

Appendix H

Noise Technical Report

Acoustical Assessment
1151 N. Las Palmas Project
City of Los Angeles, California

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LIST OF ABBREVIATED TERMS

APN	Assessor's Parcel Number
ADT	Average daily traffic
dBA	A-weighted sound level
CEQA	California Environmental Quality Act
CLSP	California Landings Specific Plan
CSMA	California Subdivision Map Act
CNEL	Community equivalent noise level
L _{dn}	Day-night noise level
dB	Decibel
du/ac	Dwelling units per acre
L _{eq}	Equivalent noise level
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
HVAC	Heating ventilation and air conditioning
Hz	Hertz
HOA	Homeowner's association
in/sec	Inches per second
L _{max}	Maximum noise level
μPa	Micropascals
L _{min}	Minimum noise level
PPV	Peak particle velocity
RMS	Root mean square
VdB	Vibration velocity level

1 INTRODUCTION

The purpose of this memorandum is to assess the potential noise impacts associated with construction and operations of the proposed 1151 N. Las Palmas Avenue Project (Project), located in the City of Los Angeles, California.

1.1 Project Location

The Project Site is located at 1128-1146 N. Las Palmas Avenue, 1139-1555 N. Las Palmas Avenue, and 1139-1155 N. McCadden Place within the Hollywood community of the City of Los Angeles; see [Exhibit 1, Regional and Vicinity Map](#). The Project Site is located mid-block between Lexington Avenue to the north and Santa Monica Boulevard to the south, with N. McCadden to the west. The Project Site is bisected by N. Las Palmas Avenue. Regional vehicle access to the Project Site is provided by the 101 Freeway, located approximately 1.72 miles east of the Project Site. Local vehicle access to the Project Site is provided via Santa Monica Boulevard and Lexington Avenue. The Project Site is located within close proximity to several transit options. It is approximately 0.7 miles from the Hollywood and Highland Metro Station which serves the B Line (formerly, the Red Line) of the Metro Rail System. Numerous bus lines also serve the Project Site, including Metro bus lines 224 and 4 and the DASH Hollywood line.

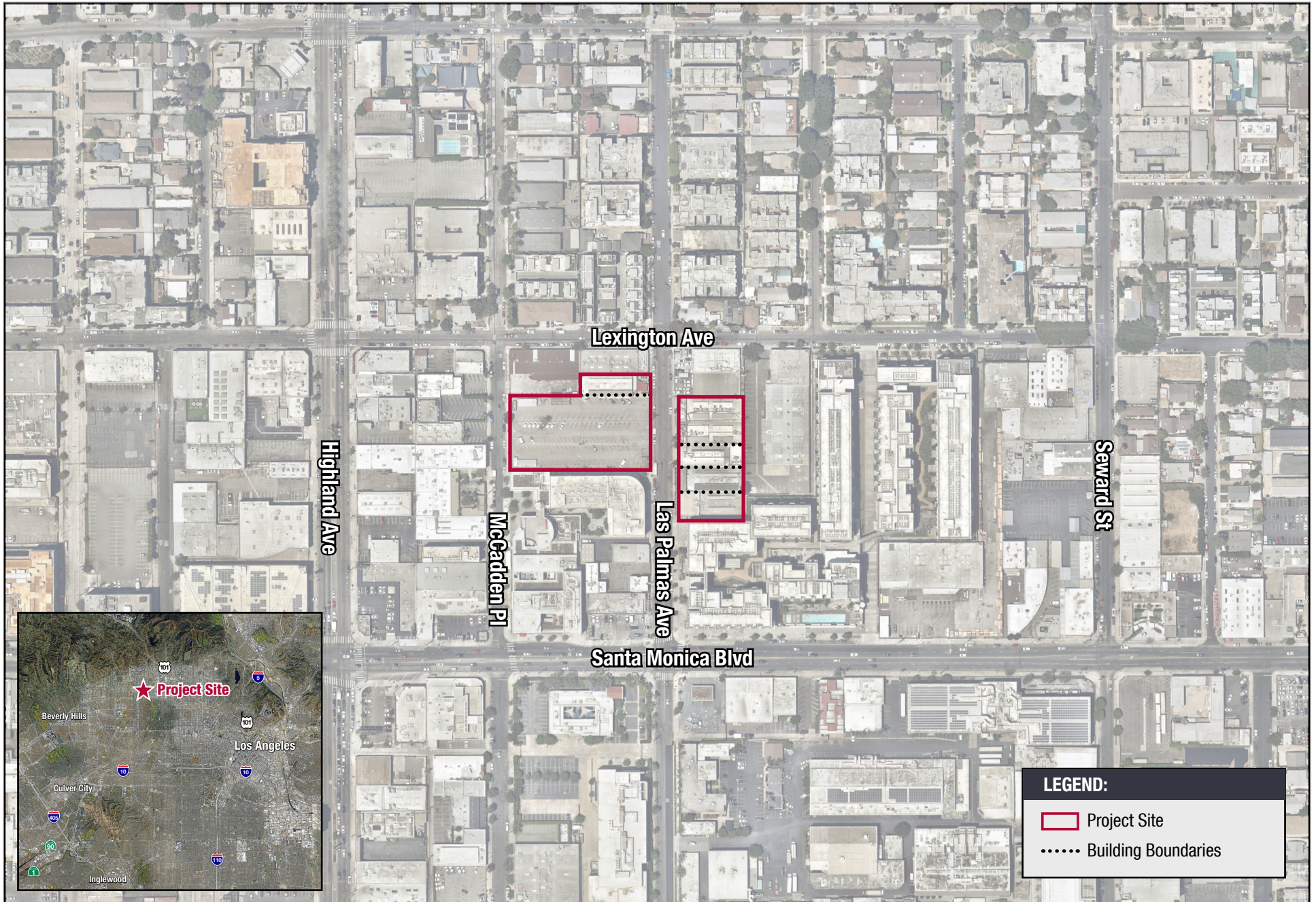
1.2 Project Description

Existing development on the Project Site includes four existing buildings located at 1128-1146 N. Las Palmas Avenue on the east side of N. Las Palmas Avenue, and an existing 45,000-square-foot surface parking lot and surrounding metal fence located at 1139-1149 N. Las Palmas Avenue, and an existing 5,498-square-foot building at 1155 N. Las Palmas Avenue on the west side of Las Palmas, both located between N. Las Palmas Avenue and N. McCadden Place. The Project would demolish the existing 45,000-square-foot surface parking lot and surrounding metal fence and construct a three-story, approximately 45-foot tall (50-foot tall to the top of the parapet), 80,987square foot, creative office building with a three-level subterranean garage at 1139-1149 N. Las Palmas Avenue (Building A). The Project would also renovate the existing 5,498-square-foot building at 1155 N. Las Palmas Avenue, expand its ground-floor by 695 square-feet, and change its use from manufacturing to office and retail. The Project would retain the four existing buildings located on the east side of N. Las Palmas Avenue at 1128 to 1146 N. Las Palmas Avenue with minor interior renovations; no exterior renovations, change in use, or expansion of these buildings are proposed at this time; see [Exhibit 2, Site Plan](#). Project grading would require the export of 51,800 cubic yards of soil. All necessary utility improvements including water, sewer, and storm drain would be constructed within the property limits.

1.2 Project Design Features

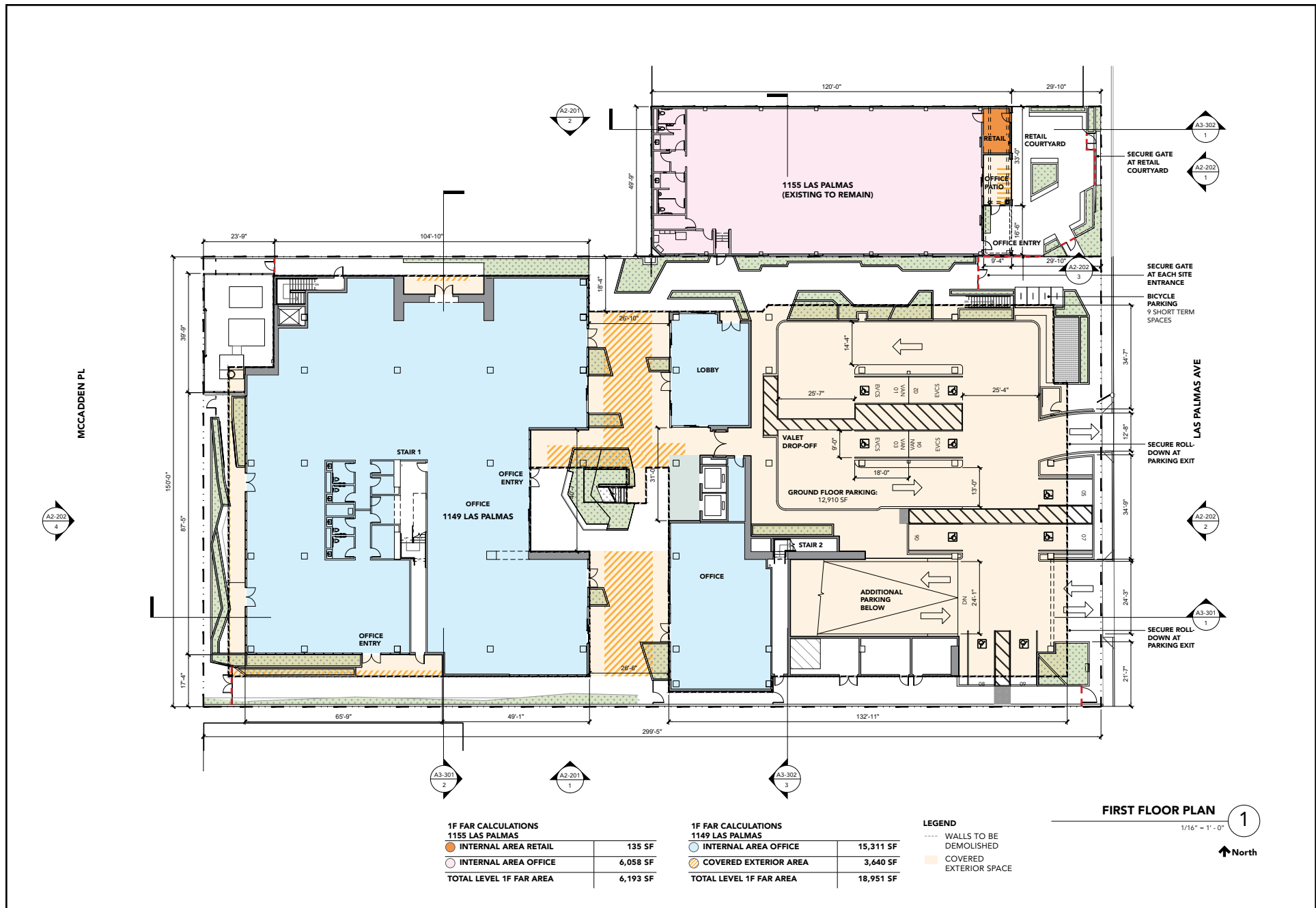
The Project incorporates the following Project Design Feature (PDF), PDF NOISE-1 (detailed below). PDF NOISE-1 prohibits the use of amplified sound systems in outdoor spaces.

PDF NOISE-1 Amplified Sound Systems. Amplified sound systems would not be installed or used at any of the outdoor spaces.



Source: Google Earth, 2022

Exhibit 1: Regional and Vicinity Map
1151 Las Palmas



Source: House & Robertson Architects, December 2022

Exhibit 2: Site Plan
1149 Las Palmas

2 ACOUSTIC FUNDAMENTALS

2.1 Sound and Environmental Noise

Acoustics is the science of sound. Sound can be described as the mechanical energy of a vibrating object transmitted by pressure waves through a medium (e.g., air) to human (or animal) ear. If the pressure variations occur frequently enough (at least 20 times per second), they can be heard and are called sound. The number of pressure variations per second is called the frequency of sound and is expressed as cycles per second, or hertz (Hz).

Noise is defined as loud, unexpected, or annoying sound. The fundamental model consists of a noise source, a receptor, and the propagation path between the two. The loudness of the noise source, obstructions, or atmospheric factors affecting the propagation path, determine the perceived sound level and noise characteristics at the receptor. Acoustics deal primarily with the propagation and control of sound. A typical noise environment consists of ambient noise that is the sum of many distant and indistinguishable noise sources. Superimposed on this ambient noise is the sound from individual local sources. These sources can vary from an occasional aircraft or train passing by to continuous noise from traffic on a major highway. Perceptions of sound and noise are highly subjective from person to person.

Measuring sound directly in terms of pressure would require a large range of numbers. To avoid this, the decibel (dB) scale was devised. The dB scale uses the hearing threshold of 20 micro-pascals (μPa) as a point of reference, defined as 0 dB. Other sound pressures are then compared to this reference pressure, and the logarithm is taken to keep the numbers in a practical range. The dB scale allows a million-fold increase in pressure to be expressed as 120 dB, and changes in levels correspond closely to human perception of relative loudness. [Table 1: Typical Noise Levels](#) provides typical noise levels.

Table 1: Typical Noise Levels

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
Jet fly-over at 1,000 feet	– 110 –	Rock Band
Gas lawnmower at 3 feet	– 100 –	
Diesel truck at 50 feet at 50 miles per hour	– 90 –	Food blender at 3 feet
Noisy urban area, daytime	– 80 –	Garbage disposal at 3 feet
Gas lawnmower, 100 feet	– 70 –	Vacuum cleaner at 10 feet
Commercial area	– 60 –	Normal Speech at 3 feet
Heavy traffic at 300 feet	– 50 –	Large business office
Quiet urban daytime	– 40 –	Dishwasher in next room
Quiet urban nighttime	– 30 –	Theater, large conference room (background)
Quiet suburban nighttime	– 20 –	Library
Quiet rural nighttime	– 10 –	Bedroom at night, concert hall (background)
	– 0 –	Broadcast/recording studio
Lowest threshold of human hearing	– 0 –	Lowest threshold of human hearing

Source: California Department of Transportation, *Technical Noise Supplement to the Traffic Noise Analysis Protocol*, September 2013.

Noise Descriptors

The dB scale alone does not adequately characterize how humans perceive noise. The dominant frequencies of a sound have a substantial effect on the human response to that sound. Several rating scales have been developed to analyze the adverse effect of community noise on people. Because environmental noise fluctuates over time, these scales consider that the effect of noise on people is largely dependent on the total acoustical energy content of the noise, as well as the time of day when the noise occurs. The equivalent noise level (L_{eq}) represents the equivalent continuous sound pressure level over the measurement period, while the day-night noise level (L_{dn}) and Community Equivalent Noise Level (CNEL) are measures of sound energy during a 24-hour period, with dB weighted sound levels from 7:00 p.m. to 7:00 a.m. Most commonly, environmental sounds are described in terms of L_{eq} that has the same acoustical energy as the summation of all the time-varying events. Each is applicable to this analysis and defined in [Table 2: Definitions of Acoustical Terms](#).

Table 2: Definitions of Acoustical Terms

Term	Definitions
Decibel (dB)	A unit describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure. The reference pressure for air is 20.
Sound Pressure Level	Sound pressure is the sound force per unit area, usually expressed in μPa (or 20 microneutons per square meter), where 1 pascal is the pressure resulting from a force of 1 newton exerted over an area of 1 square meter. The sound pressure level is expressed in dB as 20 times the logarithm to the base 10 of the ratio between the pressures exerted by the sound to a reference sound pressure (e.g. 20 μPa). Sound pressure level is the quantity that is directly measured by a sound level meter.
Frequency (Hz)	The number of complete pressure fluctuations per second above and below atmospheric pressure. Normal human hearing is between 20 Hz and 20,000 Hz. Infrasonic sound are below 20 Hz and ultrasonic sounds are above 20,000 Hz.
A-Weighted Sound Level (dBA)	The sound pressure level in dB as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise.
Equivalent Noise Level (L_{eq})	The average acoustic energy content of noise for a stated period of time. Thus, the L_{eq} of a time-varying noise and that of a steady noise are the same if they deliver the same acoustic energy to the ear during exposure. For evaluating community impacts, this rating scale does not vary, regardless of whether the noise occurs during the day or the night.
Maximum Noise Level (L_{max}) Minimum Noise Level (L_{min})	The maximum and minimum dBA during the measurement period.
Exceeded Noise Levels (L_{01} , L_{10} , L_{50} , L_{90})	The dBA values that are exceeded 1%, 10%, 50%, and 90% of the time during the measurement period.
Day-Night Noise Level (L_{dn})	A 24-hour average L_{eq} with a 10-dBA weighting added to noise during the hours of 10:00 p.m. to 7:00 a.m. to account for noise sensitivity at nighttime. The logarithmic effect of these additions is that a 60 dBA 24-hour L_{eq} would result in a measurement of 66.4 dBA L_{dn} .
Community Noise Equivalent Level (CNEL)	A 24-hour average L_{eq} with a 5-dBA weighting during the hours of 7:00 a.m. to 10:00 a.m. and a 10-dBA weighting added to noise during the hours of 10:00 p.m. to 7:00 a.m. to account for noise sensitivity in the evening and nighttime, respectively. The logarithmic effect of these additions is that a 60 dBA 24-hour L_{eq} would result in a measurement of 66.7 dBA CNEL.
Ambient Noise Level	The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.
Intrusive	That noise which intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends on its amplitude, duration, frequency, and time of occurrence and tonal or informational content as well as the prevailing ambient noise level.

The A-weighted decibel (dBA) sound level scale gives greater weight to the frequencies of sound to which the human ear is most sensitive. Because sound levels can vary markedly over a short period of time, a method for describing either the average character of the sound or the statistical behavior of the variations must be utilized. Most commonly, environmental sounds are described in terms of an average level that has the same acoustical energy as the summation of all the time-varying events.

The scientific instrument used to measure noise is the sound level meter. Sound level meters can accurately measure environmental noise levels to within about plus or minus 1 dBA. Various computer models are used to predict environmental noise levels from sources, such as roadways and airports. The accuracy of the predicted models depends on the distance between the receptor and the noise source.

A-Weighted Decibels

The perceived loudness of sounds is dependent on many factors, including sound pressure level and frequency content. However, within the usual range of environmental noise levels, perception of loudness is relatively predictable and can be approximated by dBA values. There is a strong correlation between dBA and the way the human ear perceives sound. For this reason, the dBA has become the standard tool of environmental noise assessment. All noise levels reported in this document are in terms of dBA, but are expressed as dB, unless otherwise noted.

Addition of Decibels

The dB scale is logarithmic, not linear, and therefore sound levels cannot be added or subtracted through ordinary arithmetic. Two sound levels 10 dB apart differ in acoustic energy by a factor of 10. When the standard logarithmic dB is A-weighted, an increase of 10 dBA is generally perceived as a doubling in loudness. For example, a 70-dBA sound is half as loud as an 80-dBA sound and twice as loud as a 60-dBA sound.¹ When two identical sources are each producing sound of the same loudness, the resulting sound level at a given distance would be 3 dBA higher than one source under the same conditions.² Under the dB scale, three sources of equal loudness together would produce an increase of approximately 5 dBA.

Sound Propagation and Attenuation

Sound spreads (propagates) uniformly outward in a spherical pattern, and the sound level decreases (attenuates) at a rate of approximately 6 dB for each doubling of distance from a stationary or point source. Sound from a line source, such as a highway, propagates outward in a cylindrical pattern. Sound levels attenuate at a rate of approximately 3 dB for each doubling of distance from a line source, such as a roadway, depending on ground surface characteristics.³ No excess attenuation is assumed for hard surfaces like a parking lot or a body of water. Soft surfaces, such as soft dirt or grass, can absorb sound, so an excess ground-attenuation value of 1.5 dB per doubling of distance is normally assumed.

Noise levels may also be reduced by intervening structures; generally, a single row of buildings between the receptor and the noise source reduces the noise level by about 5 dBA, while a solid wall or berm reduces noise levels by 5 to 10 dBA.⁴ The way older homes in California were constructed generally

¹ FHWA, *Noise Fundamentals*, 2017. Available at: https://www.fhwa.dot.gov/enviroMent/noise/regulations_and_guidance/polguide/polguide02.cfm

² Ibid.

³ California Department of Transportation, *Technical Noise Supplement to the Traffic Noise Analysis Protocol*, Page 2-29, September 2013.

⁴ James P. Cowan, *Handbook of Environmental Acoustics*, 1994.

provides a reduction of exterior-to-interior noise levels of about 20 to 25 dBA with closed windows. The exterior-to-interior reduction of newer residential units is generally 30 dBA or more.

Human Response to Noise

The human response to environmental noise is subjective and varies considerably from individual to individual. Noise in the community has often been cited as a health problem, not in terms of actual physiological damage, such as hearing impairment, but in terms of inhibiting general well-being and contributing to undue stress and annoyance. The health effects of noise in the community arise from interference with human activities, including sleep, speech, recreation, and tasks that demand concentration or coordination. Hearing loss can occur at the highest noise intensity levels.

Noise environments and consequences of human activities are usually well represented by median noise levels during the day or night or over a 24-hour period. Environmental noise levels are generally considered low when the CNEL is below 60 dBA, moderate in the 60 to 70 dBA range, and high above 70 dBA. Examples of low daytime levels are isolated, natural settings with noise levels as low as 20 dBA and quiet, suburban, residential streets with noise levels around 40 dBA.⁵ Noise levels above 45 dBA at night can disrupt sleep. Examples of moderate-level noise environments are urban residential or semi-commercial areas (typically 55 to 60 dBA) and commercial locations (typically 60 dBA). People may consider louder environments adverse, but most will accept the higher levels associated with noisier urban residential or residential-commercial areas (60 to 75 dBA) or dense urban or industrial areas (65 to 80 dBA). Regarding increases in dBA, the following relationships should be noted⁶:

- Except in carefully controlled laboratory experiments, a 1-dBA change cannot be perceived by humans.
- Outside of the laboratory, a 3-dBA change is considered a just-perceivable difference.
- A minimum 5-dBA change is required before any noticeable change in community response would be expected. A 5-dBA increase is typically considered substantial.
- A 10-dBA change is subjectively heard as an approximate doubling in loudness and would almost certainly cause an adverse change in community response.

Effects of Noise on People

Hearing Loss. While physical damage to the ear from an intense noise impulse is rare, a degradation of auditory acuity can occur even within a community noise environment. Hearing loss occurs mainly due to chronic exposure to excessive noise but may be due to a single event such as an explosion. Natural hearing loss associated with aging may also be accelerated from chronic exposure to loud noise. The Occupational Safety and Health Administration has a noise exposure standard that is set at the noise threshold where hearing loss may occur from long-term exposures. The maximum allowable level is 90 dBA averaged over 8 hours. If the noise is above 90 dBA, the allowable exposure time is correspondingly shorter.

Annoyance. Attitude surveys are used for measuring the annoyance felt in a community for noises intruding into homes or affecting outdoor activity areas. In these surveys, it was determined that causes

⁵ Compiled from James P. Cowan, *Handbook of Environmental Acoustics*, 1994 and Cyril M. Harris, *Handbook of Noise Control*, 1979.

⁶ Compiled from California Department of Transportation, *Technical Noise Supplement to the Traffic Noise Analysis Protocol*, September 2013, and FHWA, *Noise Fundamentals*, 2017.

for annoyance include interference with speech, radio and television, house vibrations, and interference with sleep and rest. The L_{dn} as a measure of noise has been found to provide a valid correlation of noise level and the percentage of people annoyed. People have been asked to judge the annoyance caused by aircraft noise and ground transportation noise. There continues to be disagreement about the relative annoyance of these different sources. A noise level of about 55 dBA L_{dn} is the threshold at which a substantial percentage of people begin to report annoyance⁷.

2.2 Ground-Borne Vibration

Sources of ground-borne vibrations include natural phenomena (earthquakes, volcanic eruptions, sea waves, landslides, etc.) or man-made causes (explosions, machinery, traffic, trains, construction equipment, etc.). Vibration sources may be continuous (e.g., factory machinery) or transient (e.g., explosions or heavy equipment used during construction). Ground vibration consists of rapidly fluctuating motions or waves with an average motion of zero. Several different methods are typically used to quantify vibration amplitude. One is vibration decibels (VdB) (the vibration velocity level in decibel scale). Other methods are the peak particle velocity (PPV) and the root mean square (RMS) velocity. The PPV is defined as the maximum instantaneous positive or negative peak of the vibration wave. The RMS velocity is defined as the average of the squared amplitude of the signal. The PPV and RMS vibration velocity amplitudes are used to evaluate human response to vibration.

Table 3: Human Reaction and Damage to Buildings for Continuous or Frequent Intermittent Vibrations, displays the reactions of people and the effects on buildings produced by continuous vibration levels. The annoyance levels shown in the table should be interpreted with care since vibration may be found to be annoying at much lower levels than those listed, depending on the level of activity or the sensitivity of the individual. To sensitive individuals, vibrations approaching the threshold of perception can be annoying. Low-level vibrations frequently cause irritating secondary vibration, such as a slight rattling of windows, doors, or stacked dishes. The rattling sound can give rise to exaggerated vibration complaints, even though there is very little risk of actual structural damage. In high noise environments, which are more prevalent where ground-borne vibration approaches perceptible levels, this rattling phenomenon may also be produced by loud airborne environmental noise causing induced vibration in exterior doors and windows.

Ground vibration can be a concern in instances where buildings shake, and substantial rumblings occur. However, it is unusual for vibration from typical urban sources such as buses and heavy trucks to be perceptible. Common sources for ground-borne vibration are planes, trains, and construction activities such as earth-moving which requires the use of heavy-duty earth moving equipment. For the purposes of this analysis, a PPV descriptor with units of inches per second (in/sec) is used to evaluate construction-generated vibration for building damage and human complaints.

⁷ Federal Interagency Committee on Noise, *Federal Agency Review of Selected Airport Noise Analysis Issues*, August 1992.

Table 3: Human Reaction and Damage to Buildings for Continuous or Frequent Intermittent Vibrations

Maximum PPV (in/sec)	Vibration Annoyance Potential Criteria	Vibration Damage Potential Threshold Criteria	FTA Vibration Damage Criteria
0.008	--	Extremely fragile historic buildings, ruins, ancient monuments	--
0.01	Barely Perceptible	--	--
0.04	Distinctly Perceptible	--	--
0.1	Strongly Perceptible	Fragile buildings	--
0.12	--	--	Buildings extremely susceptible to vibration damage
0.2	--	--	Non-engineered timber and masonry buildings
0.25	--	Historic and some old buildings	--
0.3	--	Older residential structures	Engineered concrete and masonry (no plaster)
0.4	Severe	--	--
0.5	--	New residential structures, Modern industrial/commercial buildings	Reinforced-concrete, steel or timber (no plaster)
PPV = peak particle velocity; in/sec = inches per second; FTA = Federal Transit Administration			
Source: California Department of Transportation, <i>Transportation and Construction Vibration Guidance Manual</i> , 2020 and Federal Transit Administration, <i>Transit Noise and Vibration Assessment Manual</i> , 2018.			

3 REGULATORY SETTING

To limit population exposure to physically 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.

3.1 Federal

Federal Transit Administration Noise and Vibration Guidance

The Federal Transit Administration (FTA) has published the Transit Noise and Vibration Impact Assessment Manual (FTA Transit Noise and Vibration Manual) to provide guidance on procedures for assessing impacts at different stages of transit project development.⁸ The report covers both construction and operational noise impacts and describes a range of measures for controlling excessive noise and vibration. In general, the primary concern regarding vibration relates to potential damage from construction. The guidance document establishes criteria for evaluating the potential for damage for various structural categories from vibration.

3.2 State of California

California Government Code

California Government Code Section 65302(f) mandates that the legislative body of each county and city adopt a noise element as part of its comprehensive general plan. The local noise element must recognize the land use compatibility guidelines established by the State Department of Health Services.⁹ The guidelines rank noise land use compatibility in terms of “normally acceptable”, “conditionally acceptable”, “normally unacceptable”, and “clearly unacceptable” noise levels for various land use types. Single-family homes are “normally acceptable” in exterior noise environments up to 60 CNEL and “conditionally acceptable” up to 70 CNEL. Multiple-family residential uses are “normally acceptable” up to 65 CNEL and “conditionally acceptable” up to 70 CNEL. Schools, libraries, and churches are “normally acceptable” up to 70 CNEL, as are office buildings and business, commercial, and professional uses.

Title 24 – Building Code

The State’s noise insulation standards are codified in the California Code of Regulations, Title 24: Part 1, Building Standards Administrative Code, and Part 2, California Building Code. These noise standards are applied to new construction in California for interior noise compatibility 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 located near major transportation noise sources, and where such noise sources create an exterior noise level of 65 dBA CNEL or higher. Acoustical studies that accompany building plans must demonstrate that the structure has been designed to limit interior noise in habitable rooms to acceptable noise levels. For new multi-family residential buildings, the acceptable interior noise limit for new construction is 45 dBA CNEL.

⁸ Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual, September 2018

⁹ State of California Governor’s Office of Planning and Research, General Plan Guidelines, Appendix D: Noise Element Guidelines, page 374, 2017, https://opr.ca.gov/docs/OPR_COMPLETE_7.31.17.pdf. Accessed December 2022.

3.3 Local

City of Los Angeles Municipal Code

The City has adopted regulations to control unnecessary, excessive, and annoying noise, as set forth in the City's Noise Ordinance (Chapter XI, Noise Regulation, of the Los Angeles Municipal Code [LAMC]). The City's Noise Ordinance establishes acceptable ambient sound levels to regulate intrusive noises (e.g., stationary mechanical equipment and vehicles other than those traveling on public streets) within specific land use zones and provides procedures and criteria for the measurement of the sound level of noise sources. These procedures recognize and account for differences in the perceived level of different types of noise and/or noise sources.

Section 111.02 (Sound Level Measurement Procedure and Criteria) of the LAMC provides procedures and criteria for the measurement of the sound level of "offending" noise sources. According to the LAMC, a noise level increase of 5 dBA over the existing average ambient noise level at an adjacent property line is considered a noise violation. Section 112.01 (Radios, Television Sets, and Similar Devices) of the LAMC prohibits the production of noise from 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, or that 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 5 dBA.

Section 112.02 (Air Conditioning, Refrigeration, Heating, Pumping, Filtering Equipment) limits increases in ambient noise levels created by air conditioning, refrigeration, heating, pumping and filtering equipment. Such equipment may not be operated 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 5 dBA.

Section 112.05 of the LAMC sets a maximum noise level for construction equipment of 75 dBA at a distance of 50 feet when operated within 500 feet of a residential zone. Compliance with this standard is required only where "technically feasible."¹⁰ Section 41.40 (Noise Due to Construction, Excavation Work – When Prohibited) of the LAMC prohibits construction between the hours of 9:00 P.M. and 7:00 A.M. Monday through Friday, 6:00 P.M. and 8:00 A.M. on Saturday, and at any time on Sunday (i.e., construction is allowed Monday through Friday between 7:00 A.M. to 9:00 P.M.; and Saturdays and National Holidays between 8:00 A.M. to 6:00 P.M.).

City of Los Angeles General Plan

The Noise Element of the Los Angeles City General Plan (Noise Element) provides guidance for the control of noise to protect residents, workers, and visitors from potentially adverse noise impacts. Its primary goal is to regulate long-term noise impacts to preserve acceptable noise environments for all types of land uses. The Noise Element defers regulation of temporary, point-source noises such as construction

¹⁰ In accordance with Section 112.05 (Maximum Noise Level of Powered Equipment or Powered Hand Tools), "technically feasible" means that the established noise limitations can be complied with at a project site, with the use of mufflers, shields, sound barriers, and/or other noise reduction devices or techniques employed during the operation of equipment.

activities to the City's Municipal Code Noise Ordinance. With regard to long-term noise impacts, the Noise Element contains stated goals, objectives, policies, and implementation programs for noise control.

Goal: A city where noise does not reduce the quality of urban life.

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

Policy 2.2: Enforce and/or implement applicable city, state and federal regulations intended to mitigate proposed noise producing activities, reduce intrusive noise and alleviate noise that is deemed a public nuisance.

Objective 3: Reduce or eliminate nonairport related intrusive noise, especially relative to noise sensitive uses.

Policy 3.1: Develop land use policies and programs that will reduce or eliminate potential and existing noise impacts.

Implementation P5: Continue to enforce, as applicable, city, state and federal regulations intended to abate or eliminate disturbances of the peace and other intrusive noise.

Implementation P11: For a proposed development project that is deemed to have a potentially significant noise impact on noise sensitive uses, as defined by this chapter, require mitigation measures, as appropriate, in accordance with California Environmental Quality Act and city procedures.

Implementation P16: Use, as appropriate, the "Guidelines for Noise Compatible Land Use" (Exhibit I),¹ or other measures that are acceptable to the city, to guide land use and zoning reclassification, subdivision, conditional use and use variance determinations and environmental assessment considerations, especially relative to sensitive uses, as defined by this chapter, within a CNEL of 65 dB airport noise exposure areas and within a line-of-sight of freeways, major highways, railroads or truck haul routes.

4 EXISTING CONDITIONS

4.1 Existing Noise Sources

The Project Site is impacted by various noise sources. Mobile sources of noise, including traffic along Santa Monica Boulevard, N. McCadden Place, and N. Las Palmas Avenue are the most common and prominent sources of noise in the Project Site area. Other noticeable sources of noise on and near the Project Site include parking lot noise and mechanical equipment (e.g., heating, ventilation, and air conditioning [HVAC] units) operating at the Project Site and existing nearby commercial and residential uses, and other urban-related activities (e.g., idling cars/trucks, pedestrians, car radios and music playing, dogs barking, etc.).

4.2 Noise Measurements

To quantify existing ambient noise levels in the Project Site area, Kimley-Horn conducted three short-term (15-minute) measurements on August 8, 2022; see [Appendix A: Noise Data](#) for additional details regarding how the ambient noise measurements were taken.¹¹ The noise measurement sites were selected to be representative of the existing ambient noise levels at the noise-sensitive uses immediately adjacent to the Project Site. The 15-minute daytime measurements were taken between 8:45 a.m. and 9:30 a.m. Measurements of L_{eq} are considered representative of the noise levels throughout the day. The average noise levels measured at each location are listed in [Table 4: Existing Noise Measurement Locations and Measurements](#) and shown on [Exhibit 4: Noise Measurement Locations](#).

Table 4: Existing Noise Measurement Locations and Measurements

Site	Location	Measurement Period	Duration	Daytime Average L_{eq} (dBA) ¹
ST-1	Northwest corner of Lexington and N. Las Palmas	8:45 a.m.	15 min	59.4
ST-2	Southwest corner of N. McCadden and Lexington	9:00 a.m.	15 min	63.2
ST-3	Along N. Las Palmas to the south of the Project Site	9:30 a.m.	15 min	66.7
Source: Noise measurements taken by Kimley-Horn and Associates, August 8, 2022. See Appendix A for noise measurement results.				

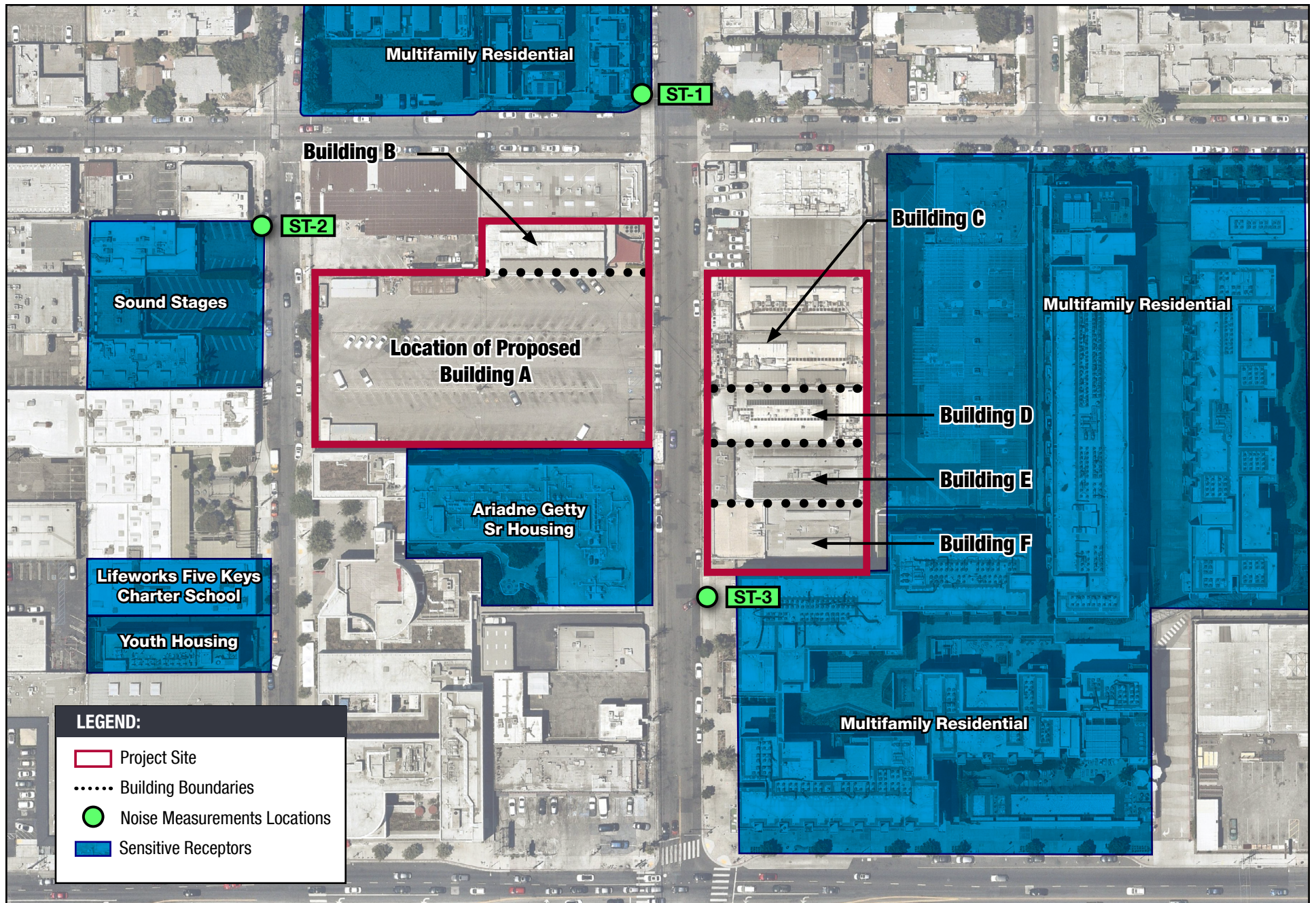
¹¹ The ambient noise measurements were taken in accordance with the City's standards, which require ambient noise to be measured over a period of at least 15 minutes; See Section 111.01 of the LAMC.

4.3 Sensitive Receptors

Noise exposure standards and guidelines for various types of land uses reflect the varying noise sensitivities associated with each of these uses. Residences, hospitals, schools, guest lodging, libraries, and churches are treated as the most sensitive to noise intrusion and therefore have more stringent noise exposure targets than do other uses, such as manufacturing or agricultural uses. Sensitive receptors near the Project Site are shown in Table 5: Sensitive Receptors (see Exhibit 3, Noise Measurement Locations and Noise-sensitive Land Uses), along with the Noise Measurement Location that represents each sensitive receptor.

Table 5: Sensitive Receptors

Receptor Description	Distance ¹ and Direction from the Project
Ariadne Getting Senior Housing (represented by noise measurement ST-3)	Adjacent to the south
Lifeworks Five Keys Charter School (represented by noise measurement ST-2)	110 feet to the southwest
Sound Stages (represented by noise measurement ST-2)	40 feet to the west
Youth Housing (represented by noise measurement ST-2)	160 feet to the southwest
Multi-Family Residential (represented by noise measurement ST-1)	100 feet to the north
Multi-Family Residential ² (represented by noise measurement ST-3)	Adjacent to the south
Multi-Family Residential ² (represented by noise measurement ST-3)	150 feet to the east
Source: Google Earth, 2022.	
1. Distance measured from the property line of the Project Site to the nearest receptor property line.	
2. Measured from the Project Site on the east side of N. Las Palmas Avenue.	



Source: Nearmap, 2022

Exhibit 3: Noise Measurement Locations
1151 Las Palmas

5 SIGNIFICANCE CRITERIA AND METHODOLOGY

5.1 CEQA Thresholds

Appendix G of the California Environmental Quality Act (CEQA) Guidelines contains analysis guidelines related to noise impacts. These guidelines have been used by the City to develop thresholds of significance for this analysis. A project would create a significant environmental impact if it would:

- Generate 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;
- Generate excessive ground-borne vibration or ground-borne noise levels; and
- 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, expose people residing or working in the Project area to excessive noise levels.

Construction Noise

On-Site Construction. Noise due to construction is regulated under Section 41.40 of the LAMC, which prohibits construction noise between the hours of 9:00 P.M. and 7:00 A.M. Monday through Friday, on Saturday before 8:00 A.M. and after 6:00 P.M., and at any time on Sunday or a national holiday.¹² In addition, Section 112.05 of the LAMC limits noise from construction equipment located within 500 feet of a residential zone to 75 dBA (between 7:00 A.M. and 10:00 P.M.), measured at a distance of 50 feet from the source, unless compliance with this limitation is technically infeasible.¹³

Off-Site Construction. In accordance with Section 114.02, the operation of motor driven vehicles upon any property within the City that causes the noise level on the premises of any occupied residential property to exceed the ambient noise level by more than 5 dBA is considered a noise violation.

Operational Noise

On-Site Operations. With respect to on-site operational noise, the significance criteria used in the noise analysis is an increase in the ambient noise level of 5 dBA (hourly L_{eq}) at the noise-sensitive uses, in accordance with the City of Los Angeles CEQA Thresholds Guide (Noise Regulations).¹⁴

Off-Site Operations. The Noise Regulations do not apply to off-site traffic (i.e., vehicles traveling on public roadways). Therefore, the City has determined to assess the significance of the Project's off-site traffic noise based on whether the Project creates, or contributes to, an increase in the ambient noise level of 3 dBA in CNEL if the noise levels fall within the "normally unacceptable" or "clearly unacceptable"

¹² Los Angeles Municipal Code, Section 41.40, https://codelibrary.amlegal.com/codes/los_angeles/latest/lamc/0-0-0-128777#JD_41.40.

¹³ In accordance with the City of Los Angeles Noise Regulations (Los Angeles Municipal Code, Section 112.05), "technically infeasible" means that said noise limitations cannot be complied with despite the use of mufflers, shields, sound barriers, and/or other noise reduction devices or techniques during the operation of the equipment.

¹⁴ City of Los Angeles, L.A. CEQA Thresholds Guide, 2006

category, as specified in the City's Noise Element, or an increase of 5 dBA in CNEL if the noise levels fall within the "conditionally acceptable" or "normally acceptable" category at noise-sensitive uses.

Composite Operational Noise. In addition, the City has determined to assess the significance of the Project's composite noise levels (on-site and off-site sources) based on whether the Project's composite noise levels create an increase in the ambient noise level of 3 dBA or 5 dBA in CNEL (depending on where in the acceptable/unacceptable categories the noise levels fall) at noise-sensitive uses.

Vibration

Structural Damage Heavy construction equipment (e.g., a large bulldozer) would generate a vibration level of up to 0.089 inch/second Peak Particle Velocity (PPV) at a distance of 50 feet from the equipment.¹⁵ With respect to potential building damage, FTA provides potential building damage criteria varies from 0.12 PPV (inch/second) for buildings that are extremely susceptible to vibration to 0.50 PPV (inch/second) for reinforced-concrete, steel or timber buildings.¹⁶ There is one historic building located on the east side of N. Las Palmas. This evaluation uses the FTA architectural damage criterion for continuous vibrations of 0.12 in/sec for this historic building (buildings extremely susceptible to vibration damage) and 0.2 in/sec peak particle velocity (PPV) at non-engineered timber and masonry buildings for all other adjacent structures.

Human Annoyance. In accordance with FTA guidance for human annoyance, a threshold of 0.04 in/sec PPV is utilized in this analysis.¹⁷

5.2 Methodology

Construction

Construction noise levels were based on typical noise levels generated by construction equipment published by the FTA and FHWA. Construction noise is assessed in dBA L_{eq} . This unit is appropriate because L_{eq} can be used to describe noise level from operation of each piece of equipment separately, and levels can be combined to represent the noise level from all equipment operating during a given period.

Reference noise levels are used to estimate operational noise levels at nearby sensitive receptors based on a standard noise attenuation rate of 6 dB per doubling of distance (line-of-sight method of sound attenuation for point sources of noise). Noise level estimates do not account for the presence of intervening structures or topography, which may reduce noise levels at receptor locations. Therefore, the noise levels presented herein represent a conservative, reasonable worst-case estimate of actual temporary construction noise.

¹⁵ Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual, 2018, Table 7-4, www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf

¹⁶ Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual, 2018, Table 7-5, www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf

¹⁷ Ibid

Operations

The analysis of the Existing and Existing Plus Project noise environments is based on noise prediction modeling and empirical observations. Reference noise level data are used to estimate the Project operational noise impacts from stationary sources. Noise levels were collected from published sources from similar types of activities and used to estimate noise levels expected with the Project's stationary sources. The reference noise levels are used to represent a worst-case noise environment as noise level from stationary sources can vary throughout the day. Operational noise is evaluated based on the standards within the City's noise standards.

Vibration

Ground-borne vibration levels associated with construction activities for the Project were evaluated utilizing typical ground-borne vibration levels associated with construction equipment, obtained from FTA published data for construction equipment. Potential ground-borne vibration impacts related to building/structure damage and interference with sensitive existing operations were evaluated, considering the distance from construction activities to nearby land uses and typically applied criteria for structural damage and human annoyance.

6 POTENTIAL IMPACTS AND MITIGATION

6.1 Acoustical Impacts

Threshold 6.1 Would the Project generate 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?

Construction

On-Site Construction Noise

On the west side of N. Las Palmas Avenue, the Project proposes to construct and operate a creative office building with a three-level subterranean garage in place of the existing surface parking lot located at 1139-1149 N. Las Palmas Avenue and to remodel and expand the existing building at 1155 N. Las Palmas. On the east of N. Las Palmas Avenue, the Project proposes to retain the four existing buildings located 1128 to 1146 N. Las Palmas Avenue with only minor interior changes that would not require the use of heavy-duty equipment such as forklifts or excavators, but would not alter or modify the existing structures or change existing uses. . Any noise associated with future interior renovations would not result in substantial levels of construction noise. Therefore, the following construction noise analysis is limited to the portion of the Project Site located on the west side of N. Las Palmas Avenue.

Construction noise typically occurs intermittently and varies depending on the nature or phase of construction (e.g., land clearing, grading, excavation). Noise generated by construction equipment, including earth movers and material handlers, can reach high levels. During construction, exterior noise levels could affect noise-sensitive uses near the construction site. Construction activities would include demolition, excavation and grading, building construction, architectural coating, and exterior renovations. Noise levels associated with individual construction equipment to be used during Project construction and renovation are listed in Table 6: Project Construction Equipment Noise Levels.¹⁸

It should be noted that the values shown in Table 6 are for the equipment when operating at full power. Construction noise was calculated accounting for each piece of equipment's usage factor, or fraction of time that the equipment would be in use at full power over a specific period of time.¹⁹ Other primary sources of acoustical disturbance may include random incidents, which would last less than one minute (such as dropping of materials or the hydraulic movement of machinery lifts). It should also be noted that due to the constraints of the Project Site and standard construction practices, only a limited amount of equipment can operate on the Project Site at a particular time. Following the FTA's methodology for quantitative construction noise assessments, construction noise was predicted at the nearest noise-sensitive receptors consistent with the Federal Highway Administration's (FHWA's) Roadway Construction Noise Model (RCNM) and the methodologies in the FTA *Transit Noise and Vibration Impact Assessment Manual*.²⁰ Following FTA methodology, when calculating construction noise, all equipment is assumed to operate at the center of the Project Site, as equipment would operate throughout the Project Site and not

¹⁸ Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, September 2018.

¹⁹ Ibid.

²⁰ Ibid.

at a fixed location for extended periods of time.²¹ Therefore, the distance used in the RCNM model was measured from the center of the Project construction area.

Table 6: Project Construction Equipment Noise Levels

Construction Phase	Equipment	Typical Noise Level (dBA L _{max}) at 50 feet from Source	Usage Factor (%)
Demolition	Backhoe	78	40
Foundation/Concrete Pour A*	Pump	81	50
	Backhoe	78	40
	Forklift	61	40
Foundation/Concrete Pour B*	Backhoe	78	40
	Crane	81	16
	Forklift	61	40
Grading/Excavation	Excavator	81	40
	Backhoe	78	40
	Front End Loader	79	40
	Dump Truck	77	40
Building Construction A*	Crane	81	16
	Forklift	61	40
	Backhoe	78	40
Building Construction B*	Crane	81	16
	Air Compressor	78	40
	Forklift	61	40
Building Construction C*	Pump	81	50
Architectural Coating	Air Compressor	78	40
	Scissor/Boom Lift	75	20
Source: Federal Highway Association, Roadway Construction Noise Model, User Guide 2005, Source for Forklift Noise level: Warehouse & Forklift Workplace Noise Levels, The Main Noise Exposed SEG – Forklift Drivers, https://www.noisetesting.info/blog/warehouse-forklift-workplace-noise-levels/, Accessed December 2022. * Noise levels were predicted for multiple concrete pouring and building construction scenarios due to days where differing equipment mixes would occur (e.g., instances where certain types of equipment such as cranes and concrete pumps would not be operated at the same time).			

Table 7: Project Construction Noise Levels shows the estimated maximum exterior construction noise levels at the nearest receptors to the Project Site.²² See Appendix A for predicted construction noise for each individual construction phase.

²¹ Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, September 2018.

²² For predicted construction noise levels for all construction phases, see [Appendix A](#).

Table 7: Project Construction Noise Levels

Receptor	Maximum Noise Level at Receptor Property Line (L_{eq}) ^{1, 2}	Noise Threshold at 50 feet ($dBA L_{eq}$) ²	Exceeded?
Ariadne Getty Sr Housing (S)	74.8	75	No
Lifeworks Five Keys Charter School (W)	54.4		No
Sound Stages (W)	68.8		No
Youth Housing (W)	64.7		No
Multifamily Residential (N)	63.8		No
Multifamily Residential (S)	65.5		No
Multifamily Residential (E)	61.3		No
1. Per the methodology described in the FTA Noise and Vibration Manual (September 2018), distance is measured from the property line of the receptor to the center of the Project construction site (the portion of the Project Site on the west side of Las Palmas Avenue). 2. Section 112.05 of the LAMC sets a maximum noise level for each piece of construction equipment of 75 dBA at a distance of 50 feet when operated within 500 feet of a residential zone. This analysis conservatively assumes that multiple pieces of equipment would operate simultaneously. Therefore, the noise levels from the center of the Project Site to the property lines of the nearest sensitive receptors have been calculated.			
Source: Federal Highway Administration, <i>Roadway Construction Noise Model</i> , 2006. Refer to Appendix A for noise modeling results for each construction phase.			

As shown in [Table 7](#), Project construction noise would not exceed the LAMC Section 112.05 significance criterion of 75 dBA L_{eq} . In addition, construction-related noise would be temporary and would not result in a permanent increase in ambient noise levels in the area. Construction activities would also be prohibited between the hours of 9:00 p.m. and 7:00 a.m. Monday through Friday and 6:00 p.m. to 8:00 a.m. on Saturdays, and at any time on Sunday. The City's permitted hours of construction are required in recognition that construction activities undertaken during daytime hours are a typical part of living in an urban environment and do not cause a significant impact. For all of these reasons, the Project would not result in the generation of a substantial temporary 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 during construction. Construction noise impacts would be less than significant and no mitigation measures are required.

Off-Site Construction Noise

In addition to on-site construction noise, the Project would generate mobile noise from delivery/haul trucks and construction workers traveling to and from the Project Site during the Project's construction. According to the Transportation Assessment prepared by Kimley-Horn in December 2022, haul trucks would travel to and from the Project Site using N. Las Palmas and Santa Monica Boulevard.²³ Construction trucks and construction workers are expected to arrive at the Project Site before construction starts and leave when construction ends, and thus, would not overlap with the Project's construction equipment. In addition, construction workers would come from various directions to the Project Site. According to modeling assumptions included in the air quality and greenhouse gas assessment prepared by Kimley-Horn in December 2022, there would be up to 102 daily haul truck trips accessing the Project Site during the grading/excavation phase and 10 employee trips. The estimated noise level due to grading trips plus existing traffic along N. Las Palmas Avenue and Santa Monica Boulevard would be 61.7 dBA CNEL and 71.3

²³ Kimley-Horn, 1151 N. Las Palmas Transportation Assessment, December 2022

dBa CNEL, respectively. When compared to the existing traffic noise levels of 60.6 dBA CNEL along N. Las Palmas and 71.2 dBA CNEL along Santa Monica Boulevard east of N. Las Palmas, the Project plus existing traffic would result in increases of 1.1 dBA CNEL and 0.1 dBA CNEL along N. Las Palmas and Santa Monica Boulevard, respectively. These increases in traffic noise would be below the 5-dBA significance criterion. The Project would not result in the generation of a substantial temporary 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 during construction. Therefore, the Project's potential off-site construction traffic noise impacts would be less than significant, and no mitigation measures are required.

Operations

On the west side of N. Las Palmas Avenue, the Project proposes to construct and operate a creative office building with a three-level subterranean garage in place of the existing surface parking lot and to renovate an existing building, expand its ground-floor by 695 square feet and change its warehouse use to office and retail use. The Project also proposes to retain the buildings located on the east of N. Las Palmas and would not alter or modify the existing structures or change existing uses. Therefore, the following operational noise analysis is limited to the portion of the Project Site located on the west side of N. Las Palmas.

The primary noise sources associated with the proposed Project would include -parking/vehicle access and trash/recycling pickup, open space/decks, and mechanical equipment.

On-Site Parking/Vehicle Access and Trash/Recycling Pickup

All parking associated with the Project would be enclosed within the Project building and/or be located on subterranean levels and, as such, would be completely shielded from sensitive receptors. Similarly, trash/recycling pick-up would occur within appropriate parking levels and noise generated by their activities would also be shielded from sensitive receptors. Therefore, typical sound levels from parking lot activities (e.g., a car door slamming, engine starting up, and car pass-bys) and trash/recycling pick up would be shielded from nearby receptors. Noise levels generated by Project parking, vehicle access, and trash/recycling pickup would not result in the generation of a substantial 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. Impacts would be less than significant, and no mitigation measures are required.

On-Site Mechanical Equipment Noise

The Project would include rooftop mechanical equipment that would be shielded by architectural features of the building. Mechanical equipment (e.g., HVAC equipment) typically generates noise levels of approximately 52 dBA at 50 feet.²⁴ Pursuant to LAMC Section 112.02 (Air Conditioning, Refrigeration, Heating, Pumping, Filtering Equipment), the operation of any air conditioning, refrigeration, or heating equipment shall not create any noise which would cause the noise level of another occupied property to exceed the ambient noise level by more than 5 dBA. Rooftop mechanical equipment would be positioned as close as 75 feet from the senior housing located to the south of the Project Site, and at greater distances

²⁴ Elliott H. Berger, Rick Neitzel, and Cynthia A. Kladden, *Noise Navigator Sound Level Database with Over 1700 Measurement Values*, July 6, 2010

on the north building from its nearest receptor to the north of Lexington Avenue. At 75 feet away, mechanical equipment noise would attenuate to 48.5 dBA. Existing ambient noise levels at the nearest noise-sensitive land use was measured at 66.7 dBA Leq (see [Table 8, Mechanical Noise Levels](#)). Therefore, mechanical equipment noise levels would not increase ambient noise levels beyond the acceptable levels (5 dBA over ambient). Project mechanical equipment would not result in the generation of a substantial 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. Therefore, the proposed Project would result in a less than significant noise impacts related to the operation of on-site mechanical equipment and no mitigation measures are required.

Table 8: Mechanical Noise Levels

Receptor	Distance to Receptor (feet) ¹	Level at Receptor (dBA) ²	Ambient Level (dBA) ³	Combined Noise at Receptor (dBA)	Incremental Increase (dBA)	Incremental Increase Threshold (dBA)	Significant?
Ariadne Getty Sr Housing (S)	75	48.5	66.7	66.8	0.1	5.0	No
Lifeworks Five Keys Charter School (W)	180	40.9	63.2	63.2	0.0	5.0	No
Sound Stages (W)	100	46.0	63.2	63.3	0.1	5.0	No
Youth Housing (W)	235	38.6	63.2	63.2	0.0	5.0	No
Multifamily Residential (N)	185	40.6	59.4	59.5	0.1	5.0	No
Multifamily Residential (S)	200	40.0	66.7	66.7	0.0	5.0	No
Multifamily Residential (E)	250	38.0	66.7	66.7	0.0	5.0	No
- Distance estimated using location of rooftop equipment as indicated on Roof Plan. - Distance attenuation calculated assuming reference noise level of 52 dBA Leq at 50 feet: Source for reference level: Elliott H. Berger, Rick Neitzel, and Cynthia A. Kladden, <i>Noise Navigator Sound Level Database with Over 1700 Measurement Values</i>, July 6, 2010. - See Table 4 and Table 5 for representative ambient noise levels.							

Open Space/Decks

The Project would include several outdoor terraces for occupants in the offices. Per Project Design Features (PDF Noise-1), no amplified music would be allowed in any of the outdoor spaces and the terraces are designed so that users would be dispersed throughout the outdoor areas and would not create a concentrated noise source. Noise from female adults and male adults talking at a raised level is approximately 63 dBA and 65 dBA, respectively, at a distance of 3 feet.²⁵ For this analysis, it is assumed that each outdoor space would be at full capacity and that half of the visitors would be male and half female. Of the adults, half would be talking simultaneously (assuming approximately half of the occupants talking and the other half listening). According to the California Fire Code Section 1004, Table 1004.5, *Maximum Floor Area Allowances per Occupant*, the occupancy load for business areas is 150 square feet per occupant.

The Project would provide both covered and uncovered open space areas for a total of 22,056 square feet of private open space.

²⁵ American Journal of Audiology Vol.7 21-25 October 1998. doi:10.1044/1059-0889(1998/012).

- **Deck:** An outdoor deck would be located on the northern side of the new building, open to the north. The east, south, and west sides of the deck would be shielded by the building itself. As such, deck noise was calculated for the residential receptors to the north only.
- **Western Façade:** Three outdoor balcony areas would be located on the west façade of the building, one on each floor. Each of these balconies would not include sufficient space for large gatherings. Receptors to the west and northwest would have direct line of sight to these balconies. The receptors to the north, east and southeast would be shielded from noise generated on the west side of the new building. Although the receptors to the south would also be shielded, noise generated at these balconies has been calculated as a conservative measure.
- **Eastern Façade:** Two outdoor balcony areas would be located on the east façade of the building, on the second and third floors. Each of these balconies would not include sufficient space for large gatherings. Receptors to the northeast and southeast would have direct line of sight of these balconies. The receptors to the west would be shielded from noise generated on the east side of the new building. Although the receptors to the east and south would also be shielded, noise generated at these balconies has been calculated as a conservative measure.
- **Retail courtyard:** A retail courtyard would be located along Las Palmas Avenue to the north of the new building. The receptors to the west, south, and east would be shielded from noise generated at the courtyard by existing buildings. However, receptors to the northeast would have direct line of sight of this space.

Open space noise has been calculated for the total amount of private open space and attenuated based on the distance of each receptor with line of sight to at least one space to the boundary of the open space area. As indicated in Table 9, Outdoor Open Space Noise Levels, noise levels from outdoor open spaces would not increase ambient noise levels beyond the acceptable levels (5 dBA over ambient pursuant to the City's Noise Regulations). Project open space areas would not result in the generation of a substantial 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. Therefore, the Project would result in a less than significant impact due to noise from outdoor open space and no mitigation measures are required.

Table 9: Outdoor Open Space Noise Levels

Receptor	Distance to Receptor (feet) ¹	Combined Open Space Level at Receptor (dBA)	Ambient Level (dBA) ²	Combined Noise at Receptor (dBA)	Incremental Increase (dBA)	Incremental Increase Threshold (dBA)	Significant?
Ariadne Getty Sr Housing (S)	25	48.3	66.7	66.8	0.1	5.0	No
Lifeworks Five Keys Charter School (W)	120	32.5	63.2	63.2	0.0	5.0	No
Sound Stages (W)	50	40.1	63.2	63.2	0.0	5.0	No
Youth Housing (W)	180	29.0	63.2	63.2	0.0	5.0	No
Multifamily Residential (N)	150 - 200	38.1	59.4	59.4	0.0	5.0	No
Multifamily Residential (S)	130	30.0	66.7	66.7	0.0	5.0	No
Multifamily Residential (E)	200	26.3	66.7	66.7	0.0	5.0	No

1. Distance measured from open space boundary to receptor property line.
2. See Table 3 and Table 4 for representative ambient noise levels.

Off-Site Traffic Noise

Implementation of the Project would generate increased traffic volumes along nearby roadway segments. According to the Transportation Assessment prepared by Kimley Horn (December 2, 2022), the proposed Project would generate 925 additional daily trips that would result in noise increases on Project Site area roadways. Traffic noise levels for roadways primarily affected by the Project were calculated using the FHWA's Highway Noise Prediction Model (FHWA-RD-77-108). Traffic noise modeling was conducted for conditions with and without the Project, based on traffic volumes from the Transportation Assessment. As shown in Table 10: Existing and Project Traffic Noise Levels, Existing Plus Project traffic-generated noise levels on Project Site area roadways would range between 61.3 dBA CNEL and 71.2 dBA CNEL at 100 feet from the roadway centerline, and the Project would result in a maximum increase of 0.7 dBA CNEL along N. Las Palmas Avenue. Increases in traffic noise would not result in increases beyond acceptable levels (see Thresholds section above). Therefore, impacts would be less than significant.

Table 10: Existing and Project Traffic Noise Levels

Roadway Segment	Existing		Existing Plus Project		Project Change from Existing Conditions	Significant Impact?
	ADT	dBA CNEL ¹	ADT	dBA CNEL ¹		
Santa Monica Boulevard						
Between Highland and N. Las Palmas	47,083	71.1	47,379	71.1	0.0	No
Between N. Las Palmas and Seward	47,726	71.2	47,976	71.2	0.0	No
N. Las Palmas						
Between Lexington and Santa Monica	5,733	60.6	6,658	61.3	0.7	No

ADT = average daily trips; dBA = A-weighted decibels; CNEL= Community Equivalent Noise Level

1. Traffic noise levels are at 100 feet from the roadway centerline.

Source: Based on traffic data provided by Kimley-Horn and Associates, Inc., December 2022. Refer to Appendix A for traffic noise modeling results.

Composite Noise

An evaluation of the Project's composite noise levels, including all Project-related noise sources plus the existing ambient level, was conducted to identify the potential maximum Project-related noise level increase that may occur at noise-sensitive receptor locations. The overall sound environment of the areas surrounding the Project Site would include contributions from each on-site and off-site noise source associated with the operation of the Project. On-site noise sources associated with the Project would include the use of mechanical equipment and outdoor uses. Off-site Project noise sources include on-road traffic. Table 11, Composite Noise Levels, presents the estimated composite noise from Project-related noise sources in terms of CNEL at noise sensitive receptors. As reported in Table 11, the Project would result in a maximum increase of 0.7 dBA CNEL at the residential use located to the north of the Project Site. Composite Project noise levels would be below the 5 dBA CNEL significance threshold (applicable to noise levels less than 70 dBA CNEL at residential uses). Composite operational noise levels would not result in the generation of a substantial 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. Therefore, the composite noise level impacts due to Project operation would be less than significant, and no mitigation measures are required.

Mitigation Measures: No mitigation is required.

Level of Significance: Less than significant impact.

Acoustical Assessment

Table 11: Composite Noise Levels

Receptor	Mechanical Equipment (dBA CNEL) ¹	Open Space (dBA CNEL) ¹	Project Increment Off-Site Traffic (dBA CNEL)	Combined Project Noise at Receptor (dBA CNEL)	Ambient Level (dBA CNEL) ²	Combined Project + Ambient Noise at Receptor (dBA CNEL)	Incremental Increase (dBA)	Incremental Increase Threshold (dBA)	Significant?
Ariadne Getty Sr Housing (S)	55.1	51.3	53.0	58.2	68.9	69.3	0.4	5.0	No
Lifeworks Five Keys Charter School (W)	47.5	35.4	53.0	54.2	65.6	65.9	0.3	5.0	No
Sound Stages (W)	52.6	43.0	53.0	56.1	65.6	66.1	0.5	5.0	No
Youth Housing (W)	45.2	31.9	53.0	53.7	65.6	65.9	0.3	5.0	No
Multifamily Residential (N)	47.3	41.0	53.0	54.3	61.8	62.5	0.7	5.0	No
Multifamily Residential (S)	46.6	33.0	53.0	54.0	68.9	69.0	0.1	5.0	No
Multifamily Residential (E)	44.7	29.2	53.0	53.6	68.9	69.0	0.1	5.0	No
3. Mechanical equipment assumed to operate 24 hours a day. Open spaces assumed to operate 7:00 a.m. to 10:00 p.m.									
4. See Appendix H for ambient CNEL.									

Threshold 6.2 Would the Project generate excessive ground-borne vibration or ground-borne noise levels?

Construction

On-Site Construction Vibration

Increases in ground-borne vibration levels attributable to the Project would be primarily associated with short-term construction-related activities. Project construction would have the potential to result in varying degrees of temporary ground-borne vibration, depending on the specific construction equipment used and the operations involved.

The FTA has published standard vibration velocities for construction equipment operations. In general, the FTA architectural damage criterion for continuous vibrations (i.e., 0.2 in/sec) appears to be conservative. The types of construction vibration impacts include human annoyance and building damage. Human annoyance occurs when construction vibration rises significantly above the threshold of human perception for extended periods of time. Building damage can be cosmetic or structural. Ordinary buildings that are not particularly fragile would not experience any cosmetic damage (e.g., plaster cracks) at distances beyond 30 feet. This distance can vary substantially depending on the soil composition and underground geological layer between vibration source and receiver. In addition, not all buildings respond similarly to vibration generated by construction equipment. For example, for a building that is constructed with reinforced concrete with no plaster, the FTA guidelines show that a vibration level of up to 0.50 in/sec is considered safe and would not result in any construction vibration damage and a vibration level of 0.04 in/sec is distinctly perceptible (see [Table 3](#)).²⁶

Receptors susceptible to building damage include all adjacent structures, located at approximately 10 feet from the Project Site. In addition, one historic building is located on the east side of N. Las Palmas. Receptors susceptible to human annoyance include residential receptors located at approximately 10 feet from the Project Site. This evaluation uses the FTA architectural damage criterion for continuous vibrations of 0.12 in/sec for historic buildings (buildings extremely susceptible to vibration damage) and 0.2 in/sec peak particle velocity (PPV) at non-engineered timber and masonry buildings and human annoyance criterion of 0.04 in/sec PPV in accordance with FTA guidance.²⁷

[Table 12: Typical Construction Equipment Vibration Levels](#) lists the reference vibration levels for typical construction equipment (measured at 25 feet). The ground-borne vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance. As indicated in [Table 12](#), based on FTA data, vibration velocities from typical heavy construction equipment that would be used during Project construction range from 0.003 to 0.089 in/sec PPV at 25 feet from the source of activity. Due to physical constraints of the Project Site and the required construction activity, it is assumed that small bulldozers/tractors would be operated at a distance of approximately 10 feet and large bulldozers and loaded trucks would be used at approximately 50 from the adjacent senior housing use.

²⁶ Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, September 2018.

²⁷ Ibid

Table 12: Typical Construction Equipment Vibration Levels

Equipment	Reference Level PPV at 25 Feet (in/sec)	PPV at 10 Feet (in/sec)	PPV at 50 Feet (in/sec)
Large Bulldozer	0.089	N/A*	0.0315
Loaded Trucks	0.076	N/A*	0.0269
Small Bulldozer/Tractors	0.003	0.0119	0.0011
Structural Damage Threshold	0.20	0.20	0.12
Exceeds Thresholds?	--	No	No
Human Annoyance Threshold	--	0.04	0.04
Exceeds Thresholds?	--	No	No
Source: Federal Transit Administration, <i>Transit Noise and Vibration Impact Assessment Manual</i> , September 2018.			
* Equipment not anticipated to be required at this distance.			

As shown in [Table 12](#), at these distances, construction equipment vibration velocities would be below the FTA's 0.20 and 0.12 in/sec PPV thresholds for structural damage and FTA's human annoyance threshold of 0.04 in/sec PPV. Impacts would be less than significant and no mitigation measures are required.

Off-Site Construction Vibration

With regard to construction trucks, Project construction would involve truck travel along nearby roadways, generating vibration events with each passing truck. Due to the size constraints of the Project Site, it is assumed that one truck would be arriving/leaving the Project Site at a time. According to the FTA's Transit Noise and Vibration Impact Assessment, a truck rarely creates vibration levels that exceed 70 VdB (equivalent to 0.012 inches per second PPV) when they are on roadways.²⁸ Multiple trucks traveling along the roadway would increase the frequency of vibration events but would not affect the vibration velocity experienced by receptors. Therefore, vibration impacts associated with construction of the proposed Project would be less than significant and no mitigation measures are required.

Operation

With respect to vibration-generating activities, operation of the Project would primarily involve personal automobiles used by employees, clients, and visitors accessing the subterranean parking, and occasional trucks providing deliveries of supplies. Due to the rapid drop-off rate of ground-borne vibration and the short duration of the associated events, vehicular traffic-induced ground-borne vibration is rarely perceptible beyond the roadway right-of-way, and rarely results in vibration levels that cause damage to buildings in the vicinity. According to the FTA's Transit Noise and Vibration Impact Assessment, trucks rarely create vibration levels that exceed 70 VdB (equivalent to 0.012 inches per second PPV) when they are on roadways.²⁹ Therefore, operation of the Project would result in less than significant ground-borne vibration impacts no mitigation is required.

Mitigation Measures: No mitigation is required.

²⁸ Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, September 2018.

²⁹ Ibid.

Level of Significance: Less than significant impact.

Threshold 6.3 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?

The Project Site is located approximately 7.5 miles south of the Hollywood-Burbank Airport and is not located within the Planning Boundary/Influence Area of the Hollywood-Burbank Airport. The Project Site is not located within an existing or projected noise contour associated with any private or public airport. Therefore, no impacts would occur, and no mitigation measures are required

Mitigation Measures: No mitigation is required.

Level of Significance: No impact.

6.2 Cumulative Noise Impacts

Cumulative Construction Noise

The Project's construction activities would not result in a substantial temporary increase in ambient noise levels. Construction noise would be periodic and temporary noise impacts that would cease upon completion of construction activities. The Project would contribute to other proximate construction project noise impacts if construction activities were conducted concurrently. However, there are no related projects located within 500 feet of the Project Site that could be under construction at the same time as the Project. Moreover, based on the Project-level noise analysis above, the Project's construction-related noise impacts would be less than significant.

Moreover, construction activities at other planned and approved projects near the Project Site would be required to comply with applicable City rules related to noise and would take place during daytime hours on the days permitted by the applicable Municipal Code, and projects requiring discretionary City approvals would be required to evaluate construction noise impacts, comply with the City's standard conditions of approval, and implement mitigation, if necessary, to minimize noise impacts. Construction noise impacts are by nature localized. Based on the fact that noise dissipates as it travels away from its source, noise impacts would be limited to the Project Site and vicinity. Therefore, Project construction would not result in a cumulatively considerable contribution to significant cumulative impacts, assuming such a cumulative impact existed, and impacts in this regard are not cumulatively considerable.

Cumulative Operational Noise

Cumulative Off-Site Traffic Noise. Cumulative noise impacts describe how much noise levels are projected to increase over existing conditions with the development of the proposed Project and other foreseeable projects. Cumulative noise impacts generally occur as a result of increased traffic on local roadways due to buildout of the proposed Project and other projects in the vicinity. However, the Project would result in a minimal traffic noise increase (less than 1.0 dBA) along local roadways. Therefore, the proposed Project's contribution would not be cumulatively considerable.

Cumulative Stationary Noise. Stationary noise sources of the Project would result in an incremental increase in non-transportation noise sources in the Project Site vicinity. However, as discussed above, operational noise caused by the Project would be less than significant. Similar to the Project, other planned and approved projects would be required to mitigate for stationary noise impacts at nearby sensitive receptors, if necessary. As stationary noise sources are generally localized, there is a limited potential for other projects to contribute to cumulative noise impacts.

No known past, present, or reasonably foreseeable projects would combine with the operational noise levels generated by the Project to increase noise levels above acceptable standards because each project must comply with applicable City regulations that limit operational noise. Therefore, the Project, together with other projects, would not create a significant cumulative impact, and even if there were such a significant cumulative impact, the Project would not make a cumulatively considerable contribution to significant cumulative operational noises.

Given that noise dissipates as it travels away from its source, operational noise impacts from on-site activities and other stationary sources would be limited to the Project Site and vicinity. Thus, cumulative

operational noise impacts from related projects, in conjunction with Project specific noise impacts, would not be cumulatively significant.

Mitigation Measures: No mitigation is required.

Level of Significance: Less than significant impact.

7 REFERENCES

1. California Department of Transportation, *California Vehicle Noise Emission Levels*, 1987.
2. California Department of Transportation, *Traffic Noise Analysis Protocol*, 2011.
3. California Department of Transportation, *Technical Noise Supplement to the Traffic Noise Analysis Protocol*, 2013.
4. California Department of Transportation, *Transportation Related Earthborne Vibrations*, 2002.
5. California Department of Transportation, *Transportation and Construction Vibration Guidance Manual*, 2013.
6. California Department of Transportation, *Transportation and Construction Vibration Guidance Manual*, 2020
7. City of Los Angeles, *General Plan Noise Element*, 1999
8. City of Los Angeles, *Municipal Code*, 2022
9. Elliott H. Berger, Rick Neitzel, and Cynthia A. Kladden, *Noise Navigator Sound Level Database with Over 1700 Measurement Values*, July 6, 2010
10. Environmental Health Perspectives, *Vehicle Motion Alarms: Necessity, Noise Pollution, or Both?* <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3018517/>, accessed September 2022.
11. Federal Highway Administration, *Noise Fundamentals*, 2017.
12. Federal Highway Administration, *Roadway Construction Noise Model*, 2006.
13. Federal Highway Administration, *Roadway Construction Noise Model User's Guide Final Report*, 2006.
14. Federal Interagency Committee on Noise, *Federal Agency Review of Selected Airport Noise Analysis Issues*, 1992.
15. Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, 2018
16. James P. Cowan, *Handbook of Environmental Acoustics*, 1994
17. United States Environmental Protection Agency, *Protective Noise Levels (EPA 550/9-79-100)*, 1979.

Appendix A

NOISE DATA

Noise Measurement Field Data

Project:	Las Palmas	Job Number:	N/A
Site No.:	ST-1, ING-021	Date:	8/8/2022
Analyst:	Simran Singh, Ryan Callahan	Time:	8:45am
Location:	Lexington and N Las Palmas Avenue		
Noise Sources:	Street Traffic, pedestrians, construction noise		
Comments:			
Results (dBA):			
	Leq:	Lmin:	Lmax:
	59.4	49.9	68.3
			Peak:
			100.9

Equipment	
Sound Level Meter:	LD SoundExpert LxT
Calibrator:	CAL200
Response Time:	Slow
Weighting:	A
Microphone Height:	5 feet

Weather	
Temp. (degrees F):	74
Wind (mph):	3
Sky:	Clear
Bar. Pressure:	29.84 Hg
Humidity:	64%

Photo:



Summary

File Name Ing.021.s
File Name LxTse_0005586-20220808 084718-Ing.021.ldbin
Serial Number 0005586
Model SoundExpert® LxT
Firmware 2.404
User
Location
Job Description
Note

Measurement

Description
Start 2022-08-08 08:47:18
Stop 2022-08-08 09:02:18
Duration 00:15:00.0
Run Time 00:15:00.0
Pause 00:00:00.0

Pre-Calibration 2022-08-08 08:46:28
Post-Calibration None
Calibration ---

Overall Settings

RMS Weighting A Weighting
Peak Weighting A Weighting
Detector Slow
Preamplifier PRMLxT1L
Microphone Off
Integration Linear
OBA Range Normal
OBA Band 1/1 and 1/3
OBA Frequency A Weighting
OBA Maximum At LMax
Overload 122.6 dB

	A	C	Z
Under Range	79.2	76.2	81.2 dB
Under Range	25.3	26.0	31.8 dB
Noise Floor	16.2	16.9	22.6 dB

First Second Third
Instrument Kimley-Horn & Associates, Inc. 7001.939.1030

Results

LAeq 59.4 dB
 LAE 88.9 dB
 EA 87.096 $\mu\text{Pa}^2\text{h}$
 LApeak (max) 2022-08-08 08:47:39 100.9 dB
 LASmax 2022-08-08 08:58:54 68.3 dB
 LASmin 2022-08-08 09:01:28 49.9 dB
 SEA -99.9 dB

	Exceedance Counts	Duration
LAS > 85.0	0	0.0 s
LAS > 115.0	0	0.0 s
LApeak > 115.0	0	0.0 s
LApeak > 110.0	0	0.0 s
LApeak > 105.0	0	0.0 s

Community	Ldn 7:00-22:00	Ldn 22:00-07:00	Lden 7:00-19:00	Lden 19:00-22:00
	59.4	59.4	-99.9	59.4

LCeq 70.3 dB
 LAeq 59.4 dB
 LCeq - LAeq 10.9 dB
 LAleq 61.3 dB
 LAeq 59.4 dB
 LAleq - LAeq 1.9 dB

	A		C		Z	
	dB	Time Stamp	dB	Time Stamp	dB	Time Stamp
Leq	59.4		70.3			
LS(max)	68.3	2022/08/08 8:58:54				
LS(min)	49.9	2022/08/08 9:01:28				
LPeak(max)	100.9	2022/08/08 8:47:39				

Overload (max) 0
 Overload (int) 0.0 s
 OBA Overload (max) 0
 OBA Overload (int) 0.0 s

Statistics

LA 5.00 64.5 dB
 LA 10.00 63.1 dB
 LA 33.30 59.1 dB
 LA 50.00 57.2 dB
 LA 66.60 55.7 dB
 LA 90.00 52.8 dB

Calibration History

Preamp	Date	re. 1V/Pa	6.3	8.0	10.0
Direct	2019-10-29 12:18:45	-28.39	2.58	5.73	0.93
PRMLxT1L	2022-08-08 08:46:27	-28.87	61.52	56.44	58.99
PRMLxT1L	2022-07-06 11:10:13	-28.85	66.24	61.65	61.70
PRMLxT1L	2022-06-23 15:54:34	-28.71	61.31	63.79	65.28
PRMLxT1L	2022-06-22 22:50:17	-28.64	54.15	48.14	51.25
PRMLxT1L	2022-06-22 22:43:07	-28.76	59.67	55.06	52.81
PRMLxT1L	2022-06-08 07:17:43	-28.88	55.48	50.31	40.12
PRMLxT1L	2022-06-08 07:17:20	-28.84	60.76	59.26	63.14
PRMLxT1L	2022-06-02 08:06:16	-28.97	46.47	48.61	60.54
PRMLxT1L	2022-06-01 07:35:02	-28.93	71.45	61.79	60.08
PRMLxT1L	2022-05-24 10:38:18	-28.87	60.95	62.17	55.81
PRMLxT1L	2022-05-18 07:57:57	-29.33	68.37	64.17	63.26

Ldn, Lden, CNEL - Community Noise Calculators

Ldn and Lden Calculator

Start Time	Hourly Leq		
00:00	54.2	dB	✓
01:00	54.2	dB	✓
02:00	54.2	dB	✓
03:00	54.2	dB	✓
04:00	54.2	dB	✓
05:00	54.2	dB	✓
06:00	54.2	dB	✓
07:00	59.4	dB	✓
08:00	59.4	dB	✓
09:00	59.4	dB	✓
10:00	59.4	dB	✓
11:00	59.4	dB	✓
12:00	59.4	dB	✓
13:00	59.4	dB	✓
14:00	59.4	dB	✓

Leq

58.1 dB

Ldn

61.8 dB

Lden

62.5 dB

Ldn and Lden Calculator

Calculation of the Ldn (day, night) and the Lden (day, evening, night) based on 1-hour Leq measurements.

Ldn - Day Night Average Sound Level

The Ldn is the average equivalent sound level over a 24 hour period, with a penalty added for noise during the nighttime hours of 22:00 to 07:00. During the nighttime period 10 dB is added to reflect the impact of the noise.

Ldn measurements are useful for assessing the impact that road, rail, air and general industry has on the local population.

The NoiseMeters Ldn calculator accepts hourly Leq measurements and calculates the Ldn accordingly.

Lden or CNEL

The Lden (Day Evening Night Sound Level) or CNEL (Community Noise Equivalent Level) is the average sound level over a 24 hour period, with a penalty of 5 dB added for the evening hours or 19:00 to 22:00, and a penalty of 10 dB added for the nighttime hours of 22:00 to 07:00.

It is very similar in nature (and in results) to the Ldn, but with the added penalty for the evening period.

15:00	59.4	dB	✓
16:00	59.4	dB	✓
17:00	59.4	dB	✓
18:00	59.4	dB	✓
19:00	59.4	dB	✓
20:00	59.4	dB	✓
21:00	59.4	dB	✓
22:00	54.2	dB	✓
23:00	54.2	dB	✓

Our Lden or CNEL calculator takes the hourly Leq measurements and calculates the Lden (which is the same as the CNEL).

Calculate

Environmental Sound Level Meters

Hand-Held Meter



Outdoor Kits



Noise Monitors



Noise Measurement Field Data

Project:	Las Palmas	Job Number:	N/A
Site No.:	ST-2, ING-022	Date:	8/8/2022
Analyst:	Simran Singh, Ryan Callahan	Time:	9:00am
Location:	N MC Cadden and Lexington Ave		
Noise Sources:	Cars, pedestrians, construction, building operation		
Comments:			
Results (dBA):			
	Leq:	Lmin:	Lmax: Peak:
	63.2	47.1	84.1 96.4

Equipment	
Sound Level Meter:	LD SoundExpert LxT
Calibrator:	CAL200
Response Time:	Slow
Weighting:	A
Microphone Height:	5 feet

Weather	
Temp. (degrees F):	75
Wind (mph):	1 mph
Sky:	Clear
Bar. Pressure:	29.94 mmHg
Humidity:	63%

Photo:



Summary

File Name Ing.022.s
File Name LxTse_0005586-20220808 090612-Ing.022.ldbin
Serial Number 0005586
Model SoundExpert® LxT
Firmware 2.404
User
Location
Job Description
Note

Measurement

Description
Start 2022-08-08 09:06:12
Stop 2022-08-08 09:21:12
Duration 00:15:00.0
Run Time 00:15:00.0
Pause 00:00:00.0

Pre-Calibration 2022-08-08 08:46:27
Post-Calibration None
Calibration ---

Overall Settings

RMS Weighting A Weighting
Peak Weighting A Weighting
Detector Slow
Preamplifier PRMLxT1L
Microphone Off
Integration Linear
OBA Range Normal
OBA Band 1/1 and 1/3
OBA Frequency A Weighting
OBA Maximum At LMax
Overload 122.6 dB

	A	C	Z
Under Range	79.2	76.2	81.2 dB
Under Range	25.3	26.0	31.8 dB
Noise Floor	16.2	16.9	22.6 dB

Instrument Kimley-Horn & Associates, Inc. First Second Third
Kimley-Horn & Associates, Inc. 700 E. 939.1030

Results

LAeq 63.2 dB
 LAE 92.7 dB
 EA 208.930 $\mu\text{Pa}^2\text{h}$
 LApeak (max) 2022-08-08 09:17:04 96.4 dB
 LASmax 2022-08-08 09:17:05 84.1 dB
 LASmin 2022-08-08 09:14:55 47.1 dB
 SEA -99.9 dB

	Exceedance Counts	Duration
LAS > 85.0	0	0.0 s
LAS > 115.0	0	0.0 s
LApeak > 115.0	0	0.0 s
LApeak > 110.0	0	0.0 s
LApeak > 105.0	0	0.0 s

Community	Ldn 7:00-22:00	22:00-07:00	Lden 7:00-19:00	19:00-22:00
	63.2	63.2	-99.9	63.2

LCeq 74.4 dB
 LAeq 63.2 dB
 LCeq - LAeq 11.2 dB
 LAeq 66.4 dB
 LAeq 63.2 dB
 LAeq - LAeq 3.2 dB

	A		C		Z	
	dB	Time Stamp	dB	Time Stamp	dB	Time Stamp
Leq	63.2		74.4			
LS(max)	84.1	2022/08/08 9:17:05				
LS(min)	47.1	2022/08/08 9:14:55				
LPeak(max)	96.4	2022/08/08 9:17:04				

Overload (max) 0
 Overload (avg) 0.0 s
 OBA Overload (max) 0
 OBA Overload (avg) 0.0 s

Statistics

LA 5.00 68.6 dB
 LA 10.00 65.1 dB
 LA 33.30 59.3 dB
 LA 50.00 56.5 dB
 LA 66.60 54.1 dB
 LA 90.00 50.2 dB

Calibration History

Preamp	Date	re. 1V/Pa	6.3	8.0	10.0
Direct	2019-10-29 12:18:45	-28.39	2.58	5.73	0.93
PRMLxT1L	2022-08-08 08:46:27	-28.87	61.52	56.44	58.99
PRMLxT1L	2022-07-06 11:10:13	-28.85	66.24	61.65	61.70
PRMLxT1L	2022-06-23 15:54:34	-28.71	61.31	63.79	65.28
PRMLxT1L	2022-06-22 22:50:17	-28.64	54.15	48.14	51.25
PRMLxT1L	2022-06-22 22:43:07	-28.76	59.67	55.06	52.81
PRMLxT1L	2022-06-08 07:17:43	-28.88	55.48	50.31	40.12
PRMLxT1L	2022-06-08 07:17:20	-28.84	60.76	59.26	63.14
PRMLxT1L	2022-06-02 08:06:16	-28.97	46.47	48.61	60.54
PRMLxT1L	2022-06-01 07:35:02	-28.93	71.45	61.79	60.08
PRMLxT1L	2022-05-24 10:38:18	-28.87	60.95	62.17	55.81
PRMLxT1L	2022-05-18 07:57:57	-29.33	68.37	64.17	63.26

Ldn, Lden, CNEL - Community Noise Calculators

Ldn and Lden Calculator

Start Time	Hourly Leq		
00:00	58.0	dB	✓
01:00	58.0	dB	✓
02:00	58.0	dB	✓
03:00	58.0	dB	✓
04:00	58.0	dB	✓
05:00	58.0	dB	✓
06:00	58.0	dB	✓
07:00	63.2	dB	✓
08:00	63.2	dB	✓
09:00	63.2	dB	✓
10:00	63.2	dB	✓
11:00	63.2	dB	✓
12:00	63.2	dB	✓
13:00	63.2	dB	✓
14:00	63.2	dB	✓

Leq

61.9 dB

Ldn

65.6 dB

Lden

66.3 dB

Ldn and Lden Calculator

Calculation of the Ldn (day, night) and the Lden (day, evening, night) based on 1-hour Leq measurements.

Ldn - Day Night Average Sound Level

The Ldn is the average equivalent sound level over a 24 hour period, with a penalty added for noise during the nighttime hours of 22:00 to 07:00. During the nighttime period 10 dB is added to reflect the impact of the noise.

Ldn measurements are useful for assessing the impact that road, rail, air and general industry has on the local population.

The NoiseMeters Ldn calculator accepts hourly Leq measurements and calculates the Ldn accordingly.

Lden or CNEL

The Lden (Day Evening Night Sound Level) or CNEL (Community Noise Equivalent Level) is the average sound level over a 24 hour period, with a penalty of 5 dB added for the evening hours or 19:00 to 22:00, and a penalty of 10 dB added for the nighttime hours of 22:00 to 07:00.

It is very similar in nature (and in results) to the Ldn, but with the added penalty for the evening period.

15:00	63.2	dB	✓
16:00	63.2	dB	✓
17:00	63.2	dB	✓
18:00	63.2	dB	✓
19:00	63.2	dB	✓
20:00	63.2	dB	✓
21:00	63.2	dB	✓
22:00	58.0	dB	✓
23:00	58.0	dB	✓

Our Lden or CNEL calculator takes the hourly Leq measurements and calculates the Lden (which is the same as the CNEL).

Calculate

Environmental Sound Level Meters

Hand-Held Meter



Outdoor Kits



Noise Monitors



Noise Measurement Field Data

Project:	Las Palmas	Job Number:	N/A
Site No.:	ST-3, ING-023	Date:	8/8/2022
Analyst:	Simran Singh, Ryan Callahan	Time:	9:30am
Location:	Las Palmas Ave, 1126		
Noise Sources:	construction, street traffic, pedestrians, busses operation		
Comments:	Near active construction- very loud		
Results (dBA):			
	Leq:	Lmin:	Lmax:
	66.7	54.1	81.2
			Peak:
			95.6

Equipment	
Sound Level Meter:	LD SoundExpert LxT
Calibrator:	CAL200
Response Time:	Slow
Weighting:	A
Microphone Height:	5 feet

Weather	
Temp. (degrees F):	76
Wind (mph):	2
Sky:	Clear
Bar. Pressure:	29.94 mmHg
Humidity:	63%

Photo:



Summary

File Name Ing.023.s
File Name LxTse_0005586-20220808 092548-Ing.023.ldbin
Serial Number 0005586
Model SoundExpert® LxT
Firmware 2.404
User
Location
Job Description
Note

Measurement

Description
Start 2022-08-08 09:25:48
Stop 2022-08-08 09:40:48
Duration 00:15:00.0
Run Time 00:15:00.0
Pause 00:00:00.0

Pre-Calibration 2022-08-08 08:46:27
Post-Calibration None
Calibration ---

Overall Settings

RMS Weighting A Weighting
Peak Weighting A Weighting
Detector Slow
Preamplifier PRMLxT1L
Microphone Off
Integration Linear
OBA Range Normal
OBA Band 1/1 and 1/3
OBA Frequency A Weighting
OBA Maximum At LMax
Overload 122.6 dB

	A	C	Z
Under Range	79.2	76.2	81.2 dB
Under Range	25.3	26.0	31.8 dB
Noise Floor	16.2	16.9	22.6 dB

	First	Second	Third
Instrument	Kimley-Horn & Associates, Inc.	700 E. 939.1030	

Results

LAeq 66.7 dB
 LAE 96.2 dB
 EA 467.735 $\mu\text{Pa}^2\text{h}$
 LApeak (max) 2022-08-08 09:36:44 95.6 dB
 LASmax 2022-08-08 09:36:44 81.2 dB
 LASmin 2022-08-08 09:39:55 54.1 dB
 SEA -99.9 dB

	Exceedance Counts	Duration
LAS > 85.0	0	0.0 s
LAS > 115.0	0	0.0 s
LApeak > 115.0	0	0.0 s
LApeak > 110.0	0	0.0 s
LApeak > 105.0	0	0.0 s

Community	Ldn 7:00-22:00 2:00-07:00			Lden 7:00-19:00 19:00-22:00		
	LAeq	LAmax	LAmin	LAeq	LAmax	LAmin
Community	66.7	66.7	-99.9	66.7	66.7	-99.9

LCeq 74.6 dB
 LAeq 66.7 dB
 LCeq - LAeq 7.9 dB
 LAeq 68.5 dB
 LAeq 66.7 dB
 LAeq - LAeq 1.8 dB

	A		C		Z	
	dB	Time Stamp	dB	Time Stamp	dB	Time Stamp
Leq	66.7		74.6			
LS(max)	81.2	2022/08/08 9:36:44				
LS(min)	54.1	2022/08/08 9:39:55				
LPeak(max)	95.6	2022/08/08 9:36:44				

Overload (max) 0
 Overload (min) 0.0 s
 OBA Overload (max) 0
 OBA Overload (min) 0.0 s

Statistics

LA 5.00 71.1 dB
 LA 10.00 68.9 dB
 LA 33.30 64.2 dB
 LA 50.00 62.4 dB
 LA 66.60 61.2 dB
 LA 90.00 59.3 dB

Calibration History

Preamp	Date	re. 1V/Pa	6.3	8.0	10.0
Direct	2019-10-29 12:18:45	-28.39	2.58	5.73	0.93
PRMLxT1L	2022-08-08 08:46:27	-28.87	61.52	56.44	58.99
PRMLxT1L	2022-07-06 11:10:13	-28.85	66.24	61.65	61.70
PRMLxT1L	2022-06-23 15:54:34	-28.71	61.31	63.79	65.28
PRMLxT1L	2022-06-22 22:50:17	-28.64	54.15	48.14	51.25
PRMLxT1L	2022-06-22 22:43:07	-28.76	59.67	55.06	52.81
PRMLxT1L	2022-06-08 07:17:43	-28.88	55.48	50.31	40.12
PRMLxT1L	2022-06-08 07:17:20	-28.84	60.76	59.26	63.14
PRMLxT1L	2022-06-02 08:06:16	-28.97	46.47	48.61	60.54
PRMLxT1L	2022-06-01 07:35:02	-28.93	71.45	61.79	60.08
PRMLxT1L	2022-05-24 10:38:18	-28.87	60.95	62.17	55.81
PRMLxT1L	2022-05-18 07:57:57	-29.33	68.37	64.17	63.26

Ldn, Lden, CNEL - Community Noise Calculators

Ldn and Lden Calculator

Start Time	Hourly Leq		
00:00	61.5	dB	✓
01:00	61.5	dB	✓
02:00	61.5	dB	✓
03:00	61.5	dB	✓
04:00	61.5	dB	✓
05:00	61.5	dB	✓
06:00	61.5	dB	✓
07:00	66.1	dB	✓
08:00	66.1	dB	✓
09:00	66.1	dB	✓
10:00	66.1	dB	✓
11:00	66.1	dB	✓
12:00	66.1	dB	✓
13:00	66.1	dB	✓
14:00	66.1	dB	✓

Leq

64.9 dB

Ldn

68.9 dB

Lden

69.5 dB

Ldn and Lden Calculator

Calculation of the Ldn (day, night) and the Lden (day, evening, night) based on 1-hour Leq measurements.

Ldn - Day Night Average Sound Level

The Ldn is the average equivalent sound level over a 24 hour period, with a penalty added for noise during the nighttime hours of 22:00 to 07:00. During the nighttime period 10 dB is added to reflect the impact of the noise.

Ldn measurements are useful for assessing the impact that road, rail, air and general industry has on the local population.

The NoiseMeters Ldn calculator accepts hourly Leq measurements and calculates the Ldn accordingly.

Lden or CNEL

The Lden (Day Evening Night Sound Level) or CNEL (Community Noise Equivalent Level) is the average sound level over a 24 hour period, with a penalty of 5 dB added for the evening hours or 19:00 to 22:00, and a penalty of 10 dB added for the nighttime hours of 22:00 to 07:00.

It is very similar in nature (and in results) to the Ldn, but with the added penalty for the evening period.

15:00	66.1	dB	✓
16:00	66.1	dB	✓
17:00	66.1	dB	✓
18:00	66.1	dB	✓
19:00	66.1	dB	✓
20:00	66.1	dB	✓
21:00	66.1	dB	✓
22:00	61.5	dB	✓
23:00	61.5	dB	✓

Our Lden or CNEL calculator takes the hourly Leq measurements and calculates the Lden (which is the same as the CNEL).

Calculate

Environmental Sound Level Meters

Hand-Held Meter



Outdoor Kits



Noise Monitors



Summary

File Name on Meter BUR_004.s
File Name on PC LxTse_0005586-20220808 100159-BUR_004.ldbin
Serial Number 0005586
Model SoundExpert® LxT
Firmware Version 2.404
User
Location
Job Description
Note

Measurement

Description
Start 2022-08-08 10:01:59
Stop 2022-08-09 10:25:42
Duration 24:23:43.500
Run Time 24:23:38.797
Pause 00:00:04.7

Pre-Calibration 2022-08-08 10:00:22
Post-Calibration None
Calibration Deviation ---

Overall Settings

RMS Weight A Weighting
Peak Weight A Weighting
Detector Slow
Preamplifier PRMLxT1L
Microphone Correction Off
Integration Method Linear
OBA Range Normal
OBA Bandwidth 1/1 and 1/3
OBA Frequency Weighting A Weighting
OBA Max Spectrum At LMax
Overload 122.6 dB
A C Z
Under Range Peak 79.1 76.1 81.1 dB
Under Range Limit 25.3 26.0 31.7 dB
Noise Floor 16.2 16.8 22.6 dB

First Second Third
Instrument Identification Kimley-Horn & Associates, Inc. 1100 W.Town & Country Rd, 700 714.939.1030

Results

LAeq 59.9 dB
LAE 109.3 dB
EA 9.536 mPa²h
LApeak (max) 2022-08-08 12:01:28 111.0 dB
LASmax 2022-08-08 18:13:15 98.6 dB
LASmin 2022-08-09 02:46:50 49.1 dB
SEA -99.9 dB

	Exceedance Counts	Duration
LAS > 85.0 dB	6	18.4 s
LAS > 115.0 dB	0	0.0 s
LApeak > 135.0 dB	0	0.0 s
LApeak > 137.0 dB	0	0.0 s
LApeak > 140.0 dB	0	0.0 s

Community Noise	Ldn	LDay 07:00-22:00	LNight 22:00-07:00	Lden	LDay 07:00-19:00
	63.6	61.2	56.0	63.9	61.8

LCeq 69.7 dB
LAeq 59.9 dB

LCeq - LAeq 9.8 dB
 LAeq 63.7 dB
 LAeq 59.9 dB
 LAeq - LAeq 3.8 dB

	A		C		dB
	dB	Time Stamp	dB	Time Stamp	
Leq	59.9		69.7		
LS(max)	98.6	2022/08/08 18:13:15			
LS(min)	49.1	2022/08/09 2:46:50			
LPeak(max)	111.0	2022/08/08 12:01:28			

Overload Count 0
 Overload Duration 0.0 s
 OBA Overload Count 0
 OBA Overload Duration 0.0 s

Statistics

LA 5.00 62.9 dB
 LA 10.00 60.9 dB
 LA 33.30 56.9 dB
 LA 50.00 54.8 dB
 LA 66.60 53.3 dB
 LA 90.00 51.1 dB

Calibration History

Preamp	Date	dB re. 1V/Pa	6.3	8.0
Direct	2019-10-29 12:18:45	-28.39	2.58	5.73
PRMLxT1L	2022-08-08 10:00:17	-28.80	68.76	62.10
PRMLxT1L	2022-08-08 08:46:27	-28.87	61.52	56.44
PRMLxT1L	2022-07-06 11:10:13	-28.85	66.24	61.65
PRMLxT1L	2022-06-23 15:54:34	-28.71	61.31	63.79
PRMLxT1L	2022-06-22 22:50:17	-28.64	54.15	48.14
PRMLxT1L	2022-06-22 22:43:07	-28.76	59.67	55.06
PRMLxT1L	2022-06-08 07:17:43	-28.88	55.48	50.31
PRMLxT1L	2022-06-08 07:17:20	-28.84	60.76	59.26
PRMLxT1L	2022-06-02 08:06:16	-28.97	46.47	48.61
PRMLxT1L	2022-06-01 07:35:02	-28.93	71.45	61.79
PRMLxT1L	2022-05-24 10:38:18	-28.87	60.95	62.17

Measurement	Leq - day	Leq - night	CNEL
ST-1	59.4	54.2	62.5
ST-2	63.2	58.0	66.3
ST-3	66.7	61.5	69.5
LT-1	61.2	56.0	63.9

5.2

Project: Las Palmas
Construction Noise Impact on Sensitive Receptors

Parameters

Construction Hours:	Daytime hours (7 am to 7 pm)	8
	Evening hours (7 pm to 10 pm)	0
	Nighttime hours (10 pm to 7 am)	0
Leq to L10 factor		3

	Receptor (Land Use, Direction)	Distance (feet)	Shielding
1	Ariadne Getty Sr Housing (S)	100	0
2	Lifeworks Five Keys Charter School	295	0
3	Sound Stages	200	0
4	Youth Housing	320	0
5	MFR (N)	200	5
6	MFR (S)	290	0
7	MFR (E)	475	0

				RECEPTOR 1	RECEPTOR 2	RECEPTOR 3	RECEPTOR 4	RECEPTOR 5	RECEPTOR 6	RECEPTOR 7								
Construction Phase	Equipment Type	No. of Equip.	Acoustical Usage Factor	Reference Noise Level at 50ft per Unit, Lmax	Noise Level at Receptor 1, Lmax	Noise Level at Receptor 1, Leq	Noise Level at Receptor 2, Lmax	Noise Level at Receptor 2, Leq	Noise Level at Receptor 3, Lmax	Noise Level at Receptor 3, Leq	Noise Level at Receptor 4, Lmax	Noise Level at Receptor 4, Leq	Noise Level at Receptor 5, Lmax	Noise Level at Receptor 5, Leq	Noise Level at Receptor 6, Lmax	Noise Level at Receptor 6, Leq	Noise Level at Receptor 7, Lmax	Noise Level at Receptor 7, Leq
Demolition	Backhoe	1	40%	78	71.6	67.6	62.2	58.2	65.6	61.6	61.5	57.5	60.6	56.6	62.3	58.4	58.0	54.1
	Combined LEQ																	
Foundation/Concrete Pour A	Pumps	1	50%	81	74.9	71.9	65.5	62.5	68.9	65.8	64.8	61.8	63.9	60.8	65.6	62.6	61.3	58.3
	Backhoe	1	40%	78	71.6	67.6	62.2	58.2	65.6	61.6	61.5	57.5	60.6	56.6	62.3	58.4	58.0	54.1
	Forklift*	1	40%	61	55.0	51.0	45.6	41.6	49.0	45.0	44.9	40.9	44.0	40.0	45.7	41.8	41.4	37.5
	Combined LEQ					73.3		63.9		67.3		63.2		62.3		64.0		59.7
Foundation/Concrete Pour B	Backhoe	1	40%	78	71.6	67.6	62.2	58.2	65.6	61.6	61.5	57.5	60.6	56.6	62.3	58.4	58.0	54.1
	Crane	1	16%	81	74.6	66.6	65.2	57.2	68.6	60.6	64.5	56.5	63.6	55.6	65.3	57.4	61.0	53.1
	Forklift*	1	40%	61	55.0	51.0	45.6	41.6	49.0	45.0	44.9	40.9	44.0	40.0	45.7	41.8	41.4	37.5
	Combined LEQ					70.2		60.8		64.2		60.1		59.2		61.0		56.7
Grading	Excavator	1	40%	81	74.7	70.7	65.3	61.3	68.7	64.7	64.6	60.6	63.7	59.7	65.4	61.5	61.1	57.2
	Backhoe	1	40%	78	71.6	67.6	62.2	58.2	65.6	61.6	61.5	57.5	60.6	56.6	62.3	58.4	58.0	54.1
	Front End Loader	1	40%	79	73.1	69.1	63.7	59.7	67.1	63.1	63.0	59.0	62.1	58.1	63.8	59.9	59.5	55.6
	Dump Truck	1	40%	77	70.5	66.5	61.1	57.1	64.5	60.5	60.4	56.4	59.5	55.5	61.2	57.3	56.9	53.0
	Combined LEQ					74.8		65.4		68.8		64.7		63.8		65.5		61.3
Building Construction A	Crane	1	16%	81	74.6	66.6	65.2	57.2	68.6	60.6	64.5	56.5	63.6	55.6	65.3	57.4	61.0	53.1
	Forklift*	1	40%	61	55.0	51.0	45.6	41.6	49.0	45.0	44.9	40.9	44.0	40.0	45.7	41.8	41.4	37.5
	Backhoe	1	40%	78	71.6	67.6	62.2	58.2	65.6	61.6	61.5	57.5	60.6	56.6	62.3	58.4	58.0	54.1
	Combined LEQ					70.2		60.8		64.2		60.1		59.2		61.0		56.7
Building Construction B	Crane	1	16%	81	74.6	66.6	65.2	57.2	68.6	60.6	64.5	56.5	63.6	55.6	65.3	57.4	61.0	53.1
	Compressor (air)	1	40%	78	71.7	67.7	62.3	58.3	65.7	61.7	61.6	57.6	60.7	56.7	62.4	58.5	58.1	54.2
	Forklift*	1	40%	61	55.0	51.0	45.6	41.6	49.0	45.0	44.9	40.9	44.0	40.0	45.7	41.8	41.4	37.5
	Combined LEQ					70.3		60.9		64.2		60.2		59.2		61.0		56.7
Building Construction C	Pumps	1	50%	81	74.9	71.9	65.5	62.5	68.9	65.8	64.8	61.8	63.9	60.8	65.6	62.6	61.3	58.3
	Combined LEQ					71.9		62.5		65.8		61.8		60.8		62.6		58.3
Architectural Coating	Compressor (air)	2	40%	78	74.7	70.7	65.3	61.3	68.7	64.7	64.6	60.6	63.7	59.7	65.4	61.5	61.2	57.2
* Representative of scissor lift/boom lift	Man Lift	2	20%	75	71.7	64.7	62.3	55.3	65.7	58.7	61.6	54.6	60.7	53.7	62.4	55.5	58.2	51.2
	Combined LEQ					71.7		62.3		65.7		61.6		60.7		62.4		58.1
Overlapping Phases																		
Maximum Noise Level					74.8		65.4		68.8		64.7		63.8		65.5		61.3	

Source for Ref. Noise Levels: RCNM, 2005

FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels

Project Name:

Project Number:

Scenario: Existing + Construction

Ldn/CNEL: CNEL

Assumed 24-Hour Traffic Distribution:

	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

#	Roadway	Segment	Lanes	Median Width	ADT Volume	Speed (mph)	Alpha Factor	Vehicle Mix		Distance from Centerline of Roadway				
								Medium Trucks	Heavy Trucks	CNEL at 100 Feet	Distance to Contour	70 CNEL	65 CNEL	60 CNEL
1	Santa Monica Blvd	between Highland and Las Palmas	4	10	47,195	35	0	0.5%	4.6%	70.0	99	314	991	3,135
2	Santa Monica Blvd	between Las Palmas and Seward	4	10	47,838	35	0	0.5%	4.6%	70.0	100	318	1,005	3,177
3	Las Palmas	between Lexington and Santa Monica	2	0	5,845	25	0	1.0%	6.1%	61.1	-	41	129	409

¹ Distance is from the centerline of the roadway segment to the receptor location.

"-" = contour is located within the roadway right-of-way.

Project: Las Palmas
Construction Vibration Impact on Sensitive Receptors

	PPV at 25 feet (in/sec)	Calculated distance (feet)	Calculated distance (feet)
Equipment		10	50
Large bulldozer	0.089	N/A*	0.0315
Loaded trucks	0.076	N/A*	0.0269
Small bulldozer	0.003	0.0119	0.0011

* Equipment will not be used at this distance.

FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels

Project Name: Las Palmas
Project Number:
Scenario: Existing
Ldn/CNEL: CNEL

Assumed 24-Hour Traffic Distribution:

	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

#	Roadway	Segment	Lanes	Median Width	ADT Volume	Speed (mph)	Alpha Factor	Vehicle Mix		Distance from Centerline of Roadway				
								Medium Trucks	Heavy Trucks	CNEL at 100 Feet	Distance to Contour			
											70 CNEL	65 CNEL	60 CNEL	55 CNEL
1	Santa Monica Blvd	between Highland and Las Palmas	4	10	47,083	35	0	5.7%	4.4%	71.1	129	407	1,288	4,074
2	Santa Monica Blvd	between Las Palmas and Seward	4	10	47,726	35	0	5.7%	4.4%	71.2	131	413	1,306	4,130
3	Las Palmas	between Lexington and Santa Monica	2	0	5,733	25	0	5.7%	4.4%	60.6	-	37	116	366

¹ Distance is from the centerline of the roadway segment to the receptor location.

"-" = contour is located within the roadway right-of-way.

FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels

Project Name: Las Palmas
Project Number:
Scenario: Existing Plus Project
Ldn/CNEL: CNEL

Assumed 24-Hour Traffic Distribution:

	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

#	Roadway	Segment	Lanes	Median Width	ADT Volume	Speed (mph)	Alpha Factor	Vehicle Mix		Distance from Centerline of Roadway				
								Medium Trucks	Heavy Trucks	CNEL at 100 Feet	Distance to Contour			
											70 CNEL	65 CNEL	60 CNEL	55 CNEL
1	Santa Monica Blvd	between Highland and Las Palmas	4	10	47,379	35	0	5.7%	4.4%	71.1	130	410	1,297	4,100
2	Santa Monica Blvd	between Las Palmas and Seward	4	10	47,976	35	0	5.7%	4.4%	71.2	131	415	1,313	4,152
3	Las Palmas	between Lexington and Santa Monica	2	0	6,658	25	0	5.7%	4.4%	61.3	-	42	134	425

¹ Distance is from the centerline of the roadway segment to the receptor location.

"-" = contour is located within the roadway right-of-way.

Project: 1155 Las Palmas
Mechanical Equipment Noise Calculations

Receptor	Reference Level (dBA)	Reference Distance (feet) ¹	Distance to Receptor (feet) ²	Level at Receptor (dBA) ³	Ambient Level (dBA)	Combined Noise at Receptor (dBA)	Incremental Increase (dBA)	Significant?
Ariadne Getty Sr Housing (S)	52	50	75	48.5	66.7	66.8	0.1	No
Lifeworks Five Keys Charter School	52	50	180	40.9	63.2	63.2	0.0	No
Sound Stages	52	50	100	46.0	63.2	63.3	0.1	No
Youth Housing	52	50	235	38.6	63.2	63.2	0.0	No
MFR (N)	52	50	185	40.6	59.4	59.5	0.1	No
MFR (S)	52	50	200	40.0	66.7	66.7	0.0	No
MFR (E)	52	50	250	38.0	66.7	66.7	0.0	No

1. Source for reference level: Elliott H. Berger, Rick Neitzel, and Cynthia A. Kladden, *Noise Navigator Sound Level Database with Over 1700 Measurement Values*, July 6, 2010.

2. Distance estimated using location of rooftop equipment as indicated on Roof Plan

3. Calculated using the inverse square law formula for sound attenuation: $dBA_2 = dBA_1 + 20\log(d_1/d_2)$, where dBA_2 = estimated noise level at receptor; dBA_1 = reference noise level; d_1 = reference distance; d_2 = receptor location distance.

Project: 1155 Las Palmas
Open Space Noise Calculation

Deck					
Category	# of Individuals (estimated capacity)	# of Individuals Speaking (half of estimated capacity)	Reference Distance (ft) ¹	Reference Noise Level (dBA) ¹	Combined Noise Level (dBA)
Total Capacity	38				
Females (Adult)	19	10	3	55	65.0
Males (Adult)	19	10	3	58	68.0
Total	38	20	-	-	69.8

Source:

¹ American Journal of Audiology Vol. 7, p. 3 (1998)

West Balconies					
Category	# of Individuals (estimated capacity)	# of Individuals Speaking (half of estimated capacity)	Reference Distance (ft) ¹	Reference Noise Level (dBA) ¹	Combined Noise Level (dBA)
Total Capacity	12				
Females (Adult)	6	3	3	55	59.8
Males (Adult)	6	3	3	58	62.8
Total	12	6	-	-	64.5

Source:

¹ American Journal of Audiology Vol. 7, p. 3 (1998)

East Balconies					
Category	# of Individuals (estimated capacity)	# of Individuals Speaking (half of estimated capacity)	Reference Distance (ft) ¹	Reference Noise Level (dBA) ¹	Combined Noise Level (dBA)
Total Capacity	5				
Females (Adult)	3	2	3	55	58.0
Males (Adult)	3	2	3	58	61.0
Total	6	4	-	-	62.8

Source:

¹ American Journal of Audiology Vol. 7, p. 3 (1998)

Retail Courtyard					
Category	# of Individuals (estimated capacity)	# of Individuals Speaking (half of estimated capacity)	Reference Distance (ft) ¹	Reference Noise Level (dBA) ¹	Combined Noise Level (dBA)
Total Capacity	10				
Females (Adult)	5	3	3	55	59.8
Males (Adult)	5	3	3	58	62.8
Total	10	6	-	-	64.5

Source:

¹ American Journal of Audiology Vol. 7, p. 3 (1998)

Deck				
Receptor	Reference Level (dBA)	Reference Distance (feet)	Distance to Receptor (feet)	Level at Receptor (dBA) ¹
MFR (N)	69.8	3	150	35.8

West Balconies				
Receptor	Reference Level (dBA)	Reference Distance (feet)	Distance to Receptor (feet)	Level at Receptor (dBA) ¹
Ariadne Getty Sr Housing (S)	64.5	3	25	46.1
Lifeworks Five Keys Charter School	64.5	3	120	32.5
Sound Stages	64.5	3	50	40.1
Youth Housing	64.5	3	180	29.0
MFR (N)	64.5	3	200	28.1

East Balconies				
Receptor	Reference Level (dBA)	Reference Distance (feet)	Distance to Receptor (feet)	Level at Receptor (dBA) ¹
Ariadne Getty Sr Housing (S)	62.8	3	25	44.4
MFR (N)	62.8	3	180	27.2
MFR (S)	62.8	3	130	30.0
MFR (E)	62.8	3	200	26.3

Retail Courtyard				
Receptor	Reference Level (dBA)	Reference Distance (feet)	Distance to Receptor (feet)	Level at Receptor (dBA) ¹
MFR (N)	64.5	3	130	31.8

Project: 1155 Las Palmas
Composite Noise

Receptor	Mechanical Equipment (CNEL) ¹	Open Space (CNEL) ¹	Off-Site Traffic (CNEL)	Combined Noise at Receptor (dBA CNEL)	Ambient Level (dBA)	Combined Noise at Receptor (dBA Leg)	Incremental Increase (dBA)	Significant?
Ariadne Getty Sr Housing (S)	55.1	51.3	53.0	58.2	68.9	69.3	0.4	No
Lifeworks Five Keys Charter School	47.5	35.4	53.0	54.2	65.6	65.9	0.3	No
Sound Stages	52.6	43.0	53.0	56.1	65.6	66.1	0.5	No
Youth Housing	45.2	31.9	53.0	53.7	65.6	65.9	0.3	No
MFR (N)	47.3	41.0	53.0	54.3	61.8	62.5	0.7	No
MFR (S)	46.6	33.0	53.0	54.0	68.9	69.0	0.1	No
MFR (E)	44.7	29.2	53.0	53.6	68.9	69.0	0.1	No

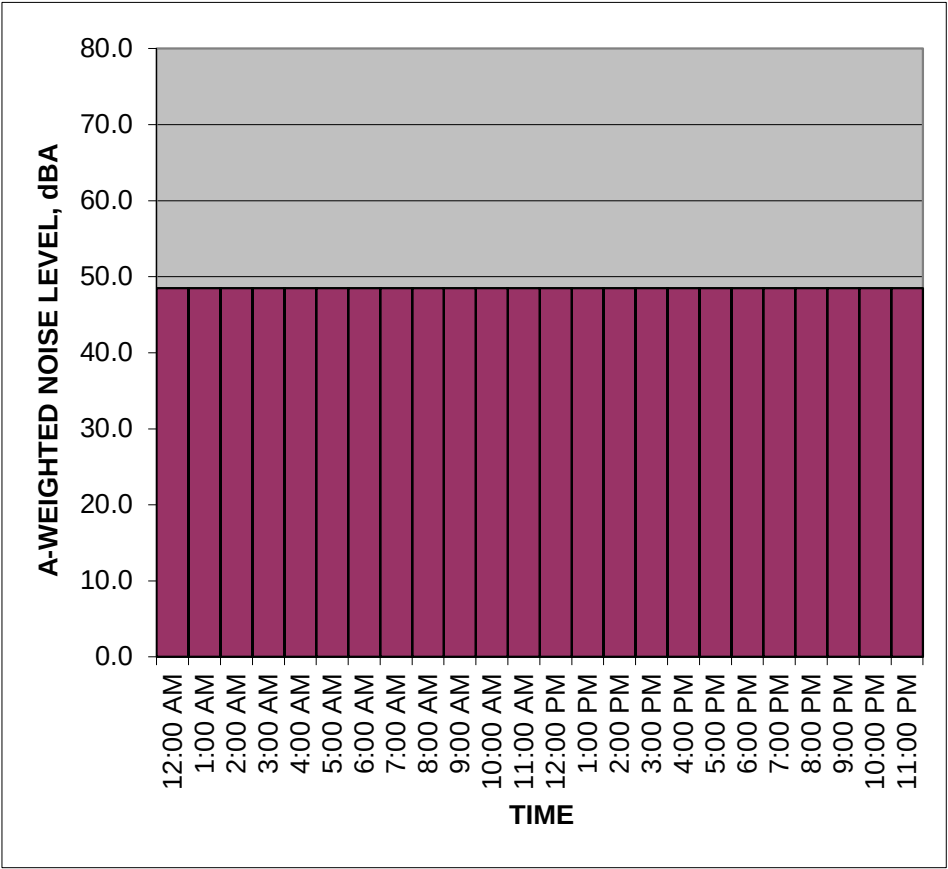
1 Mechanical equipment assumed to operate 24 hours a day. Open Spaces assumed to operate 7:00 AM - 10:00 PM.

2 Ambient CNEL calculated using CNEL calculator

CNEL Calculation

Project: 1155 N Las Palmas
Location: Adriadne Getty Sr Housing
Sources: Mechanical Equipment

TIME	HNL, dB(A)
12:00 AM	48.5
1:00 AM	48.5
2:00 AM	48.5
3:00 AM	48.5
4:00 AM	48.5
5:00 AM	48.5
6:00 AM	48.5
7:00 AM	48.5
8:00 AM	48.5
9:00 AM	48.5
10:00 AM	48.5
11:00 AM	48.5
12:00 PM	48.5
1:00 PM	48.5
2:00 PM	48.5
3:00 PM	48.5
4:00 PM	48.5
5:00 PM	48.5
6:00 PM	48.5
7:00 PM	48.5
8:00 PM	48.5
9:00 PM	48.5
10:00 PM	48.5
11:00 PM	48.5
CNEL, dB(A):	55.1

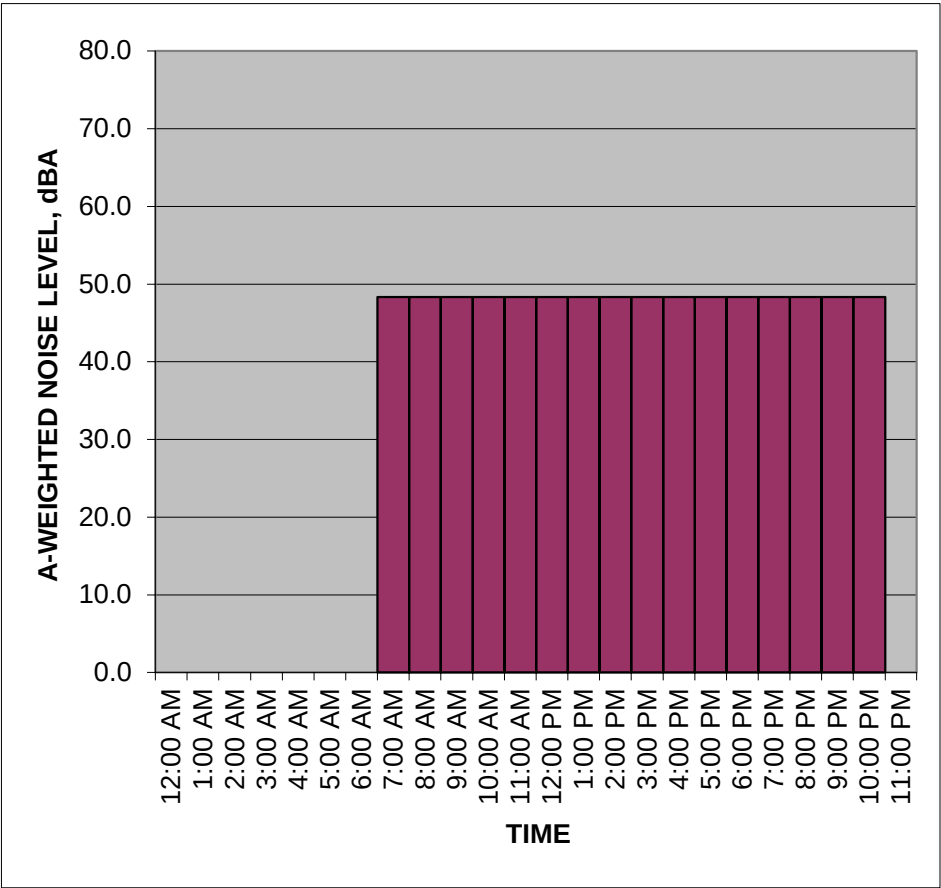


NOTES:

CNEL Calculation

Project: 1155 N Las Palmas
Location: Adriadne Getty Sr Housing
Sources: Open Space

TIME	HNL, dB(A)
12:00 AM	0.0
1:00 AM	0.0
2:00 AM	0.0
3:00 AM	0.0
4:00 AM	0.0
5:00 AM	0.0
6:00 AM	0.0
7:00 AM	48.3
8:00 AM	48.3
9:00 AM	48.3
10:00 AM	48.3
11:00 AM	48.3
12:00 PM	48.3
1:00 PM	48.3
2:00 PM	48.3
3:00 PM	48.3
4:00 PM	48.3
5:00 PM	48.3
6:00 PM	48.3
7:00 PM	48.3
8:00 PM	48.3
9:00 PM	48.3
10:00 PM	48.3
11:00 PM	0.0
CNEL, dB(A):	51.3



NOTES:

1155 N Las Palmas CNEL SUMMARY

Adriadne Getty Sr Housing

Open Spaces	51.3
Mechanical Equipment	55.1
Off-site Traffic	53.0
Composite	58.2 CNEL

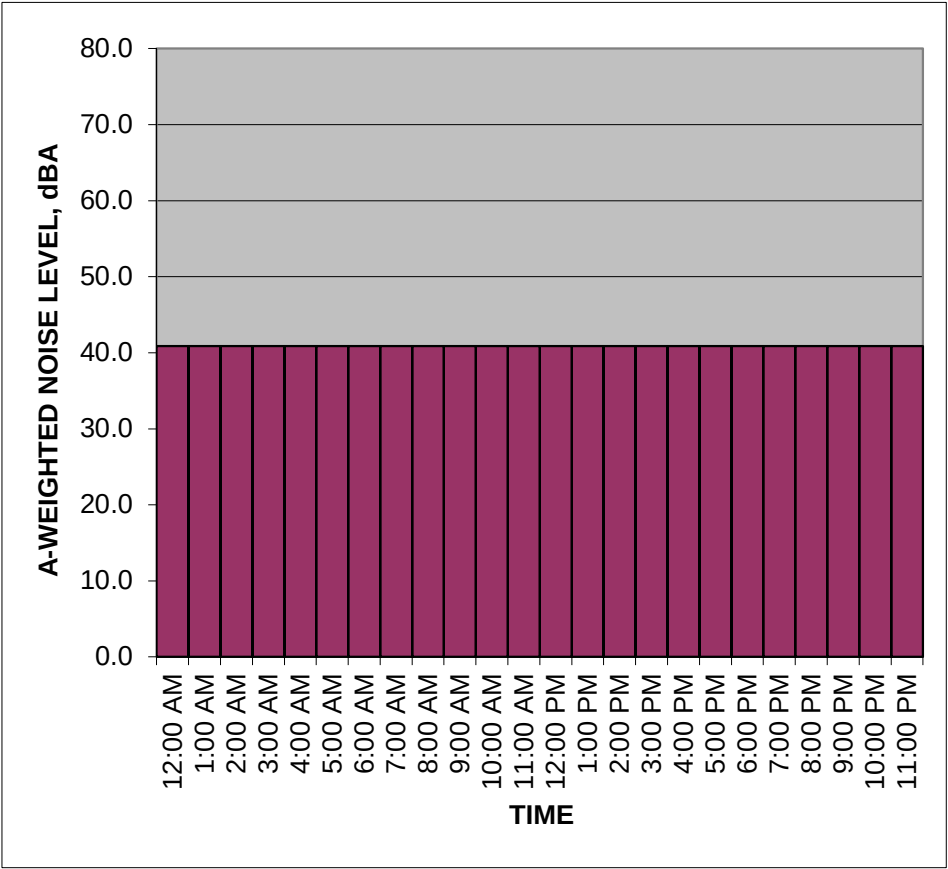
Traffic	Las Palmas
Existing	60.6
Existing + Project	61.3
	53.0

Formual to calculate traffic noise attributable to the Project:
= $10 * \log(10^{(\text{NoiseLevel2}/10)} - 10^{(\text{NoiseLevel1}/10)})$

CNEL Calculation

Project: 1155 N Las Palmas
Location: Lifeworks
Sources: Mechanical Equipment

TIME	HNL, dB(A)
12:00 AM	40.9
1:00 AM	40.9
2:00 AM	40.9
3:00 AM	40.9
4:00 AM	40.9
5:00 AM	40.9
6:00 AM	40.9
7:00 AM	40.9
8:00 AM	40.9
9:00 AM	40.9
10:00 AM	40.9
11:00 AM	40.9
12:00 PM	40.9
1:00 PM	40.9
2:00 PM	40.9
3:00 PM	40.9
4:00 PM	40.9
5:00 PM	40.9
6:00 PM	40.9
7:00 PM	40.9
8:00 PM	40.9
9:00 PM	40.9
10:00 PM	40.9
11:00 PM	40.9
CNEL, dB(A):	47.5

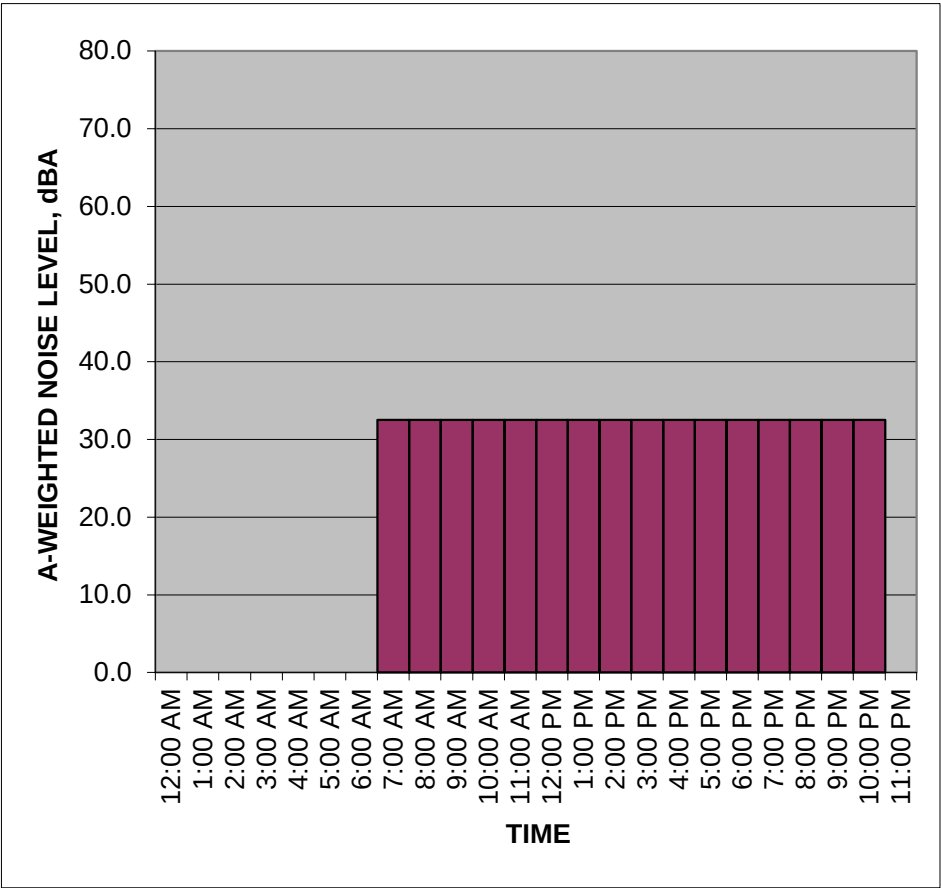


NOTES:

CNEL Calculation

Project: 1155 N Las Palmas
Location: Lifeworks
Sources: Open Space

TIME	HNL, dB(A)
12:00 AM	0.0
1:00 AM	0.0
2:00 AM	0.0
3:00 AM	0.0
4:00 AM	0.0
5:00 AM	0.0
6:00 AM	0.0
7:00 AM	32.5
8:00 AM	32.5
9:00 AM	32.5
10:00 AM	32.5
11:00 AM	32.5
12:00 PM	32.5
1:00 PM	32.5
2:00 PM	32.5
3:00 PM	32.5
4:00 PM	32.5
5:00 PM	32.5
6:00 PM	32.5
7:00 PM	32.5
8:00 PM	32.5
9:00 PM	32.5
10:00 PM	32.5
11:00 PM	0.0
CNEL, dB(A):	35.4



NOTES:

1155 N Las Palmas CNEL SUMMARY

Lifeworks

Open Spaces	35.4
Mechanical Equipment	47.5
Off-site Traffic	53.0
Composite	54.2 CNEL

54.2
54.2

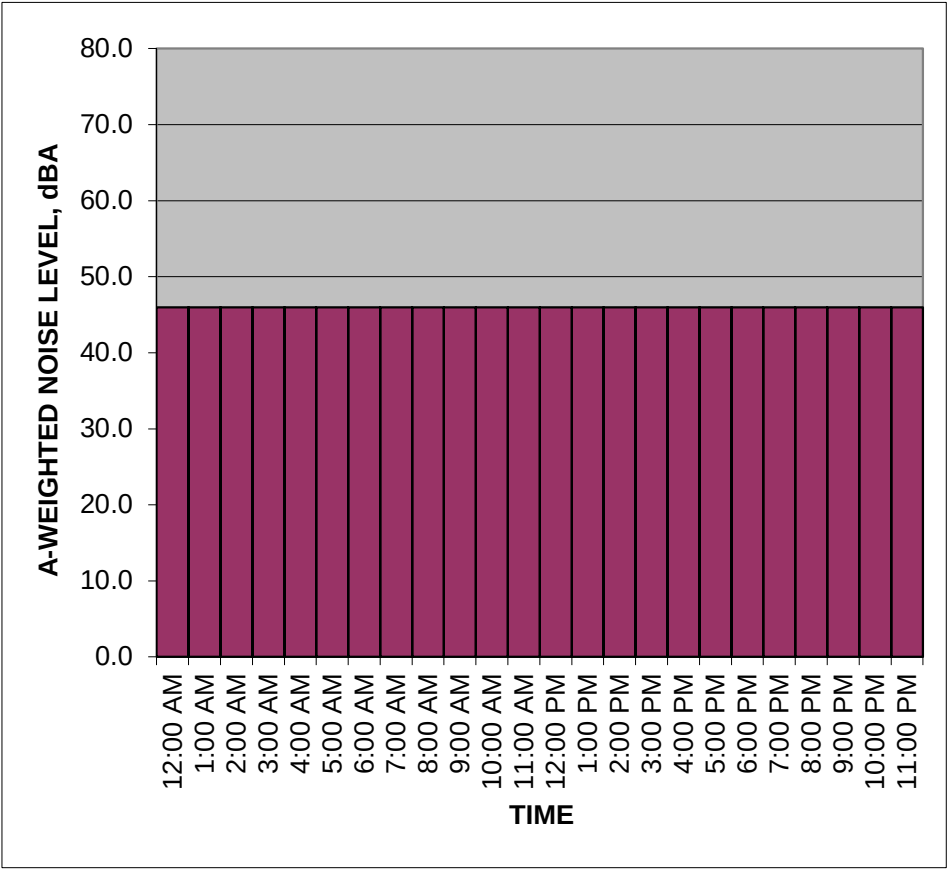
Traffic	Las Palmas
Existing	60.6
Existing + Project	61.3
	53.0

Formual to calculate traffic noise attributable to the Project:
 $= 10 * \log(10^{(NoiseLevel2/10)} - 10^{(NoiseLevel1/10)})$

CNEL Calculation

Project: 1155 N Las Palmas
Location: Sound Stages
Sources: Mechanical Equipment

TIME	HNL, dB(A)
12:00 AM	46.0
1:00 AM	46.0
2:00 AM	46.0
3:00 AM	46.0
4:00 AM	46.0
5:00 AM	46.0
6:00 AM	46.0
7:00 AM	46.0
8:00 AM	46.0
9:00 AM	46.0
10:00 AM	46.0
11:00 AM	46.0
12:00 PM	46.0
1:00 PM	46.0
2:00 PM	46.0
3:00 PM	46.0
4:00 PM	46.0
5:00 PM	46.0
6:00 PM	46.0
7:00 PM	46.0
8:00 PM	46.0
9:00 PM	46.0
10:00 PM	46.0
11:00 PM	46.0
CNEL, dB(A):	52.6

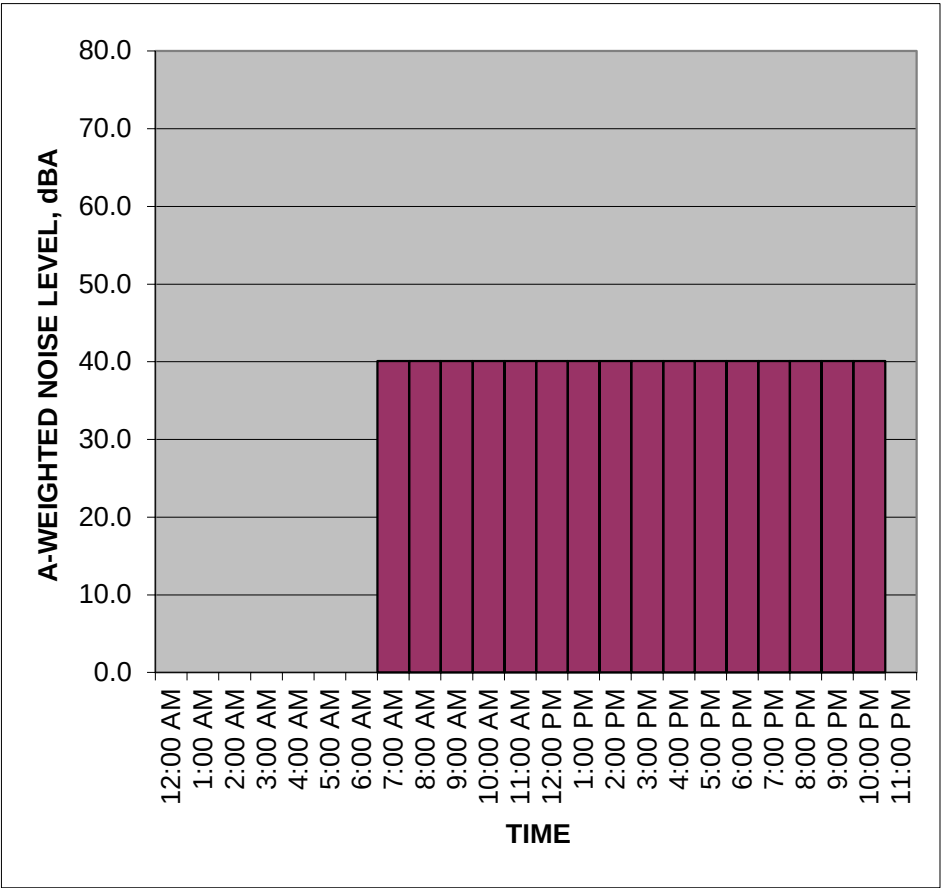


NOTES:

CNEL Calculation

Project: 1155 N Las Palmas
Location: Sound Stages
Sources: Open Space

TIME	HNL, dB(A)
12:00 AM	0.0
1:00 AM	0.0
2:00 AM	0.0
3:00 AM	0.0
4:00 AM	0.0
5:00 AM	0.0
6:00 AM	0.0
7:00 AM	40.1
8:00 AM	40.1
9:00 AM	40.1
10:00 AM	40.1
11:00 AM	40.1
12:00 PM	40.1
1:00 PM	40.1
2:00 PM	40.1
3:00 PM	40.1
4:00 PM	40.1
5:00 PM	40.1
6:00 PM	40.1
7:00 PM	40.1
8:00 PM	40.1
9:00 PM	40.1
10:00 PM	40.1
11:00 PM	0.0
CNEL, dB(A):	43.0



NOTES:

1155 N Las Palmas CNEL SUMMARY
Sound Stages

Open Spaces	43.0	
Mechanical Equipment	52.6	
Off-site Traffic	53.0	
Composite	56.1	CNEL

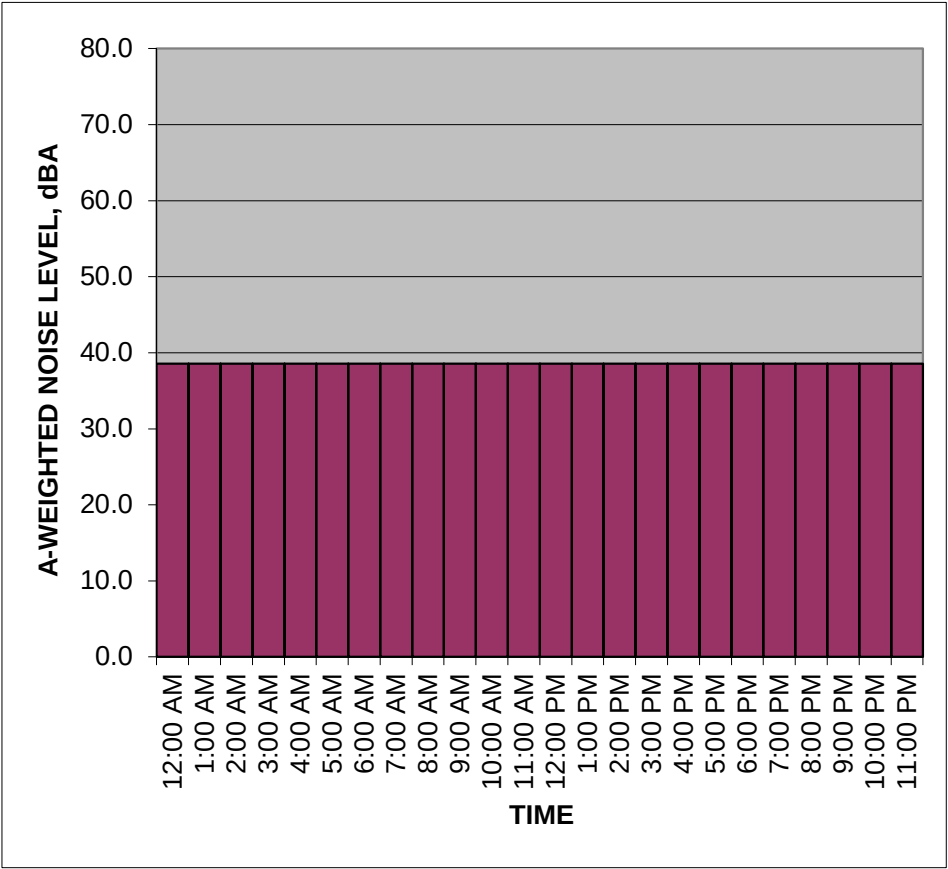
Traffic	Las Palmas
Existing	60.6
Existing + I	61.3
	53.0

Formual to calculate traffic noise attributable to the Project:
 $= 10 * \log(10^{(\text{NoiseLevel2}/10)} - 10^{(\text{NoiseLevel1}/10)})$

CNEL Calculation

Project: 1155 N Las Palmas
Location: Youth Housing
Sources: Mechanical Equipment

TIME	HNL, dB(A)
12:00 AM	38.6
1:00 AM	38.6
2:00 AM	38.6
3:00 AM	38.6
4:00 AM	38.6
5:00 AM	38.6
6:00 AM	38.6
7:00 AM	38.6
8:00 AM	38.6
9:00 AM	38.6
10:00 AM	38.6
11:00 AM	38.6
12:00 PM	38.6
1:00 PM	38.6
2:00 PM	38.6
3:00 PM	38.6
4:00 PM	38.6
5:00 PM	38.6
6:00 PM	38.6
7:00 PM	38.6
8:00 PM	38.6
9:00 PM	38.6
10:00 PM	38.6
11:00 PM	38.6
CNEL, dB(A):	45.2

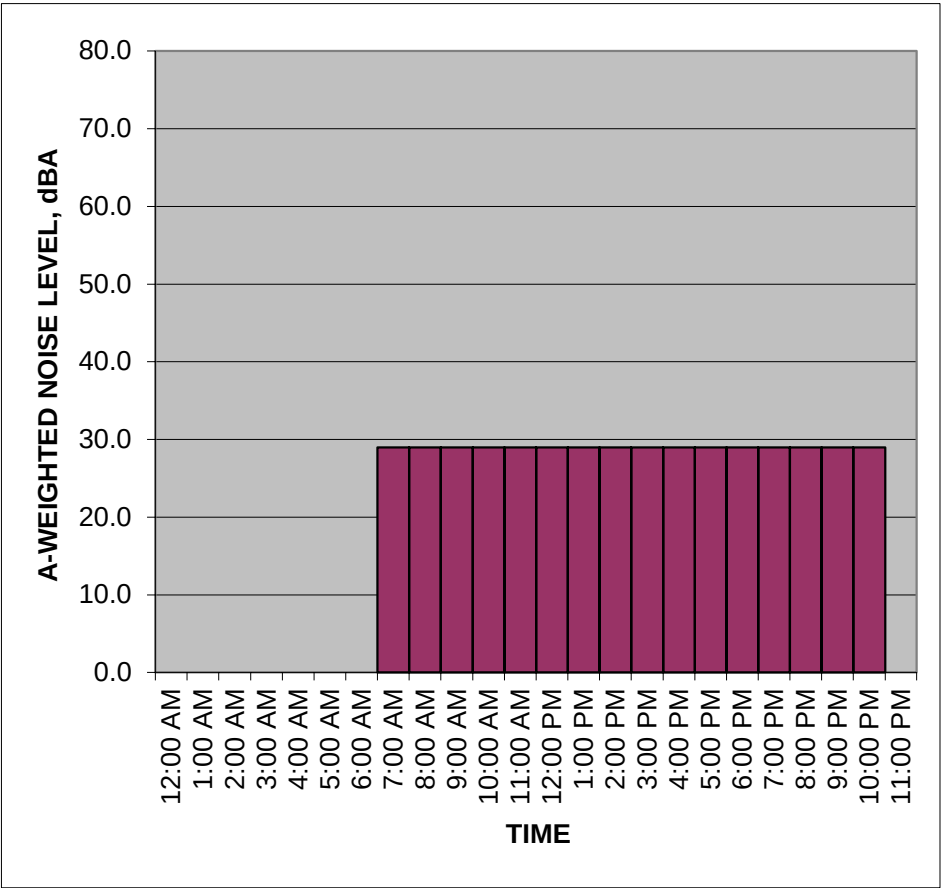


NOTES:

CNEL Calculation

Project: 1155 N Las Palmas
Location: Youth Housing
Sources: Open Space

TIME	HNL, dB(A)
12:00 AM	0.0
1:00 AM	0.0
2:00 AM	0.0
3:00 AM	0.0
4:00 AM	0.0
5:00 AM	0.0
6:00 AM	0.0
7:00 AM	29.0
8:00 AM	29.0
9:00 AM	29.0
10:00 AM	29.0
11:00 AM	29.0
12:00 PM	29.0
1:00 PM	29.0
2:00 PM	29.0
3:00 PM	29.0
4:00 PM	29.0
5:00 PM	29.0
6:00 PM	29.0
7:00 PM	29.0
8:00 PM	29.0
9:00 PM	29.0
10:00 PM	29.0
11:00 PM	0.0
CNEL, dB(A):	31.9



NOTES:

1155 N Las Palmas CNEL SUMMARY

Youth Housing

Open Spaces	31.9
Mechanical Equipment	45.2
Off-site Traffic	53.0
Composite	53.7 CNEL

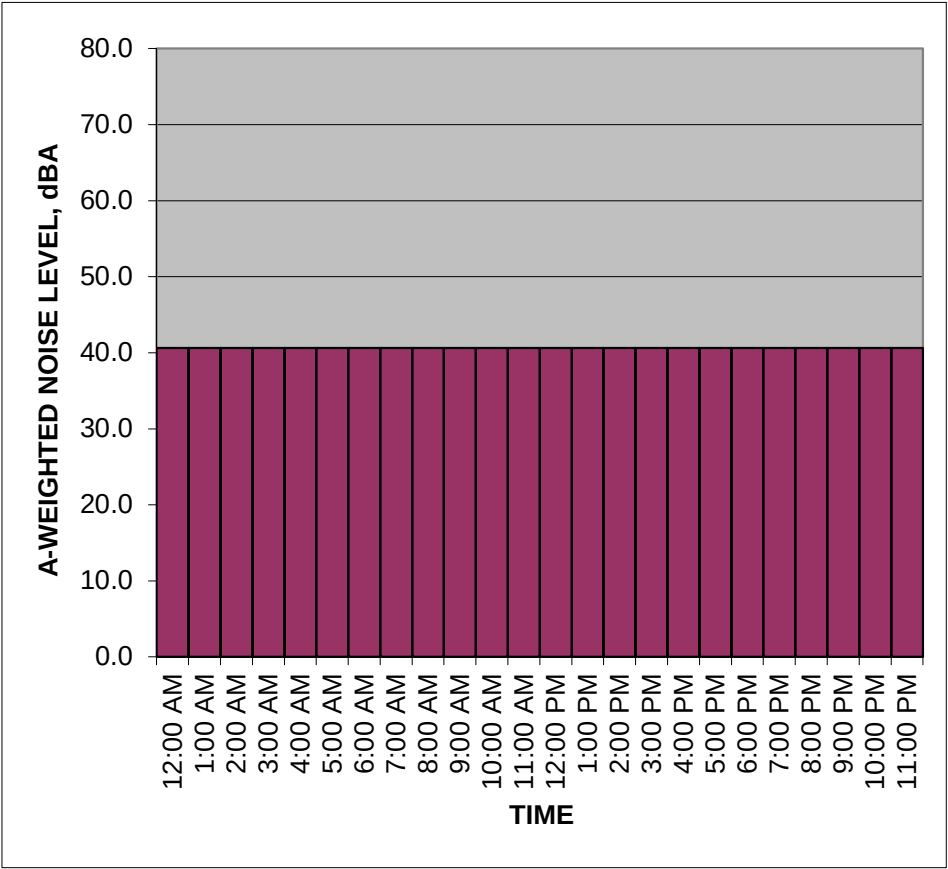
Traffic	Las Palmas
Existing	60.6
Existing + Project	61.3
	53.0

Formual to calculate traffic noise attributable to the Project:
 $= 10 * \log(10^{(\text{NoiseLevel2}/10)} - 10^{(\text{NoiseLevel1}/10)})$

CNEL Calculation

Project: 1155 Las Palmas
Location: Multifamily Residential N
Sources: Mechanical Equipment

TIME	HNL, dB(A)
12:00 AM	40.6
1:00 AM	40.6
2:00 AM	40.6
3:00 AM	40.6
4:00 AM	40.6
5:00 AM	40.6
6:00 AM	40.6
7:00 AM	40.6
8:00 AM	40.6
9:00 AM	40.6
10:00 AM	40.6
11:00 AM	40.6
12:00 PM	40.6
1:00 PM	40.6
2:00 PM	40.6
3:00 PM	40.6
4:00 PM	40.6
5:00 PM	40.6
6:00 PM	40.6
7:00 PM	40.6
8:00 PM	40.6
9:00 PM	40.6
10:00 PM	40.6
11:00 PM	40.6
CNEL, dB(A):	47.3

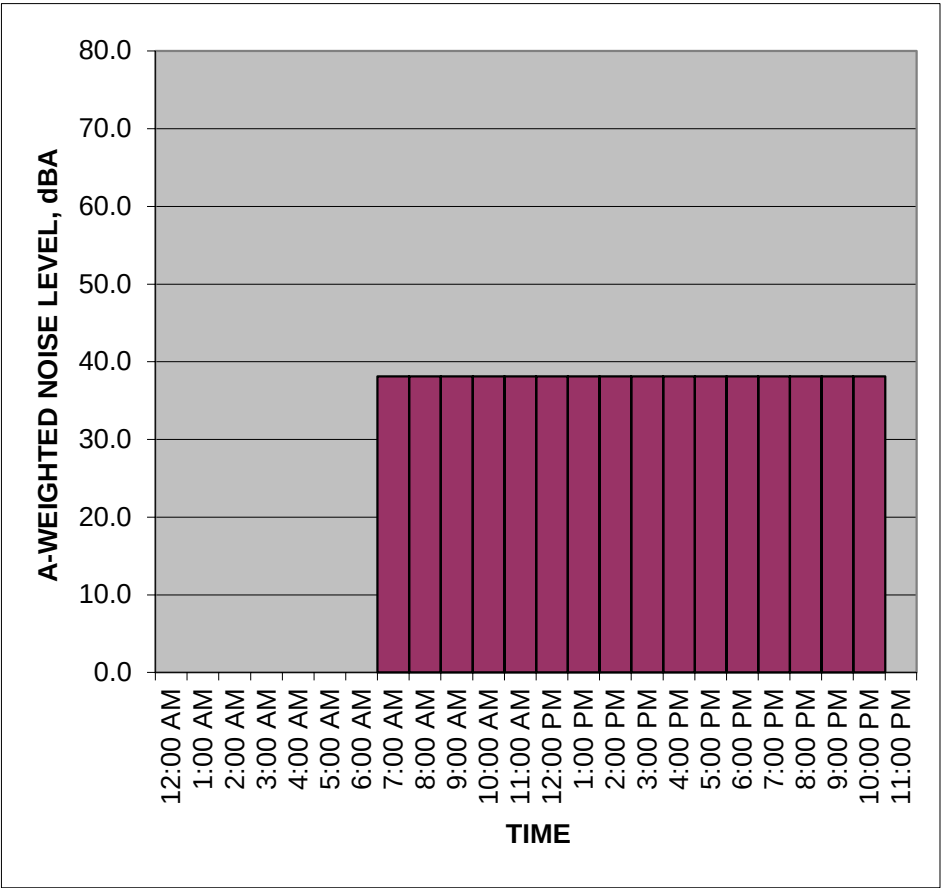


NOTES:

CNEL Calculation

Project: 1155 Las Palmas
Location: Multifamily Residential N
Sources: Open Space

TIME	HNL, dB(A)
12:00 AM	0.0
1:00 AM	0.0
2:00 AM	0.0
3:00 AM	0.0
4:00 AM	0.0
5:00 AM	0.0
6:00 AM	0.0
7:00 AM	38.1
8:00 AM	38.1
9:00 AM	38.1
10:00 AM	38.1
11:00 AM	38.1
12:00 PM	38.1
1:00 PM	38.1
2:00 PM	38.1
3:00 PM	38.1
4:00 PM	38.1
5:00 PM	38.1
6:00 PM	38.1
7:00 PM	38.1
8:00 PM	38.1
9:00 PM	38.1
10:00 PM	38.1
11:00 PM	0.0
CNEL, dB(A):	41.0



NOTES:

1155 Las Palmas CNEL SUMMARY

Multifamily Residential N

Open Spaces	41.0
Mechanical Equipment	47.3
Off-site Traffic	53.0
Composite	54.3

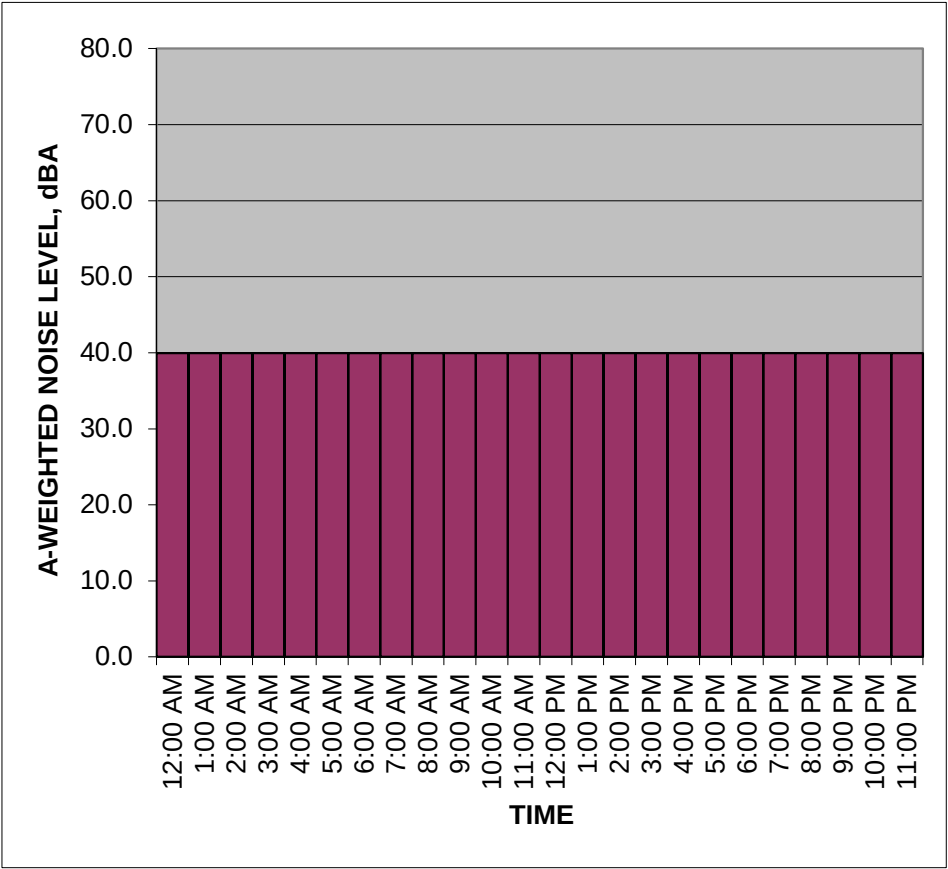
Traffic	Las Palmas
Existing	60.6
Existing + Project	61.3
	53.0

Formual to calculate traffic noise attributable to the Project:
= $10 \cdot \log(10^{(\text{NoiseLevel2}/10)} - 10^{(\text{NoiseLevel1}/10)})$

CNEL Calculation

Project: 1155 N Las Palmas
Location: Multifamily Residential S
Sources: Mechanical Equipment

TIME	HNL, dB(A)
12:00 AM	40.0
1:00 AM	40.0
2:00 AM	40.0
3:00 AM	40.0
4:00 AM	40.0
5:00 AM	40.0
6:00 AM	40.0
7:00 AM	40.0
8:00 AM	40.0
9:00 AM	40.0
10:00 AM	40.0
11:00 AM	40.0
12:00 PM	40.0
1:00 PM	40.0
2:00 PM	40.0
3:00 PM	40.0
4:00 PM	40.0
5:00 PM	40.0
6:00 PM	40.0
7:00 PM	40.0
8:00 PM	40.0
9:00 PM	40.0
10:00 PM	40.0
11:00 PM	40.0
CNEL, dB(A):	46.6

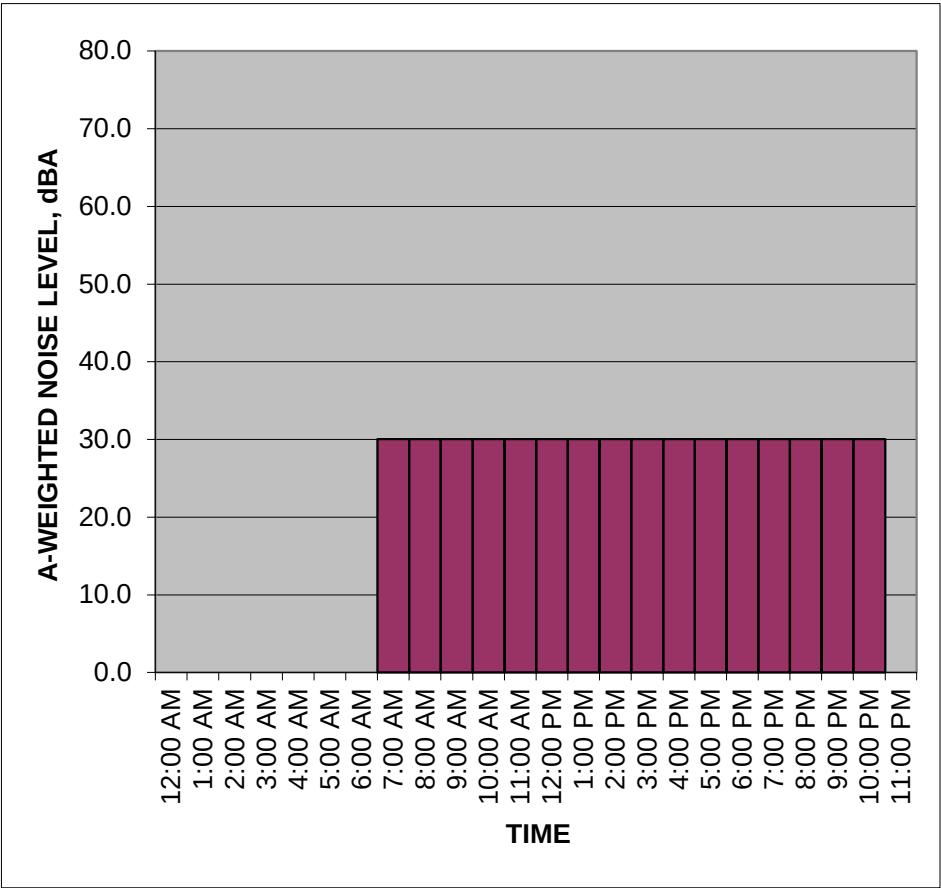


NOTES:

CNEL Calculation

Project: 1155 N Las Palmas
Location: Multifamily Residential S
Sources: Open Space

TIME	HNL, dB(A)
12:00 AM	0.0
1:00 AM	0.0
2:00 AM	0.0
3:00 AM	0.0
4:00 AM	0.0
5:00 AM	0.0
6:00 AM	0.0
7:00 AM	30.0
8:00 AM	30.0
9:00 AM	30.0
10:00 AM	30.0
11:00 AM	30.0
12:00 PM	30.0
1:00 PM	30.0
2:00 PM	30.0
3:00 PM	30.0
4:00 PM	30.0
5:00 PM	30.0
6:00 PM	30.0
7:00 PM	30.0
8:00 PM	30.0
9:00 PM	30.0
10:00 PM	30.0
11:00 PM	0.0
CNEL, dB(A):	33.0



NOTES:

1155 N Las Palmas CNEL SUMMARY

Multifamily Residential S

Open Spaces	33.0
Mechanical Equipment	46.6
Off-site Traffic	53.0
Composite	54.0

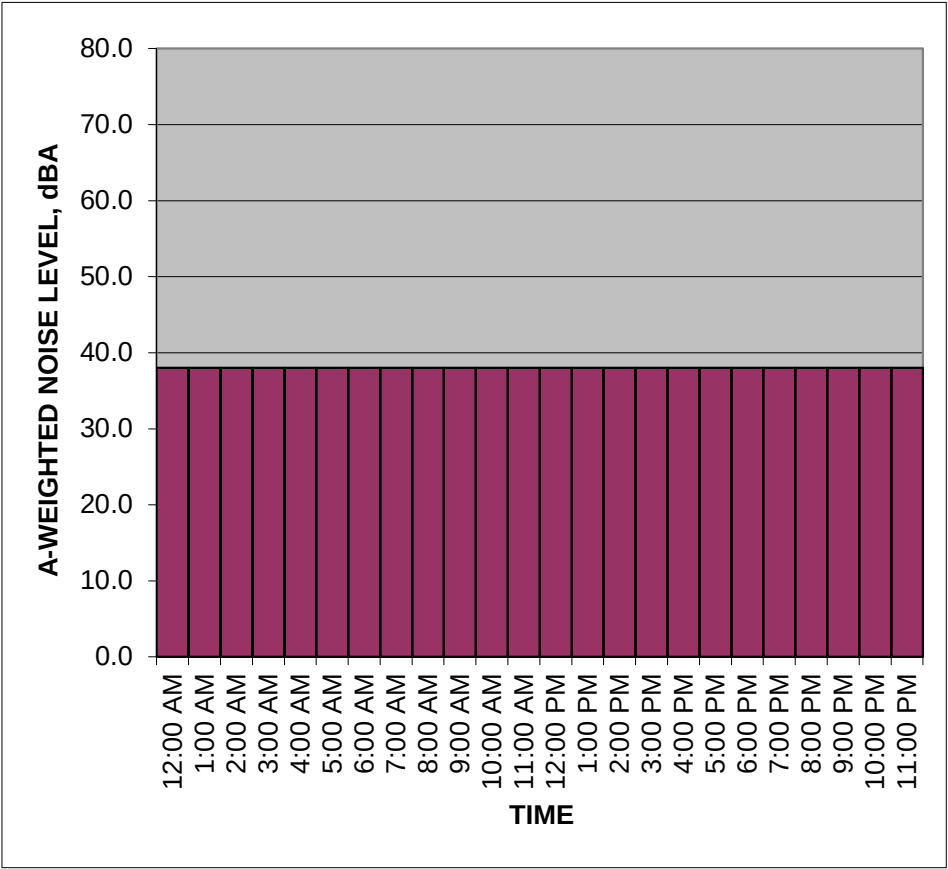
Traffic	Las Palmas
Existing	60.6
Existing + Project	61.3
	53.0

Formual to calculate traffic noise attributable to the Project:
= $10 \cdot \log(10^{(\text{NoiseLevel2}/10)} - 10^{(\text{NoiseLevel1}/10)})$

CNEL Calculation

Project: 1155 N Las Palmas
Location: Multifamily Residential E
Sources: Mechanical Equipment

TIME	HNL, dB(A)
12:00 AM	38.0
1:00 AM	38.0
2:00 AM	38.0
3:00 AM	38.0
4:00 AM	38.0
5:00 AM	38.0
6:00 AM	38.0
7:00 AM	38.0
8:00 AM	38.0
9:00 AM	38.0
10:00 AM	38.0
11:00 AM	38.0
12:00 PM	38.0
1:00 PM	38.0
2:00 PM	38.0
3:00 PM	38.0
4:00 PM	38.0
5:00 PM	38.0
6:00 PM	38.0
7:00 PM	38.0
8:00 PM	38.0
9:00 PM	38.0
10:00 PM	38.0
11:00 PM	38.0
CNEL, dB(A):	44.7

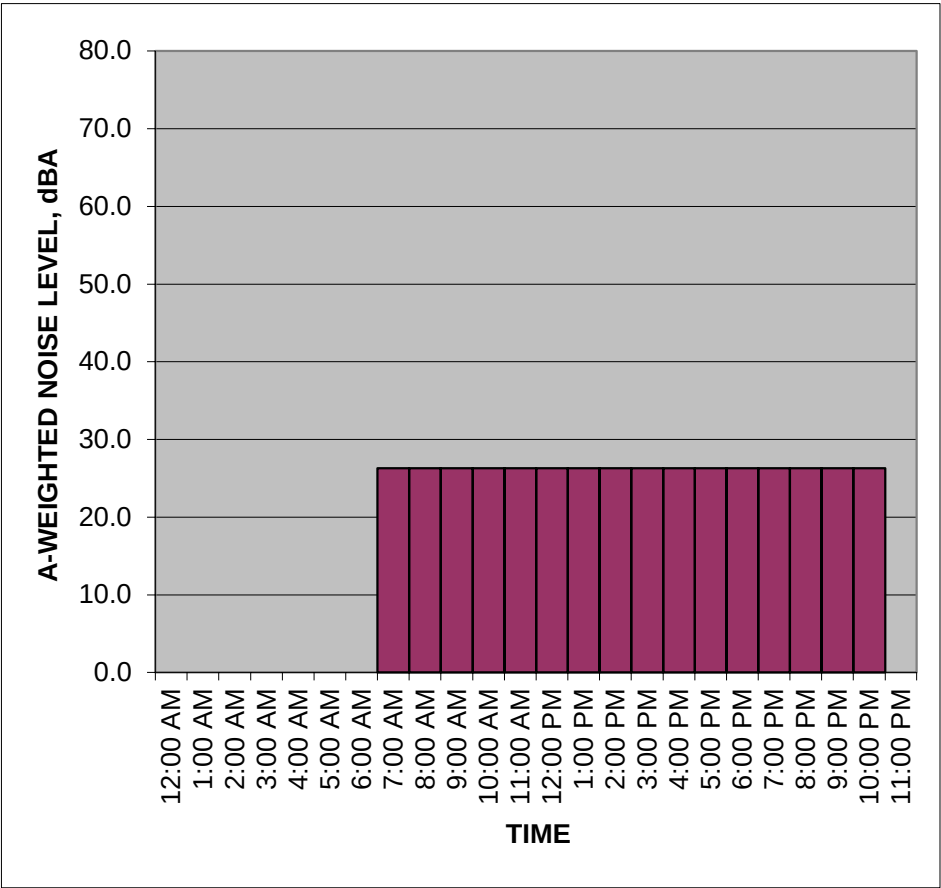


NOTES:

CNEL Calculation

Project: 1155 N Las Palmas
Location: Multifamily Residential E
Sources: Open Space

TIME	HNL, dB(A)
12:00 AM	0.0
1:00 AM	0.0
2:00 AM	0.0
3:00 AM	0.0
4:00 AM	0.0
5:00 AM	0.0
6:00 AM	0.0
7:00 AM	26.3
8:00 AM	26.3
9:00 AM	26.3
10:00 AM	26.3
11:00 AM	26.3
12:00 PM	26.3
1:00 PM	26.3
2:00 PM	26.3
3:00 PM	26.3
4:00 PM	26.3
5:00 PM	26.3
6:00 PM	26.3
7:00 PM	26.3
8:00 PM	26.3
9:00 PM	26.3
10:00 PM	26.3
11:00 PM	0.0
CNEL, dB(A):	29.2



NOTES:

1155 N Las Palmas CNEL SUMMARY

Multifamily Residential E

Open Spaces	29.2
Mechanical Equipment	44.7
Off-site Traffic	53.0
Composite	53.6

Traffic	Las Palmas
Existing	60.6
Existing + Project	61.3
	53.0

Formual to calculate traffic noise attributable to the Project:
 $= 10 * \log(10^{(\text{NoiseLevel2}/10)} - 10^{(\text{NoiseLevel1}/10)})$