6	0.0	63.6
Evening	19	60.8	69.3	54.2	68.9	68.1	66.5	65.2	61.1	58.1	54.9	54.5	54.3	60.8	5.0	65.8
	20	61.9	71.4	54.5	71.1	70.6	68.6	66.5	61.3	58.1	55.3	54.9	54.6	61.9	5.0	66.9
	21	58.6	66.8	53.8	66.3	65.7	63.8	62.6	58.6	56.0	54.3	54.1	53.9	58.6	5.0	63.6
Night	22	59.4	68.3	52.4	68.0	67.4	65.7	64.3	59.3	55.8	53.0	52.8	52.5	59.4	10.0	69.4
	23	59.5	70.5	51.7	69.9	69.3	66.6	64.5	57.8	54.4	52.3	52.0	51.8	59.5	10.0	69.5

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	61.4	70.0	54.6	69.4	68.8	66.7	65.6	61.4	58.1	55.3	55.0	54.7
	Max	67.1	82.2	78.6	81.9	81.7	81.6	81.5	81.0	80.2	79.2	79.0	78.7
Energy Average		63.8	Average:		72.2	71.6	69.9	68.8	65.1	62.4	59.7	59.3	59.0
Evening	Min	58.6	66.8	53.8	66.3	65.7	63.8	62.6	58.6	56.0	54.3	54.1	53.9
	Max	61.9	71.4	54.5	71.1	70.6	68.6	66.5	61.3	58.1	55.3	54.9	54.6
Energy Average		60.6	Average:		68.8	68.2	66.3	64.8	60.3	57.4	54.8	54.5	54.3
Night	Min	55.2	64.0	51.5	63.7	63.3	61.4	59.5	53.9	52.3	51.7	51.7	51.5
	Max	62.4	71.3	54.0	70.9	70.5	69.2	67.5	62.0	58.2	54.7	54.4	54.1
Energy Average		59.2	Average:		68.4	67.7	65.5	63.5	57.3	54.5	52.8	52.6	52.4

L_{eq} (dBA)		
24-Hour	Daytime	Nighttime
62.2	63.3	59.2

24-Hour CNEL (dBA)
66.8

24-Hour Noise Level Measurement Summary

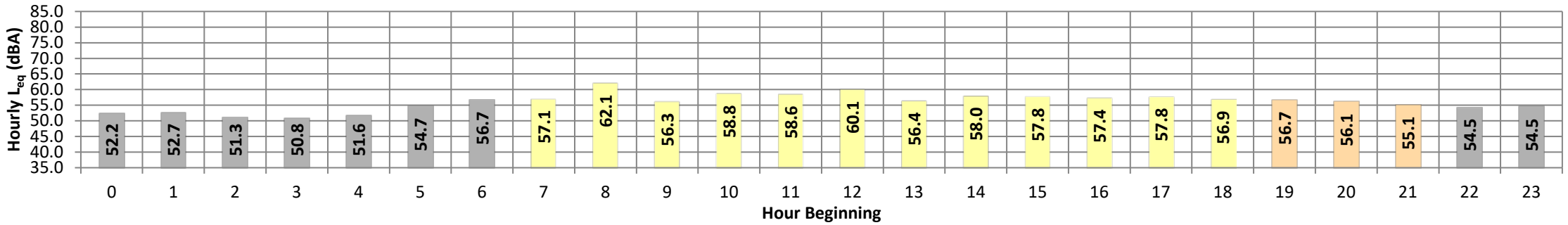
Date: Wednesday, September 02, 2020
Project: 1130 Hope Street

Location: L2 - Located east of the Project site near Elleven South Lofts at 1111 South Grand Avenue.

Meter: Piccolo II

JN: 13686
Analyst: P. Mara

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	52.2	57.1	50.3	56.6	56.0	54.9	54.4	52.7	51.5	50.6	50.5	50.4	52.2	10.0	62.2
	1	52.7	59.6	49.8	59.2	58.9	57.1	55.7	52.7	51.1	50.1	50.0	49.9	52.7	10.0	62.7
	2	51.3	58.4	49.2	57.7	56.9	54.7	53.3	51.4	50.2	49.6	49.5	49.3	51.3	10.0	61.3
	3	50.8	55.2	49.3	54.8	54.4	53.3	52.7	51.2	50.1	49.6	49.5	49.4	50.8	10.0	60.8
	4	51.6	57.1	49.8	56.6	56.0	54.6	53.6	51.9	50.9	50.1	50.0	49.8	51.6	10.0	61.6
	5	54.7	59.6	53.1	58.9	58.2	56.8	56.3	55.0	54.2	53.5	53.4	53.2	54.7	10.0	64.7
	6	56.7	62.2	52.6	61.8	61.5	60.3	59.7	57.9	55.6	53.2	52.9	52.7	56.7	10.0	66.7
Day	7	57.1	63.1	54.1	62.6	61.9	60.7	59.8	57.5	56.1	54.6	54.4	54.2	57.1	0.0	57.1
	8	62.1	72.1	53.5	70.8	70.1	68.7	67.4	62.0	57.5	54.7	54.2	53.8	62.1	0.0	62.1
	9	56.3	63.3	52.4	62.5	61.6	60.2	59.4	56.8	55.1	53.1	52.8	52.5	56.3	0.0	56.3
	10	58.8	67.9	54.7	66.9	65.7	63.2	61.5	58.9	57.3	55.4	55.1	54.8	58.8	0.0	58.8
	11	58.6	66.2	53.8	65.6	64.7	62.5	61.5	59.1	57.4	54.6	54.3	53.9	58.6	0.0	58.6
	12	60.1	68.7	54.5	68.4	67.9	66.5	65.1	59.5	57.3	55.2	54.9	54.6	60.1	0.0	60.1
	13	56.4	62.1	53.6	61.6	60.9	59.4	58.7	56.9	55.6	54.1	53.9	53.7	56.4	0.0	56.4
	14	58.0	63.7	55.0	63.1	62.5	61.3	60.5	58.5	57.0	55.6	55.4	55.1	58.0	0.0	58.0
	15	57.8	62.2	55.8	61.9	61.5	60.6	60.0	58.1	57.1	56.2	56.0	55.9	57.8	0.0	57.8
	16	57.4	65.4	53.5	64.9	64.3	61.9	60.3	57.6	55.7	54.1	53.8	53.6	57.4	0.0	57.4
	17	57.8	64.6	53.2	64.2	63.9	62.7	61.5	58.0	56.1	54.0	53.7	53.4	57.8	0.0	57.8
	18	56.9	63.3	53.5	62.7	62.1	60.4	59.6	57.4	55.9	54.1	53.8	53.6	56.9	0.0	56.9
Evening	19	56.7	64.6	52.8	63.9	63.1	60.8	59.7	57.1	55.3	53.4	53.2	52.9	56.7	5.0	61.7
	20	56.1	63.8	52.1	63.2	62.5	60.7	59.4	56.4	54.5	52.6	52.4	52.2	56.1	5.0	61.1
	21	55.1	62.7	51.6	61.8	61.0	59.2	58.1	55.4	53.6	52.1	51.9	51.7	55.1	5.0	60.1
Night	22	54.5	60.8	51.3	60.3	59.7	58.3	57.6	55.0	53.2	51.7	51.6	51.4	54.5	10.0	64.5
	23	54.5	62.7	50.7	61.9	61.3	59.6	58.0	54.7	52.4	51.1	51.0	50.8	54.5	10.0	64.5

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	56.3	62.1	52.4	61.6	60.9	59.4	58.7	56.8	55.1	53.1	52.8	52.5
	Max	62.1	72.1	55.8	70.8	70.1	68.7	67.4	62.0	57.5	56.2	56.0	55.9
Energy Average		58.4	Average:		64.6	63.9	62.3	61.3	58.4	56.5	54.6	54.4	54.1
Evening	Min	55.1	62.7	51.6	61.8	61.0	59.2	58.1	55.4	53.6	52.1	51.9	51.7
	Max	56.7	64.6	52.8	63.9	63.1	60.8	59.7	57.1	55.3	53.4	53.2	52.9
Energy Average		56.0	Average:		63.0	62.2	60.2	59.1	56.3	54.4	52.7	52.5	52.3
Night	Min	50.8	55.2	49.2	54.8	54.4	53.3	52.7	51.2	50.1	49.6	49.5	49.3
	Max	56.7	62.7	53.1	61.9	61.5	60.3	59.7	57.9	55.6	53.5	53.4	53.2
Energy Average		53.7	Average:		58.6	58.1	56.6	55.7	53.6	52.1	51.1	50.9	50.8

L_{eq} (dBA)		
24-Hour	Daytime	Nighttime
56.9	58.1	53.7

24-Hour CNEL (dBA)

61.4

24-Hour Noise Level Measurement Summary

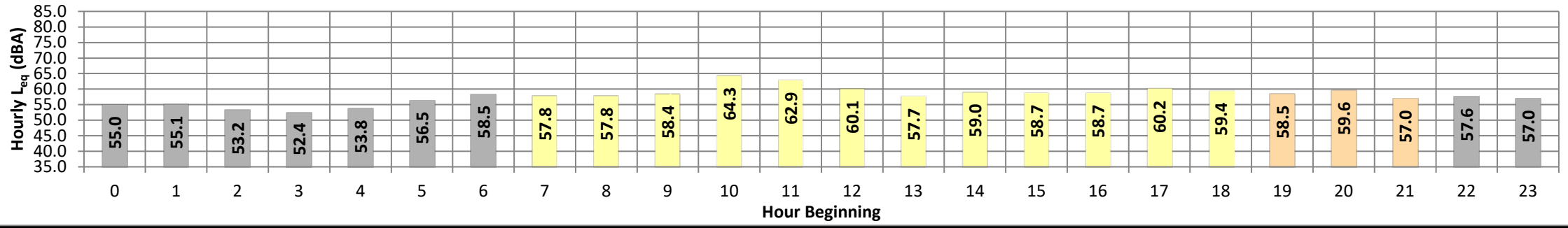
Date: Wednesday, September 02, 2020
Project: 1130 Hope Street

Location: L3 - Located by the southwest border of the Project site near Downtown Dance & Movement at 1144 South Hope Street.

Meter: Piccolo II

JN: 13686
Analyst: P. Mara

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	55.0	60.7	52.9	60.3	59.8	58.6	57.7	55.1	54.0	53.2	53.1	53.0	55.0	10.0	65.0
	1	55.1	62.4	52.1	62.0	61.5	60.2	58.7	54.7	53.2	52.3	52.2	52.1	55.1	10.0	65.1
	2	53.2	59.8	51.1	59.5	59.0	57.7	56.0	52.9	51.8	51.3	51.2	51.2	53.2	10.0	63.2
	3	52.4	57.5	50.7	57.3	56.9	55.8	55.0	52.6	51.3	50.9	50.8	50.8	52.4	10.0	62.4
	4	53.8	60.3	51.5	60.0	59.6	58.2	56.7	53.7	52.5	51.7	51.6	51.6	53.8	10.0	63.8
	5	56.5	66.0	53.3	64.8	63.5	60.7	59.4	56.2	54.8	53.6	53.5	53.4	56.5	10.0	66.5
	6	58.5	65.3	53.5	64.9	64.3	63.1	62.3	59.1	56.9	54.0	53.8	53.6	58.5	10.0	68.5
Day	7	57.8	63.4	54.4	63.0	62.7	61.7	60.9	58.4	56.6	54.9	54.7	54.5	57.8	0.0	57.8
	8	57.8	64.8	53.9	64.4	63.7	61.9	60.8	58.2	56.6	54.6	54.3	54.0	57.8	0.0	57.8
	9	58.4	64.8	53.8	64.4	63.9	62.7	61.7	59.1	57.2	54.7	54.3	53.9	58.4	0.0	58.4
	10	64.3	74.9	57.7	74.0	72.2	69.5	67.4	64.0	62.1	58.6	58.3	58.0	64.3	0.0	64.3
	11	62.9	70.3	57.1	69.6	68.6	66.8	66.0	63.6	61.7	58.3	57.6	57.2	62.9	0.0	62.9
	12	60.1	67.9	55.0	67.6	66.9	65.8	64.5	60.1	57.7	55.5	55.2	55.1	60.1	0.0	60.1
	13	57.7	63.4	54.4	62.9	62.3	61.1	60.2	58.3	56.8	55.0	54.7	54.5	57.7	0.0	57.7
	14	59.0	66.2	54.7	65.7	65.0	63.1	62.3	59.4	57.4	55.3	55.1	54.8	59.0	0.0	59.0
	15	58.7	63.6	56.1	63.2	62.9	61.9	61.0	59.2	57.9	56.6	56.4	56.2	58.7	0.0	58.7
	16	58.7	64.2	55.2	63.7	63.2	62.4	61.8	59.6	57.5	55.7	55.5	55.2	58.7	0.0	58.7
	17	60.2	67.2	54.3	66.8	66.3	65.2	64.5	60.7	58.1	55.1	54.7	54.4	60.2	0.0	60.2
	18	59.4	66.6	54.3	66.3	65.9	64.4	63.5	59.8	57.5	55.0	54.7	54.4	59.4	0.0	59.4
Evening	19	58.5	65.0	54.0	64.7	64.1	62.8	61.9	59.1	57.0	54.7	54.4	54.1	58.5	5.0	63.5
	20	59.6	68.5	54.0	68.0	67.2	65.3	63.8	59.7	56.7	54.5	54.2	54.0	59.6	5.0	64.6
	21	57.0	63.6	53.7	63.2	62.8	61.3	60.3	57.3	55.6	54.1	53.9	53.8	57.0	5.0	62.0
Night	22	57.6	65.3	53.7	65.0	64.3	62.4	61.0	58.0	55.6	54.1	53.9	53.8	57.6	10.0	67.6
	23	57.0	64.7	53.2	64.3	63.8	62.5	61.0	57.1	54.9	53.5	53.3	53.2	57.0	10.0	67.0

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	57.7	63.4	53.8	62.9	62.3	61.1	60.2	58.2	56.6	54.6	54.3	53.9
	Max	64.3	74.9	57.7	74.0	72.2	69.5	67.4	64.0	62.1	58.6	58.3	58.0
Energy Average		60.1	Average:		66.0	65.3	63.9	62.9	60.0	58.1	55.8	55.5	55.2
Evening	Min	57.0	63.6	53.7	63.2	62.8	61.3	60.3	57.3	55.6	54.1	53.9	53.8
	Max	59.6	68.5	54.0	68.0	67.2	65.3	63.8	59.7	57.0	54.7	54.4	54.1
Energy Average		58.5	Average:		65.3	64.7	63.2	62.0	58.7	56.4	54.4	54.2	54.0
Night	Min	52.4	57.5	50.7	57.3	56.9	55.8	55.0	52.6	51.3	50.9	50.8	50.8
	Max	58.5	66.0	53.7	65.0	64.3	63.1	62.3	59.1	56.9	54.1	53.9	53.8
Energy Average		55.9	Average:		62.0	61.4	59.9	58.6	55.5	53.9	52.7	52.6	52.5

L_{eq} (dBA)		
24-Hour	*Daytime*	*Nighttime*
58.7	**59.8**	**55.9**

24-Hour CNEL (dBA)

63.5

24-Hour Noise Level Measurement Summary

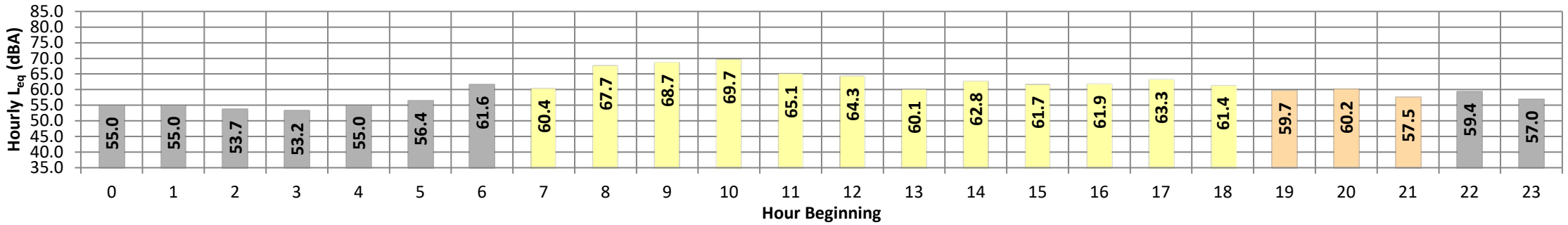
Date: Wednesday, September 02, 2020
Project: 1130 Hope Street

Location: L4 - Located south of the Project site on West 12th Street near Evo South at 1155 South Grand Avenue.

Meter: Piccolo II

JN: 13686
Analyst: P. Mara

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	55.0	61.9	51.8	61.5	61.0	59.4	58.5	55.2	53.3	52.1	52.0	51.9	55.0	10.0	65.0
	1	55.0	60.1	52.4	59.9	59.6	58.7	57.8	55.6	54.0	52.7	52.6	52.5	55.0	10.0	65.0
	2	53.7	60.7	51.2	60.4	60.0	58.5	57.0	53.3	52.1	51.4	51.4	51.2	53.7	10.0	63.7
	3	53.2	58.5	51.2	58.3	58.0	56.9	55.9	53.1	52.2	51.5	51.4	51.3	53.2	10.0	63.2
	4	55.0	63.0	52.0	61.9	61.4	59.5	58.1	55.0	53.4	52.3	52.2	52.1	55.0	10.0	65.0
	5	56.4	63.0	53.0	62.7	62.2	61.1	60.2	56.5	54.6	53.4	53.2	53.1	56.4	10.0	66.4
	6	61.6	69.4	56.8	68.6	67.5	65.9	65.1	62.4	59.9	57.5	57.2	56.9	61.6	10.0	71.6
Day	7	60.4	69.3	55.1	68.4	67.4	65.4	64.0	60.7	58.6	55.9	55.5	55.1	60.4	0.0	60.4
	8	67.7	77.9	59.6	77.2	75.7	73.2	71.7	68.0	64.6	60.5	60.2	59.7	67.7	0.0	67.7
	9	68.7	76.6	57.3	76.1	75.6	74.1	73.2	70.0	66.3	59.6	58.8	57.6	68.7	0.0	68.7
	10	69.7	80.5	62.5	79.3	77.7	75.8	73.8	69.4	66.0	63.4	62.9	62.6	69.7	0.0	69.7
	11	65.1	73.4	60.4	72.5	71.4	69.2	68.1	65.4	63.7	61.7	60.9	60.5	65.1	0.0	65.1
	12	64.3	72.5	60.0	71.9	71.0	69.3	68.2	64.4	62.2	60.5	60.3	60.1	64.3	0.0	64.3
	13	60.1	67.1	55.0	66.7	66.1	64.9	63.8	60.8	58.5	55.7	55.4	55.1	60.1	0.0	60.1
	14	62.8	72.3	56.1	71.9	71.1	68.9	66.9	62.2	59.7	57.1	56.7	56.3	62.8	0.0	62.8
	15	61.7	71.7	55.6	71.1	70.2	67.6	65.1	61.2	59.0	56.4	56.0	55.7	61.7	0.0	61.7
	16	61.9	70.6	55.5	69.9	69.2	67.4	65.9	62.4	59.3	56.2	55.9	55.6	61.9	0.0	61.9
	17	63.3	74.5	55.7	73.4	71.9	68.8	67.2	63.0	60.1	56.6	56.2	55.8	63.3	0.0	63.3
	18	61.4	71.4	54.9	70.6	69.6	67.2	65.2	61.1	58.6	55.7	55.4	55.0	61.4	0.0	61.4
Evening	19	59.7	67.1	54.5	66.4	65.8	64.4	63.5	60.4	57.9	55.1	54.8	54.5	59.7	5.0	64.7
	20	60.2	69.2	53.8	68.9	68.3	66.0	64.1	60.3	56.9	54.4	54.1	53.9	60.2	5.0	65.2
	21	57.5	65.7	52.6	65.3	64.9	63.2	61.5	57.4	55.1	53.1	52.9	52.7	57.5	5.0	62.5
Night	22	59.4	67.4	53.8	66.9	66.4	64.9	63.4	59.6	57.2	54.7	54.4	54.0	59.4	10.0	69.4
	23	57.0	64.1	52.4	63.8	63.4	62.3	61.1	57.4	54.5	52.8	52.6	52.5	57.0	10.0	67.0

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	60.1	67.1	54.9	66.7	66.1	64.9	63.8	60.7	58.5	55.7	55.4	55.0
	Max	69.7	80.5	62.5	79.3	77.7	75.8	73.8	70.0	66.3	63.4	62.9	62.6
Energy Average		65.1	Average:		72.4	71.4	69.3	67.8	64.0	61.4	58.3	57.8	57.4
Evening	Min	57.5	65.7	52.6	65.3	64.9	63.2	61.5	57.4	55.1	53.1	52.9	52.7
	Max	60.2	69.2	54.5	68.9	68.3	66.0	64.1	60.4	57.9	55.1	54.8	54.5
Energy Average		59.3	Average:		66.8	66.3	64.5	63.0	59.4	56.6	54.2	53.9	53.7
Night	Min	53.2	58.5	51.2	58.3	58.0	56.9	55.9	53.1	52.1	51.4	51.4	51.2
	Max	61.6	69.4	56.8	68.6	67.5	65.9	65.1	62.4	59.9	57.5	57.2	56.9
Energy Average		57.1	Average:		62.7	62.2	60.8	59.7	56.5	54.6	53.2	53.0	52.8

L_{eq} (dBA)		
24-Hour	*Daytime*	*Nighttime*
62.8	**64.4**	**57.1**

24-Hour CNEL (dBA)

65.9

APPENDIX 7.1:

CADNAA OPERATIONAL NOISE MODEL INPUTS

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13686 - 1130 S. Hope Street

CadnaA Noise Prediction Model: 13686.cna
Date: 24.09.20
Analyst: S. Shami

Calculation Configuration

Configuration	
Parameter	Value
General	
Country	(user defined)
Max. Error (dB)	0.00
Max. Search Radius (#(Unit,LEN))	2000.01
Min. Dist Src to Rcvr	0.00
Partition	
Raster Factor	0.50
Max. Length of Section (#(Unit,LEN))	999.99
Min. Length of Section (#(Unit,LEN))	1.01
Min. Length of Section (%)	0.00
Proj. Line Sources	On
Proj. Area Sources	On
Ref. Time	
Reference Time Day (min)	960.00
Reference Time Night (min)	480.00
Daytime Penalty (dB)	0.00
Recr. Time Penalty (dB)	5.00
Night-time Penalty (dB)	10.00
DTM	
Standard Height (m)	0.00
Model of Terrain	Triangulation
Reflection	
max. Order of Reflection	2
Search Radius Src	100.00
Search Radius Rcvr	100.00
Max. Distance Source - Rcvr	1000.00 1000.00
Min. Distance Rvcr - Reflector	1.00 1.00
Min. Distance Source - Reflector	0.10
Industrial (ISO 9613)	
Lateral Diffraction	some Obj
Obst. within Area Src do not shield	On
Screening	Incl. Ground Att. over Barrier
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	3.0 20.0 0.0
Temperature (#(Unit,TEMP))	10
rel. Humidity (%)	70
Ground Absorption G	0.00
Wind Speed for Dir. (#(Unit,SPEED))	3.0
Roads (RLS-90)	
Strictly acc. to RLS-90	
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	42.8	27.1	40.6	0.0	0.0	0.0		x	Total	5.00	a	5951556.75	2328516.62	5.00
RECEIVERS		R2	38.5	30.1	38.7	0.0	0.0	0.0		x	Total	5.00	a	5951826.79	2328445.80	5.00
RECEIVERS		R3	39.5	31.5	39.9	0.0	0.0	0.0		x	Total	5.00	a	5951725.88	2328290.63	5.00
RECEIVERS		R4	43.2	34.7	43.3	0.0	0.0	0.0		x	Total	5.00	a	5951460.03	2328195.58	5.00

Point Source(s)

Name	M.	ID	Result. PWL			Lw / Li			Operating Time			K0	Height		Coordinates		
			Day	Evening	Night	Type	Value	norm.	Day	Special	Night				X	Y	Z
			(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	(dB)	(ft)		(ft)	(ft)	(ft)
POINTSOURCE		court04	91.5	91.5	91.5	Lw	91.5		900.00	0.00	0.00	0.0	5.00	g	5951683.36	2328441.90	177.00
POINTSOURCE		court03	91.5	91.5	91.5	Lw	91.5		900.00	0.00	0.00	0.0	5.00	g	5951678.31	2328436.09	177.00
POINTSOURCE		court02	91.5	91.5	91.5	Lw	91.5		900.00	0.00	0.00	0.0	5.00	g	5951713.89	2328417.23	177.00
POINTSOURCE		court01	91.5	91.5	91.5	Lw	91.5		900.00	0.00	0.00	0.0	5.00	g	5951709.06	2328411.33	177.00
POINTSOURCE		station01	89.1	89.1	89.1	Lw	89.1		900.00	0.00	0.00	0.0	6.00	g	5951729.88	2328400.06	178.00
POINTSOURCE		pool01	86.4	86.4	86.4	Lw	86.4		900.00	0.00	0.00	0.0	5.00	g	5951652.05	2328471.78	177.00
POINTSOURCE		pool02	86.4	86.4	86.4	Lw	86.4		900.00	0.00	0.00	0.0	5.00	g	5951659.91	2328442.35	177.00
POINTSOURCE		pool03	86.4	86.4	86.4	Lw	86.4		900.00	0.00	0.00	0.0	5.00	g	5951673.16	2328459.61	177.00
POINTSOURCE		pool04	86.4	86.4	86.4	Lw	86.4		900.00	0.00	0.00	0.0	5.00	g	5951638.64	2328455.76	177.00
POINTSOURCE		AC01	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	0.0	5.00	g	5951761.92	2328387.49	177.00
POINTSOURCE		AC02	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	0.0	5.00	g	5951737.73	2328379.17	177.00
POINTSOURCE		AC03	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	0.0	5.00	g	5951683.02	2328425.40	177.00

Name	M.	ID	Result. PWL			Lw / Li			Operating Time			K0	Height		Coordinates		
			Day	Evening	Night	Type	Value	norm.	Day	Special	Night				X	Y	Z
			(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	(dB)	(ft)		(ft)	(ft)	(ft)
POINTSOURCE		AC04	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	0.0	5.00	g	5951710.91	2328423.86	177.00

Building(s)

Name	M.	ID	RB	Residents	Absorption	Height		Coordinates			
						Begin		x	y	z	Ground
						(ft)		(ft)	(ft)	(ft)	(ft)
BUILDING		BUILDING00001	x	0		172.00	a	5951629.63	2328450.63	172.00	0.00
								5951660.76	2328489.10	172.00	0.00
								5951782.39	2328390.92	172.00	0.00
								5951751.16	2328352.54	172.00	0.00

APPENDIX 8.1:

CADNAA CONSTRUCTION NOISE MODEL INPUTS

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13686 - 1130 S. Hope Street

CadnaA Noise Prediction Model: 13686_Construction.cna
Date: 23.09.20
Analyst: S. Shami

Calculation Configuration

Configuration	
Parameter	Value
General	
Country	(user defined)
Max. Error (dB)	0.00
Max. Search Radius (#(Unit,LEN))	2000.01
Min. Dist Src to Rcvr	0.00
Partition	
Raster Factor	0.50
Max. Length of Section (#(Unit,LEN))	999.99
Min. Length of Section (#(Unit,LEN))	1.01
Min. Length of Section (%)	0.00
Proj. Line Sources	On
Proj. Area Sources	On
Ref. Time	
Reference Time Day (min)	960.00
Reference Time Night (min)	480.00
Daytime Penalty (dB)	0.00
Recr. Time Penalty (dB)	5.00
Night-time Penalty (dB)	10.00
DTM	
Standard Height (m)	0.00
Model of Terrain	Triangulation
Reflection	
max. Order of Reflection	2
Search Radius Src	100.00
Search Radius Rcvr	100.00
Max. Distance Source - Rcvr	1000.00 1000.00
Min. Distance Rvcr - Reflector	1.00 1.00
Min. Distance Source - Reflector	0.10
Industrial (ISO 9613)	
Lateral Diffraction	some Obj
Obst. within Area Src do not shield	On
Screening	Incl. Ground Att. over Barrier
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	3.0 20.0 0.0
Temperature (#(Unit,TEMP))	10
rel. Humidity (%)	70
Ground Absorption G	0.00
Wind Speed for Dir. (#(Unit,SPEED))	3.0
Roads (RLS-90)	
Strictly acc. to RLS-90	
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	63.0	63.0	69.7	0.0	0.0	0.0		x	Total	5.00	a	5951556.75	2328516.62	5.00
RECEIVERS		R2	64.8	64.8	71.4	0.0	0.0	0.0		x	Total	5.00	a	5951826.79	2328445.80	5.00
RECEIVERS		R3	64.4	64.4	71.1	0.0	0.0	0.0		x	Total	5.00	a	5951725.88	2328290.63	5.00
RECEIVERS		R4	55.9	55.9	62.6	0.0	0.0	0.0		x	Total	5.00	a	5951460.03	2328195.58	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	104.3	104.3	104.3	75.3	75.3	75.3	Lw''	75.3					8

Name	Height				Coordinates			
	Begin		End		x	y	z	Ground
	(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
SITEBOUNDARY	8.00	a			5951629.63	2328450.63	8.00	0.00
					5951617.80	2328460.31	8.00	0.00
					5951641.08	2328488.98	8.00	0.00
					5951643.06	2328491.11	8.00	0.00
					5951644.10	2328491.89	8.00	0.00
					5951646.03	2328492.83	8.00	0.00
					5951648.26	2328493.61	8.00	0.00

Name	Height		Coordinates			
	Begin	End	x	y	z	Ground
	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)
			5951651.03	2328493.77	8.00	0.00
			5951654.36	2328493.20	8.00	0.00
			5951655.92	2328492.41	8.00	0.00
			5951657.48	2328491.74	8.00	0.00
			5951663.63	2328486.79	8.00	0.00
			5951782.39	2328390.92	8.00	0.00
			5951751.16	2328352.54	8.00	0.00